

GOVERNMENT OF TELANGANA
FISHERIES DEPARTMENT

From,
R.Laxminaryana, M.Sc., HDCM,
District Fisheries Officer,
Medak District

To,
The In-Charge
Department of Zoology,
Tara Govt. College
Sangareddy District

Lr.No.05/Fish/Train/2017

Dated:18-09-2017.

Sir,

Sub:- Fisheries – Memorandum of understanding with Dept. of
Zoology, Tara Govt. College, Sangareddy - Reg
Ref:- In-Charge, Dept. of Zoology, Lr.No.474/TGS-SRD/2017,
Dt. 18-09-2017

With reference to the subject, I am glad to sing a Memorandum of understanding with Department of Zoology, to give training in the following topics related to Fisheries sector. The training would be given to B.Sc.(BZC) III year students every year a batch of (20) students in the following activities.

1. Maintenance of different types of ponds Nursury, Rearing and Stocking.
2. Preservation.
3. Process of induced breeding
4. Identifying the diseases fishes
5. Transport and Marketing

Yours faithfully


District Fisheries Officer
Medak District
No. 9.17

TARA GOVERNMENT COLLEGE (AUTONOMOUS)
SANGAREDDY

The following students were selected for training on following techniques as undertaken in the MoU with Department of Fisheries, Medak district.

1. Maintenance of different types of ponds, nursery, rearing and stocking techniques.
2. Preservation
3. Process of Induced breeding.
4. Identifying the diseases in fishes.
5. Transport and Marketing.

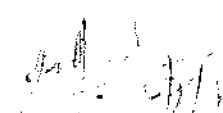
S.No	Name of the student	Roll No.	Course
1	A.Rajeshwari	605815445503	BZC III Year
2	A.Ravinder	605815445506	BZC III Year
3	B.Sandhya	605815445511	BZC III Year
4	B. Shashirekha	605815445515	BZC III Year
5	B. Rekha	605815445503	BZC III Year
6.	Ch. Shailaja	605815445516	BZC III Year
7.	Ch. Vittal	605815445517	BZC III Year
8.	D. Ananthalexmi	605815445523	BZC III Year
9.	E. Jyothi	605815445524	BZC III Year
10.	G.Ravi	605815445527	BZC III Year
11.	H. Harish	605815445530	BZC III Year
12.	J. Srikanth	605815445532	BZC III Year
13.	K. Sangeetha	605815445540	BZC III Year
14.	K. Bhavani	605815445543	BZC III Year
15.	M. Mamatha	605815445546	BZC III Year
16.	M. Jayamma	605815445554	BZC III Year
17.	M. Esther Rani	605815445555	BZC III Year
18.	T. Premalatha	605815445585	BZC III Year
19.	T. Sumathi	605815445586	BZC III Year
20	A.Brahmachary	605813445502	BZC III Year

Luvu Sany
Head
Department of Zoology
Tara Govt. College
Sangareddy - 502 001

**Government of Telangana
Commissionerate of Collegiate Education**

Attendance Certificate

This is to certify that Sri Shankar Naik, Assistant Professor of Public Administration, Tara GDC, Sangareddy has attended duty at O/o CCE from **18 to 27 January, 2018**. He was assigned to coordinate the Jignasa- State Level Presentations of Student Study Projects- 2017-18 as **Coordinator of Tour Committee**. His absence in the College shall be treated as **ON DUTY**.


For Commissioner of Collegiate Education

Hyderabad
21.01.2018



TELANGANA TRIBAL WELFARE RESIDENTIAL DEGREE COLLEGE (MEN) SANGAREDDY

LETTER OF APPRECIATION

This Certificate is awarded to

Dr. A.V. SHARMA, HOD, ENGLISH

In Appreciation for contributing your service towards the development of Tribal Students of TTWRDC(M) Sangareddy.

On behalf of the Students, We the Staff and The Principal express our Sincere Thanks.

AS
12/12/19
Principal
TTWRDC (MEN) Sangareddy
College Code: 6097

GOVT. DEGREE COLLEGE FOR WOMEN, SIDDIPET

CERTIFICATE OF ACKNOWLEDGEMENT

This is to certify that Sri. A. Vishweshwara Sharma, Assistant Professor of English, Tara Government Degree College, Sangareddy has attended this college on 25/01/2020 as a Resource Person and delivered an Extensive talk on NAAC preparatory works. This certificate is issued as token of acknowledgement of his Service at our college.

Date : 25/01/2020,

Place : SIDDIPET.



Principal

Govt. Degree College for Women
SILIPET, Dist: Siddipet-502103.



GOVT. DEGREE COLLEGE FOR WOMEN,
SIDDIPET, SIDDIPET DIST.

ATTENDANCE CERTIFICATE

Date: 31/01/2020

This is to certify that Sri **A. Vishweshwara Sharma**, Assistant Professor of English, at **TARA GOVERNMENT COLLEGE SANGAREDDY(A)** has attended the college from **28/01/2020 to 31/01/2020** to guide the Staff in its uploading of **SSR** for its first cycle .

The incumbent's services are exemplary. The undersigned expresses pleasure at the way the incumbent has extended his services. This Certificate has the reference of the **commissioner of collegiate Education, Telangana State Proc. File No. CCE-AC/QLTY/NAAC/2/2018-ACADEMIC CELL**

S. Pringla
Principal
Govt. Degree College for Women
SIDDIPET, Dist: Siddipet-502103.

File No.CCE-AC/QLTY/NAAC/2/2018-ACADEMIC CELL

**PROCEEDINGS OF COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA
PRESENT: SRI.NAVIN MITTAL, IAS.**

Sub:- Accreditation of GDCs-New system of Assessment by NAAC- Status
of preparation for NAAC Reaccreditation-Visits to certain GDCs-Reg.
Ref:- CCE-AC/QLTY/NAAC/2/2018-ACADEMIC CELL

Vide reference read, certain GDCs due for NAAC reaccreditation have submitted the status of preparation to the Commissioner of Collegiate Education. In this connection, GDC (W) Siddipet has submitted IIQA and is preparing SSR for fresh accreditation.

In view of the above, Principal, GDC (W) Siddipet has requested Commissioner, Collegiate Education for the guidance of Sri.A.Vishweswara Sharma, Asst. Professor of English, GDC (A) Sangareddy, in the submission of data on College website from 28th to 31st January 2020.

In this connection, Principal, GDC (A) Sangareddy is informed that the absence of above mentioned faculty shall be considered as ON DUTY.

The faculty visiting the college have to submit the report on the actual status of preparation in respective GDC on or before 03.02.2020.

Signature valid

Digitally signed by PODILA BALA BHASKAR
Date: 2020.01.31 10:49:51 IST
Reason: Approved

For Commissioner of Collegiate Education

To
The Principals of GDCs concerned

*Sharma
Sis*
Pi
1.2.2020

Govt. Model Degree College
Narayankhed, Dist : Sangareddy



Date: 15/02/2020

ATTENDANCE CERTIFICATE

This is to certify that Sri A. Vishweshwara Sharma, Asst Prof of English, Tara Govt. College (Autonomous) Sangareddy has delivered a lecture on "*Preparation of Records and SSR*" on 15-02-2020 at Govt. Model Degree College- Narayankhed, Has part of the Orientation programme conducted by the IQAC of the College. His class is excellent.


Principal
Principal
Govt Degree College
Narayankhed
Sangareddy Dist 502288 T S



TO WHOM SO EVER IT MAY CONCERN

This is to certify that A. Vishweshwara Sharma, Assistant Professor of English, Tara Govt. College, Sangareddy (A) has attended the Confidential work at O/o TSPSC, Nampally, Hyderabad, Telangana State for three (3) days i.e., from 23/11/2020 to 25/11/2020.

This is for information.


25/11/2020
**ASSISTANT SECRETARY
TSPSC: HYDERABAD.**



Enter to Learn

Leave to Serve



S.R & B.G.N.R. Government Arts & Science College

(An Autonomous College under the Jurisdiction of Kakatiya University - Warangal)

Re-Accredited at B⁺⁺ by NAAC, Bengaluru & an ISO 9001:2015 Certified Institution

KHAMMAM - 507 002, TELANGANA STATE

Estd: 1956

Mr. K.S.S. RATNAPRASAD., M.A., PGDTE. Principal (FAC)

Office: 08742-298876, Mobile: 91548 06767, E-mail: khammamrsgnr.jkc@gmail.com

CERTIFICATE

This is to certify that, Sri. A. Vishweshwara Sharma, Assistant Professor of English, the Dept. of English, TARA Government College (Autonomous), Sangareddy, has delivered an Extension Lecture on "QUALITATIVE & QUANTITATIVE METRICS OF NAAC" a one-day National Webinar, through Google Meet, the on-line platform as a Resource Person on 29-01-2021, hosted by the IQAC of our College.

The Participants are enriched with ^{his} your Aura of insights & Speech



K.S.S. Ratnaprasad
PRINCIPAL,
Chairperson of the Webinar
PRINCIPAL (FAC)
SR&BGNR Govt. Arts&Science
College (A), Khammam

01/01/20
02/02/2021
Qy

Organizers: The College IQAC

Certificate of Appreciation

This is to certify that Sri A. Vishweshwara Sharma, who has been working as an Assistant Professor of English, delivered an extension lecture on "Gender Sensitisation" to the stakeholders of Mahitha Sangareddy on 2 February 2021. The programme was an initiative of orientation programmes for the staff. The incumbent has got good feedback as his lecture was termed exemplary.

Signature of the Project Director



**A B V GOVERNMENT DEGREE COLLEGE JANGAON, DT.
JANGAON**

Accredited by NAAC 'B' Grade

Affiliated to Kakatiya University, Warangal
E-mail: Warangal.jgnjkc@gmail.com

Accredited by NAAC 'B' Grade
Phone No. : 08716-220044

ATTENDANCE CERTIFICATE

Date: 07-01-2021

This is to certify that **Sri.A.Vishweshwara Sharma**, Assistant Professor of English TARA Government College(A), Sangareddy has conducted an orientation session to the faculty of the college on 07-01-2021 on "**NAAC PEER TEAM VISIT**" and gave valuable suggestions for the successful conduct of PEER TEAM VISIT scheduled on 03-02-2021 and 04-02-2021.


**Principal
Principal**
ABV Govt. Degree College
JANGAON, Dist: JANGAON



GOVERNMENT DEGREE COLLEGE FOR WOMEN

(Affiliated to Osmania University & Accredited by NAAC with 'B' grade)

SANGAREDDY-502 001, SANGAREDDY (Dist.), T.S.



Dr. Humera Sayeed, M.A., Ph.D.
Principal(FAC)

Phone No: 918455 277312
E-mail: gdcwsrd.jkc@gmail.com

APPRECIATION CERTIFICATE

I am happy to announce that the services rendered by Sri. A.V.Sharma, *Asst. Prof. of English* of Tara Government Degree College (A), Sangareddy Telangana towards the "Motivation lecture on NAAC awareness" being organized by IQAC of our college on 9th February 2021. His contribution in this regard is highly appreciated. Since we are going to conduct such many more programmes in the future, we expect for the same kind of contribution and enthusiasm.


PRINCIPAL
Govt. Degree College for Women,
Sangareddy.



GOVERNMENT DEGREE COLLEGE FOR WOMEN

(Affiliated to Osmania University & Accredited by NAAC with 'B' grade)

SANGAREDDY-502 001, SANGAREDDY (Dist.), T.S.



Dr. Humera Sayeed, M.A., Ph.D.
Principal (FAC)

Phone No: 918455 277312
E-mail: gdcwsrd.jkc@gmail.com

CERTIFICATE OF APPRECIATION

This is to certify that A. Vishweswara Sharma, Assistant Professor of English of TARA Government College Sangareddy (Autonomous) has attended as a Resource Person to deliver an Extension lecture on 09.02.2021 held at Government Degree College for Women, Sangareddy, and has given a talk on **NAAC preparation**. His services are appreciable.

PRINCIPAL

Govt. Degree College for Women,
Sangareddy



GOVERNMENT DEGREE COLLEGE FOR WOMEN

(Affiliated to Osmania University & Accredited by NAAC with 'B' grade)

SANGAREDDY-502 001, SANGAREDDY (Dist.), T.S.



Dr. Humera Sayeed, M.A., Ph.D.
Principal(FAC)

Phone No: 918455 277312
E-mail: gdcwsrd.jkc@gmail.com

To
The Principal,
TARA Govt. Degree College,
Sangareddy,
Dist. Sangareddy.

Respected Sir/Madam,


Sub: GDC(W) Sangareddy-NAAC-Awareness program- A.V.Sharma -Resource person -Request-Regarding.

With reference to the subject cited above, as we are going for NAAC this year, we would like to organize an awareness program for our faculty on 9th February 2021 and we would like to invite A.V.Sharma. Asst. Prof. of English as a resource person. Hence, I humbly request you to permit A.V.Sharma to be the resource person.

Looking forward to hearing from you soon.

Thanking you,

Yours faithfully,


PRINCIPAL
Govt. Degree College for Women,
Sangareddy.
Sangareddy.



GOVERNMENT DEGREE COLLEGE FOR WOMEN

(Affiliated to Osmania University & Accredited by NAAC with 'B' grade)

SANGAREDDY-502 001, SANGAREDDY (Dist.), T.S.



Dr. Humera Sayeed, M.A., Ph.D.
Principal(FAC)

Phone No: 918455 277312
E-mail: gdcwsrd.jkc@gmail.com

To
The Principal,
TARA Govt. Degree College,
Sangareddy,
Dist. Sangareddy.

Respected Sir/Madam,

Sub: GDC(W) Sangareddy-NAAC-Awareness program- A.V.Sharma -Resource person -Request-Regarding.

With reference to the subject cited above, as we are going for NAAC this year, we would like to organize an awareness program for our faculty on 9th February 2021 and we would like to invite A.V.Sharma. Asst. Prof. of English as a resource person. Hence, I humbly request you to permit A.V.Sharma to be the resource person.

Looking forward to hearing from you soon.

Thanking you,

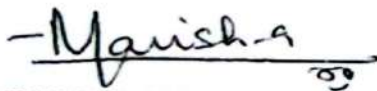
Yours faithfully,


PRINCIPAL
Govt. Degree College for Women,
Sangareddy.

CERTIFICATE OF PARTICIPATION

THIS IS PRESENTED TO
A Vishweshwara Sharma

Congratulations for successfully completing
Faculty Development Enablement Program
organized by **Infosys Limited**
from 22-24 February 2021



MANISHA SABOO

AVP- DELIVERY HEAD &
DC HEAD OF HYD SEZ



NIVAS P C S

LEAD
LEARNING &
DEVELOPMENT, ETA





GOVERNMENT DEGREE COLLEGE (W) SANGAREDDY



CERTIFICATE OF APPRECIATION

14 Aug 2021

This is to certify that **Mr. A. Vishweshwara Sharma**, Assistant Professor of English of **TARA Government college, Sangareddy (A)**, delivered an extension lecture on **“Holistic and Multi-disciplinary education”** to the staff and students on 14 August 2021. The services of the resource person are highly appreciable and we wish him very best in his endeavour.

The webinar was organized by UGC committee of the college. The lecture was organized as part of the UGC's initiative 'One year of Transformative Reforms under NEP,2020 (D.O.No.F.1-3/2021 (QIP) dated 29 July 2021).


Convener


Principal
PRINCIPAL
Govt. Degree College (W)
Sangareddy.



GOVERNMENT DEGREE COLLEGE SADASIVPET
CERTIFICATE OF APPRECIATION



06 Aug 2021

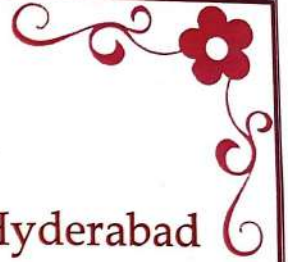
This is to certify that Mr. A. Vishweshwara Sharma, Assistant Professor of English of TARA Government college, Sangareddy (A), delivered an extension lecture on "Holistic and Multi-disciplinary education" to the staff and students on 02 August 2021. The services of the resource person are highly appreciated and we wish him very best in his endeavour.

The webinar was organized by the Department of Chemistry of the college. The lecture series was organized as part of the UGC's initiative 'One year of Transformative Reforms under NEP,2020 (D.O.No.F.1-3/2021 (QIP) dated 29 July 2021).


Convener


Principal
PRINCIPAL
Govt. Degree College
Sadasivpet, Dist. Sangareddy.

ज्ञान-विज्ञान-विस्तारये



BJR Government Degree College Narayanaguda, Hyderabad

(Affiliated to Osmania University)

An ISO 9001: 2015 certified college

Certificate of Appreciation

This is to certify that Sri A. Vishweswara Sharma, Assistant Professor of English at Tara Government College Sangareddy (A), has delivered an **extension lecture** on "**Conversation Skills**" for UG semester II students on **25 September 2021**. The extension lecture was organized by the Department of English. The lecture has got good feedback.

This certificate is issued to him as a token of appreciation for his services to the students and college. We wish him best in his endeavour.

N. L. Neelima
In-Charge

Department of English

Geetha Dahanu

Principal
PRINCIPAL
BJR Govt. Degree College
Vittalwadi, Narayanaguda
Hyderabad, T.S.-29.



BJR Government Degree College Narayanaguda, Hyderabad

(Affiliated to Osmania University)

An ISO 9001: 2015 certified college

Certificate of Appreciation

This is to certify that Sri A. Vishweswara Sharma, Assistant Professor of English at Tara Government College Sangareddy (A), has conducted a workshop on **"NAAC AWARENESS"** for teaching staff of the college on **25 September 2021**. The workshop was organized by **Internal Quality Assurance Cell (IQAC)** of the college. The incumbent has got excellent feedback.

This certificate is issued to him as a token of appreciation for his services to the stakeholders of the college.

V. V. Mall
Coordinator

Internal Quality Assurance Cell

Geetha Dahanu

Principal
PRINCIPAL

BJR Govt. Degree College
Vitalwadi, Narayanaguda,
Hyderabad, T.S.-29.



GOVERNMENT DEGREE COLLEGE, TANDUR,
VIKARABAD DISTRICT
TELANGANA – 501141

(Estd : 2008 affiliated to Osmania University)

Date: 22-02-2022

ATTENDANCE CERTIFICATE

This is to certify that A.Vishweshwara Sharma, Assistant Professor of English, Tara Government Degree College, Sangareddy has attended Government Degree College, Tandur, Vikarabad District for giving training to staff on NAAC procedures on 22-02-2022.

PRINCIPAL

M.R.A.M.

PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist
Pin Code: 501141



GOVERNMENT DEGREE COLLEGE FOR WOMEN

(Affiliated to Osmania University & Accredited by NAAC with 'B' grade)

SANGAREDDY-502 001, SANGAREDDY (Dist.), T.S.

Dr. Humera Sayeed, M.A., Ph.D.
Principal (FAC)

Mobile: 9154806840
E-mail: gdcwsrd.jkc@gmail.com

15th March 2022

Certificate of Appreciation

This is to certify that Sri. A.Vishweshwara Sharma, IQAC coordinator, Tara GDC(A), Sangareddy attended our college on 15th March 2022 as a resource person to address and guide the faculty of our college regarding NAAC preparation and impeccable presentation on. We are very glad with his presence and wholeheartedly appreciate the guidance provided to us.

PRINCIPAL

Principal

Govt. Degree College for Women
Sangareddy- 502 001 (T.S)



GOVERNMENT DEGREE COLLEGE, TANDUR,
VIKARABAD DISTRICT
TELANGANA – 501141

(Estd : 2008 affiliated to Osmania University)

Date: 22-02-2022

ATTENDANCE CERTIFICATE

This is to certify that A.Vishweshwara Sharma, Assistant Professor of English, Tara Government Degree College, Sangareddy has attended Government Degree College, Tandur, Vikarabad District for giving training to staff on NAAC procedures on 22-02-2022.

PRINCIPAL

M RAO

PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist
Pin Code: 501141



**TELANGANA SOCIAL WELFARE RESIDENTIAL DEGREE
COLLEGE OF COMMERCE FOR WOMEN SANGAREDDY
AT BUDHERA**



CERTIFICATE OF APPRECIATION

This is to certify that **Sri.A.Vishweshwara Sharma, Asst.Prof of English**, at **Tara Government College Sangareddy (A)**, has attended the college on **21.06.2022** in the capacity of Resource Person for the Faculty Development Programme Conducted for staff of the college on **NAAC Accreditation**.

The Resource Person got excellent feedback. We thank him for his services.


PRINCIPAL
PRINCIPAL
TSWRDC (W) SANGAREDDY
Sangareddy Dist.

GOVERNMENT OF TELANGANA
PROCEEDINGS OF THE RETURNING OFFICER, 39-SANGAREDDY ASSEMBLY CONSTITUENCY AND
REVENUE DIVISIONAL OFFICER, SANGAREDDY.

PRESENT: **SRI S.SREENU**

Proc. No. C/17020/2018

Dated:23-11-2018.

Sub: - GENERAL ELECTIONS 2018 – General Elections toTSLA in 39-Sangareddy
Assembly Constituency– Allotment of various duties at distribution and
reception centers – Orders – Issued.

ORDER:

In view of the General Elections to 39-Sanbgareddy Assembly Constituency the persons shown in the Annexure – I are made in charges for the counters shown against their names for the distribution of materials to the polling personnel and the persons shown in Annexure – II are made in charges for the counters noted against their names for receipt of material from the polling personnel. The details of Polling stations allotted to each counter are noted against their names.

All the staff members shown in Annexure-I & II should be present at the Distribution centre i.e., Dr.B.R.Ambedkar Stadium Grounds, Sangareddy on **05-12-2018 at 11-00 AM** before the undersigned, check the material and will present at distribution centre on **06-12-2018** at 7.00 AM attend and see that the material allotted to the polling stations of their counters should be issued to the polling personnel concerned. On **07-12-2018** after completion of poll the personnel and material will be received at reception centre. Therefore the staff drafted in Annexure – II should report before the undersigned on **07-12-2018** by 4.00 PM at reception centre i.e., Dr.B.R.Ambedkar Stadium Grounds, Sangareddy and receive the material from the polling personnel of the polling stations allotted to them. The acknowledgement of the Electronic Voting Machines, VVPATs and other material should be issued to Polling Personnel after thorough verification.

Any deviation in the matter not only liable for disciplinary action under C.C.A Rules, but also offence under Election Law.

End: (2)

To
All Concerned.

Copy submitted to the District Collector & District Election Officer, Sangareddy for information.


Returning Officer,
39-Sangareddy Assembly Constituency &
Revenue Divisional Officer, Sangareddy.

Hands on experience		
5.	1. K.Sreedhar, Asst. Prof. Tara Govt.College, Srd. 2. A.Vishweshwar Sharma, Asst. Prof. Tara Govt.College, Srd. 3. Govindaram Principal, GJC(B) Srd.	Display of the DVD and training to Polling Personnel on usage of EVM.
VEHICLE IN-CHARGES		
6.	1. Balaraju, DT RDO's Office , Sangareddy. 2.Srinivas, Sr.Asst. T.O Sangareddy. 4. Jawan Narsimulu, VRO Sangareddy. 5. Srikanth, VRA, Ismailkhanpet.	Allotment of Busses Route wise and pasting routes on wind shield and all other officers of Election duty, obtaining trip sheets, maintenance of all accounts, providing of fuel etc., and all other connected work of vehicles till relieved.
7.	1.Vishnu Dy.Tahr O/o T.O. S.S.Pet. 2.Yadaiah, VRO 3. Mollaiah, VRO 4. Aizaj, Girdavar-I Sangareddy. 5.Harichandra Prasad, Girdavar-II, Sadasivapet	Obtaining the attendance & correspondence of Micro observers , web casting and video graphers allotment of PS wise

8. COUNTER FOR DISTRIBUTION OF POLLING MATERIAL					
Sl. No	Name of the in-charge		Route No.	Polling stations allotted	No.of P.S covered
1	Srinivas, Panchayath Secretary, Kondapur.	Incharge for Statutory material	I	19, 190, 18, 16, 12, 13, 14, 15, 3, 1, 2, 4	12
	Nagaraju, VRO, Sadasivapet. (2) V.R.As.	Incharge for Non-Statutory material			
2	Kum.Jyotshna, Girdavar-I, T.O. Sadasivapet.	Incharge for Statutory material	II	198, 199, 200, 197, 196, 195, 193, 194, 191, 192, 17	11
	Naveen, VRO Sadasivapet. (2) V.R.As.	Incharge for Non-Statutory material			
3	Khaja, Panchayath Secretary, MPP Kondapur.	Incharge for Statutory material	III	174, 186, 187, 188, 189, 201, 202, 203, 204, 205, 206, 239	12
	Chandraleela, Panchayath Secretary, Girmapur MPP Kondapur.	Incharge for Non-Statutory material			

22

6. LOGISTIC ARRANGEMENT AT RECEPTION CENTER:


1. Varaprasad, Girdavar-II, Sangareddy along with (10) Village Servants and arrangements of Shamiyanas, Sound System, Dias, Furniture and canteen etc.,
2. Santosh, V.R.O. Kalvakunta T.O. Sangareddy.
3. Shivaram, V.R.O. Fasalwadi, T.O. Sangareddy.
4. Yadagiri, V.R.A. Sangareddy.
5. Rajashekar, V.R.A. Sangareddy.

7. DRINKING WATER & SANITATION:

1. S/Sri Prasad, Muncipal Commissioner, Sangareddy.
2. Sri Vijay Babu, Sanitary Inspector Srd.Municipality.
3. Sri Vittal, Srd.Municipality and Sanitary workers for maintaining cleanliness Of the Ground and also arranging continous Drinking water to the polling persons.

8. GENERAL DUTIES AND REPORT:

1. Sri Aroundaya Chary, EPIC DT, T.O. Sangareddy.
2. Sri Suresh Kumar, DT(CS) Sangareddy.
2. Sri Kartik, Sr.Asst. R.D.O office, Sangareddy.
3. Sri Srinivas, VRO, Sangareddy.
4. Sri Chandra Shekar, HHRP, RDO office, Sangareddy.
5. Sri Chandu, VRA, T.O. Sangareddy.
6. Sri Sameer V.R.A. Kandi.
7. Sri Srinivas, V.R.A. Kandi.
8. Sri Murali, VRA, Sangareddy.
9. Sri Vinod Kumar Chary, Comp.Ope. Kondapur


Returning Officer,
39 - Sangareddy Assembly Constituency &
6 Revenue Divisional Officer,
Sangareddy.

To

The concerned.

Copy submitted to the District Election Officer & District Collector, Sangareddy for favour of kind information.



ST.ANN'S COLLEGE FOR WOMEN

(Autonomous) Osmania University
NAAC Reaccredited with 'A+' Grade (3rd Cycle)
College with Potential for Excellence by UGC
MEHDIPATNAM, HYDERABAD



Quality Connect

This is to certify that

A. Vishweshwara Shamma

Tara Government College (Sangareddy)

Participated in

One Day National seminar
on

“Corporate Academia Partnership - Fostering Innovation & Entrepreneurship”

Organized by Internal Quality Assurance Cell (IQAC), St. Ann's College for Women, Mehdipatnam, Hyderabad on 25th March 2019.


Dr. Sr. P. Amrutha
Principal

St Ann's College for Women
Mehdipatnam, Hyd-28,

St. Pious X Degree & P.G. College For Women

(Re-Accredited by NAAC with A+ Grade)

In Collaboration with

Commissionerate of Collegiate Education, Govt. of Telangana



State Level Workshop on

“Mentoring the Mentors on Revised AQAR Format”

27th March, 2019

Certificate of Participation

This is to certify that Mr./Ms. A. Vishweshwara Sharma
of DARA Govt. College (A) Sanga Reddy has participated in a State Level Workshop on

“Mentoring the Mentors on Revised AQAR Format” organized by IQAC,

St. Pious X Degree & PG College for Women, Nacharam, Hyderabad


IQAC Coordinator


Principal

COMMISSIONERATE OF COLLEGIATE EDUCATION
Academic Cell, Telangana, Hyderabad

Attendance Certificate

This is to certify that Dr/Smt/Sri... A. Vishweshwara Sharma Assistant
Professor/Lecturer/Associate Professor in... English, TARA C.C (A)
..... College, Sanga Reddy has attended and presented live
Telecast lecture on 19-08-2019 2019 at SoFTNET Studios, Hyderabad
organized by Academic Cell, Commissionerate of Collegiate Education, Hyderabad

E. S. K.

For Commissioner of Collegiate Education

Hyderabad,
20-08-2019

NAGARJUNA GOVERNMENT COLLEGE

(AUTONOMOUS)

(RE - ACCREDITED 'A' BY NAAC)

NALGONDA District, TELANGANA



ATTENDENCE CERTIFICATE

This is to certify that **Sri. A. Visweswara Sharma**, Asst. Professor, Tara Degree College, Sanga Reddy has Conducted one day workshop on **Faculty Development Workshop on Role of IQAC & NAAC in Quality Sustenance** on 05-09-2018 as a resource person at **NAGARJUNA GOVERNMENT COLLEGE (A)**, NALGONDA.

A handwritten signature in blue ink, dated 05/09/18.

Principal
Nagarjuna Govt. College
(Autonomous) Nalgonda

NAGARJUNA GOVERNMENT COLLEGE (A)

(Re-Accredited 'A' by NAAC)

Nalgonda District, Telangana state



Certificate of Appreciation

This is to certify that Dr./Mr./Ms. A. Vishweswara Sharma

Professor/ Associate-Professor/Asst. Professor/ Lecturer..... of English

..... has participated and delivered lecture on Role of IQAC & NAAC in Quality Sustenance

This Programme was organized by the Department of IQAC on 05-09-2018

The Presentation is informative and Impressive. This certificate has been issued in acknowledgment of his/her association and participation with the workshop/Extension Lecture /Programme.

Dr. V. V. Subbarao
In charge IQAC coordinator

Principal
Principal
Nagarjuna Govt. College
(Autonomous) NALGONDA,



GOVT. DEGREE COLLEGE, ARMOOR

Dist: Nizamabad

(2(f) & 12(B) of UGC) Reaccredited by NAAC with "B" grade
Website: www.gdcarmoor.in, e-mail ID: gdcarmoor@gmail.com, Phone: 08463 - 222259

ATTENDANCE CERTIFICATE

This is to certify that Sri . A. Vishweswara Sharma, Asst. Prof of English, Government GDC (A) Sangareddy, attended as CCE nominee to asses the status of NAAC works going on and gave guidance in regarding new NAAC accreditation system as per the proceedings of CCE-AC/QLTY/NAAC/3/2018-ACADEMIC CELL on 25.09.2019 at Government Degree College, Armoor , Nizamabad District.


PRINCIPAL

Principal
Govt. Degree College
ARMOOR-503 224
Nizamabad

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI.NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education-Tara GDC, Sangareddy-
A.Vishweshwara Sharma, Assistant Professor of English-
Served as a **Resource person** for a day on **11.10.2019** in
three day Orientation Programme organized by TTWREIS for
newly recruited TS Residential Degree College Lecturers-
Sanction of **On Duty**-Orders-Regarding.

Ref: Letter received from Principal, Tara GDC, Sangareddy,
dated: 13.10.2019.

Vide references read, the Commissioner of Collegiate Education has
accorded On Duty to **A.Vishweshwara Sharma**, Assistant
Professor of English, Tara GDC, Sangareddy served as a Resource
person on **11.10.2019** in a three day Orientation Programme
organized by Telangana Tribal Welfare Residential Educational
Institutions Society (TTWREIS) for newly recruited TW residential
Degree College Lecturers at Rajendranagar, Hyderabad.

The absence of the above said Assistant Professor shall be treated
as **ON DUTY** on above said date. In view of the above, the
Principal, Tara GDC, Sangareddy is informed to consider his absence
in the college as **On DUTY**.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by PODILABALA BHASKAR
Date: 2019.10.17 10:55:16 IST
Reason: Approved

For Commissioner of Collegiate Education

To
The Principal of GDC concerned.


21.10.19

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI.NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education-Tara GDC, Sangareddy-
A.Vishweshwara Sharma, Assistant Professor of English-
Served as a **Resource person** for a day on **11.10.2019** in
three day Orientation Programme organized by TTWREIS for
newly recruited TS Residential Degree College Lecturers-
Sanction of **On Duty**-Orders-Regarding.

Ref: Letter received from Principal, Tara GDC, Sangareddy,
dated: 13.10.2019.

Vide references read, the Commissioner of Collegiate Education has
accorded On Duty to **A.Vishweshwara Sharma**, Assistant
Professor of English, Tara GDC, Sangareddy served as a Resource
person on **11.10.2019** in a three day Orientation Programme
organized by Telangana Tribal Welfare Residential Educational
Institutions Society (TTWREIS) for newly recruited TW residential
Degree College Lecturers at Rajendranagar, Hyderabad.

The absence of the above said Assistant Professor shall be treated
as **ON DUTY** on above said date. In view of the above, the
Principal, Tara GDC, Sangareddy is informed to consider his absence
in the college as **On DUTY**.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by PODILA BALA BHASKAR
Date: 2019.10.17 10:55:16 IST
Reason: Approved

For Commissioner of Collegiate Education

To
The Principal of GDC concerned.


21-10-19

**TELANGANA TRIBAL WELFARE UPGRADED
RESIDENTIAL JUNIOR COLLEGE (B), JINNARAM, SANGAREDDY DISTRICT**

This is to certify that **Mr. A. VISHVESHWARA SHARMA**, Asst prof of English at TARA GOVT.DEGREE COLLEGE SANGAREDDY, has delivered an extension lecture on "**GOAL SETTING**" for the students of **TTWURJC Jinnaram**, on 02/11/2019.His lecture received the best response from the students.


Principal

21/11/19
PRINCIPAL
TTWUR JR COLLEGE (Boys)
JINNARAM-502 319.Sangareddy Dist.

GOVT. DEGREE COLLEGE FOR WOMEN, SANGAREDDY

(Accredited by NAAC with B Grade)

SANGAREDDY Dist. TELANGANA STATE - 502001

ATTENDANCE CERTIFICATE

Date: 19.11.2019

This is to certify that **Sri.A.V. Sharma**, Assistant Professor of English, Tara Govt College, Sangareddy has been delivered an extension Lecture on "**Seven Criteria of NAAC**" on 19.11.2019 organized by IQAC at Govt. Degree College for women, Sangareddy.


PRINCIPAL
Govt. Degree College (W)
Sangareddy.



Phone : 9440379380
Email : gajwel.jkc@gmail.com

GOVERNMENT DEGREE COLLEGE GAJWEL

(Re-Accredited by NAAC with B)
GAJWEL – 502278 Siddipet Dist. Telangana

Dr.A. Srinivas Reddy. M. Sc, Ph.D.
Principal

Date: 13.12.2019

CERTIFICATE OF APPRECIATION

This is to certify that **Mr. A. Vishveshwara Sharma**, Asst. Prof. of English, Tara Government Degree College (A) Dist. Sangareddy, has delivered a talk as Resource Person at **Orientation Programme on the Preparation of Self Study Report** organized by IQAC, GDC Gajwel on 13.12.2019 from 2.00 p.m. to 4.30 p.m.

His Talk has been appreciated immensely by the staff who attended the Orientation Programme.


Principal 13/12/19
PRINCIPAL
Government Degree College
Gajwel, Siddipet-Dist, Telangana.

Government Degree College for Women, Gajwel

Attendance Certificate

This is to state that Sri.A.V.Sharma, Asst. Prof of English, Tara Government Degree College, Sangareddy has conducted a workshop in our college on 13/12/2019 on Assessment and Accreditation process under revised NAAC framework.

Date: 13/12/2019

P. V. Ulme Sais
Principal 13/12/2019
Govt. Degree College for Women
GAJWEL, Dist. Siddipet.

N.M.GOV. DEGREE COLLEGE, JOGIPET, SANGAREDDY DIST.

Present: Dr.H.R.ANITHA, M.Sc., Ph.D.

Date: 18-11-2019

ATTENDANCE CERTIFICATE

Sri. **A.VISHWESHWARA SHARMA**, Asst Professor of **ENGLISH**, Tara Govt. College, Sangareddy(A), has attended the college as a resource person for an extension lecture for II year students on "PRESENTATION SKILLS" on 18/11/2019 in the afternoon session.

The extension lecture was received with rapt attention by students.


Principal 18/11/19
PRINCIPAL

N.M. Govt. Degree College,
JOGIPET, Dist. Sangareddy



We express our sincere gratitude to

Mr. A. Vishweshwara Sharma

Assistant Professor,
Department of English,
TARA Government College, Sangareddy, India

For his gracious presence as "Resource Person"

National Webinar On
"Communication Skills and Career Guidance"

Held on 29th January, 2022.



MNR COLLEGE OF PHARMACY

MNR Higher Education and Research Academy (MNR - HERA) Campus, Sangareddy- 502 294, Gr. Hyderabad, Telangana.

SR and BGNR Government Arts and Science College

(Autonomous)

(Re-Accredited with 'B' Grade by NAAC)


Khammam (Dist), Telangana



CERTIFICATE

This is to certify that Mr A. Vishweshwara Sharma, who has been working as an Assistant Professor of English at TARA Government College Sangareddy (Autonomous), Sangareddy district, has been serving as a Panel member on the Board of Studies (BoS) of the Department of English. He has been rendering his services to the board from the academic year 2018-19.

He may utilize this certificate for his API and other academic purposes.


Controller of Examinations
Controller of Examinations
S.R. & B.G.N.R. Arts & Science College
(Autonomous), KHAMMAM.


Principal
PRINCIPAL
S.R. & B.G.N.R. Govt. Arts &
Science College (NAAC-B++)
Autonomous-KHAMMAM

SR and BGNR Government Arts and Science College

(Autonomous)

(Re-Accredited with 'B' Grade by NAAC)


Khammam (Dist), Telangana



CERTIFICATE

This is to certify that Mr A. Vishweshwara Sharma, who has been working as an Assistant Professor of English at TARA Government College Sangareddy (Autonomous), Sangareddy district, has been serving as a Panel member on the Board of Studies (BoS) of the Department of English. He has been rendering his services to the board from the academic year 2018-19.

He may utilize this certificate for his API and other academic purposes.


Controller of Examinations
Controller of Examinations
S.R. & B.G.N.R. Arts & Science College
(Autonomous), KHAMMAM.


Principal
PRINCIPAL
S.R. & B.G.N.R. Govt. Arts &
Science College (NAAC-B++)
Autonomous-KHAMMAM

File No.CCE-AC/TSAT/2/2019-TSAT

Annexure I

Commissionerate of Collegiate Education

T-SAT: Nipuna

Live Telecast Schedule- 2019-20

11.00 AM to 11.45 AM

S No	Date	Day	Subject	Year and Semester	Topic	Name of the Presenter and Place of Work	Contact No.
1	20.07.2019	Saturday	Commerce	I Year/I Sem	Bank Reconciliation statement	Tulja Bhavani, GDC Ibrhimpatnam	9100092589
2	22.07.2019	Monday	Telugu (Panel Discussion)	I Year/ I sem	Srujanatmaka Bodhana -Bhasha Naipunyaalu	1.Dr.J.Neeraja, O/o CCE TS Hyderabad 2.Dr.Seetha ramaraao, GDC (A) khammam 3.Dr. Koyi.Koteswara Rao ,GDC (W) Nalgonda 4.Dr.R.Srinivas, TARA GDC(A) Sangareddy	7660020730 9866563519 9440480274 9848050694
3	23.07.2019	Tuesday	Mathematics	II Year /III Sem	Sequences, Limit of Sequences & Examples	D.Venkatesh, KGC,Hanamkonda	9948185643
4	24.07.2019	Wednesday	Zoology	I Year/I sem	Corals & Coral Formation	Dr.N.Raj Kumar , GDC Hayatnagar	9440697746
5	25.07.2019	Thursday	History	I Year/I Sem	Mauryan Administration	M.Shanthaveni,IPGDC(W),Nampally	9440980955
6	26.07.2019	Friday	Computer Science	B.sc (II Year/III Sem)	Boolean Algebra	S.Yamuna Rani , GDC ,Malkajgiri	9908521900
7	27.07.2019	Saturday	Special Live Program	All	Dial the Doctor / Nutritionist		
8	30.07.2019	Tuesday	Physics	II Year/ III Sem	Kinetic Theory of Gases	B.Srinivas Goud, ABV GDC Jangaon	9959336467
9	31.07.2019	Wednesday	Botany (Pair teaching)	I Year/I Sem	Cyanobacteria:General Charecters, Bio	1.P.Hari Krishna,SRR GDC Karimnagar, 2.P.Balaraju SRR GDC Karimnagar	9966998858 9490664677

File No.CCE-AC/TSAT/2/2019-TSAT

					fertilisers, Type Studies		
10	01.08.2019	Thursday	Political Science	III Year/V Sem	Mao-Tse-Tung	P.Venkata Ramana , GDC Kukatpally	91770 87189
11	02.08.2019	Friday	Gender Sensitization	All			
12	03.08.2019	Saturday	Commerce	III Year/ V Sem	Process Costing	M.Somaiah, KGC Hanamkonda	9948048949
13	05.08.2019	Monday	Basic Communication	All	Listening Skills	Dr.E.Srinivasa Rao, ABV GDC Jangaon	9848788425
14	06.08.2019	Tuesday	Chemistry	I Year /I Sem	Aromatic Hydrocarbons	A.Srinivas Reddy,GDC Jammikunta	9949905069
15	07.08.2019	Wednesday	Zoology	I Year/I sem	Polymorphism in Siphonophora	B.Srinivas Reddy,GDC Hayatnagar	9493461555
16	08.08.2019	Thursday	Economics(Pair teaching)	I Year/ I Sem	Production Function	1.Dr.A.Venkatesham TARA GDC(A), Sangareddy 2.E.Pavani Govt.City College, Nayapul	9989942298 9959632449
17	13.08.2019	Tuesday	Mathematics	I Year/I Sem	Lengths of Plane Curves	Dr.D.Pushpa, ABV GDC,Jangaon	9440553078
18	14.08.2019	Wednesday	Biotechnology	II Year/III Sem	Electrophoresis and its application	K.Geetanjali,GDC Kukatpally	9701004242
19	16.08.2019	Friday	Social Responsibility	All			
20	17.08.2019	Saturday	Commerce	II Year/III Sem	Income from Salary	Dr.Md.Yakub, GDC Mulugu	7396473313
21	19.08.2019	Monday	Modern Language-English	III Year	Obituary - A.K.Ramanujan	A.Vishweshwara Sharma, TARA GDC Sangareddy	9490932161
22	20.08.2019	Tuesday	Physics	III Year /V Sem	Electrical Potential	P.R.Ratan Kumar,TARA GDC(A)Sangareddy	9618125210

File No.CCE-AC/TSAT/2/2019-TSAT

23	21.08.2019	Wednesday	Zoology(Pair teaching)	I Year/I sem	Parasitic Adaptations in Helminthes	1.B.Suresh Kumar, SRR GDC Karimnagar 2.P.Raju,SRR GDC Karimnagar	9490580630 9963700000
24	22.08.2019	Thursday	Public Administration	I Year/I Sem	Bureaucratic Approach- Max Weber	Dr.G.Narasimulu, GDC (M) Gajwel	9441301961
25	23.08.2019	Friday	Computer Science	B.Sc (III Year/ V Sem)	Exception handling and Multithreading in Java	S.Yamuna Rani , GDC ,Malkajgiri	9908521900
26	26.08.2019	Monday	Telugu(Pair teaching)	I Year/ I sem	Samvaranudi Tapassu	1.Dr.T.Krishnaiah ,NGC(A) Nalgonda 2.Dr. R.Srinivas,TARA GDC(A) Sangareddy	9704731346 , 9848050694
27	27.08.2019	Tuesday	Chemistry	I Yr /I Sem	Solutions	Dr.A.Dayanand, Govt.City College(A),Nayapul	9492302186
28	28.08.2019	Wednesday	Botany	II Year/III Sem	Bentham & Hooker System of Classification	S.Veeraiah , GDC(W), Nalgonda	9848546345
29	29.08.2019	Thursday	History	I Year/II Sem	Reforms of Allauddhin Khilji	S.Ganapathi Rao,KGC ,Hanamkonda	9030403940
30	30.08.2019	Friday	Bio Chemistry	I Year/I Sem	Classification & Properties of Aminoacids	A.Chandra Shekar,GDC(W),Karimnagar	9963871117
31	31.08.2019	Saturday	Special Live Program	All	Environment Protection		
32	03.09.2019	Tuesday	<i>Mathematics (Student as Teacher Program)</i>				
33	04.09.2019	Wednesday	<i>Microbiology (Student as Teacher Program)</i>				
34	05.09.2019	Thursday	<i>Political Science (Student as Teacher Program)</i>				
35	06.09.2019	Friday	TSKC	All			

File No.CCE-AC/TSAT/2/2019-TSAT

	9						
36	07.09.2019	Saturday	Commerce (Student as Teacher Program)				
37	12.09.2019	Thursday	Economics (Student as Teacher Program)				
38	13.09.2019	Friday	Health & Nutrition	All			
39	16.09.2019	Monday	Telugu(Pair teaching)	II Year / IV Sem	Devarakonda Durgam	1.Dr.Belli Yadaiah, GDC Ramannapet 2.Dr.Mrudula , GDC Narsapur	9848392690 9441408393
40	17.09.2019	Tuesday	Physics (Student as Teacher Program)				
41	18.09.2019	Wednesday	Zoology (Student as Teacher Program)				
42	19.09.2019	Thursday	Public Administration (Student as Teacher Program)				
43	20.09.2019	Friday	Computer Science	B.sc (II Year/III Sem)	Trees & Graphs in Data structures	Dr.B.Sambasiva Rao,BJR GDC Narayanguda	9848450439
44	21.09.2019	Saturday	Special Live Program	All	Dial your CCE		
45	23.09.2019	Monday	English	II Year	Media Reports	Dr.Ram Bhasker Raju,KGC Hanamkonda	9849169320
46	24.09.2019	Tuesday	Chemistry (Student as Teacher Program)				
47	25.09.2019	Wednesday	Botany (Student as Teacher Program)				
48	26.09.2019	Thursday	History (Student as Teacher Program)				
49	27.09.2019	Friday	Commerce	III Year/V Sem	Banking Theory & Practise (Over view of	S.Ramesh,GDC(A) Khammam	9490993210

File No.CCE-AC/TSAT/2/2019-TSAT

					RBI)		
50	10.10.2019	Thursday	Political Science (Pair teaching)	II Year/III Sem	Prime Minister	1.Dr.Jaheeda Bagum, GDC Hayatnagar 2.S.Yadagiri , NGC Nalgonda	9908078786 9492875705
51	11.10.2019	Friday	Computer Science	B.Sc (III Year/ V Sem)	Process Synchronisation, Deadlocks	Dr.B.Sambasiva Rao,BJR GDC Narayanguda	9848450439
52	14.10.2019	Monday	<i>English(Student as Teacher Program)</i>				
53	15.10.2019	Tuesday	Mathematics	III Year /V Sem	Linear transformations & their Properties	M.Rajesh, GDC Agraharam	9849573963
54	16.10.2019	Wednesday	Biotechnology	II Year/III Sem	Enzyme Inhibition Types	D.Annapurna, TARA GDC (A), Sangareddy	9959220195
55	17.10.2019	Thursday	Economics	II Year/III Sem	Monoploy	R.Venkata Ramarao,GDC(W) Nalgonda	9603374014
56	18.10.2019	Friday	Zoology	III Year/V Sem	Enzymes	Dr.P.Ayodhya Reddy, GDC(M) Gajwel	9490550890
57	19.10.2019	Saturday	Commerce	III Year/ V Sem	Information Technology Act-2000	PGK.Gajendra Babu,GDC Malkajgiri	9440498388
58	21.10.2019	Monday	<i>Telugu (Student as Teacher Program)</i>				
59	22.10.2019	Tuesday	Physics	II Year/III Sem	Production of Low Temperatures	K.Haritha ,GDC Aler	9885286905
60	23.10.2019	Wednesday	Zoology	II Year/III Sem	Distinguished characters of Poisionous & Non Poisonous snakes	J.Swamy, GDC (W) Nalgonda	9848480243
61	24.10.2019	Thursday	Public Administration	I Year/II Sem	New Public Administration- Minnowbrook-I	Dr.G.Narasimulu, GDC (M) Gajwel	9441301961
62	25.10.2019	Friday	TSKC	All			

File No.CCE-AC/TSAT/2/2019-TSAT

	9						
63	26.10.2019	Saturday	Special Live Program	All	Stress management and life skills education		
64	29.10.2019	Tuesday	Chemistry	I Year /I Sem	Gaseous State	Dr.B.Ramesh,KGC Hanamkonda	9866962589
65	30.10.2019	Wednesday	Botany	II Year/IV Sem	Anamolous Secondary Growth Achyranthus, Draceana,Boerhavia stem	Dr.A.Srinivas, SRR GDC,Karimnagar	9490683621
66	31.10.2019	Thursday	<i>History (Student as Teacher Program)</i>				
67	01.11.2019	Friday	Health & Nutrition	All			
68	02.11.2019	Saturday	Commerce	I Year/I Sem	Coordination and Control	S.Narender Reddy, GDC Godavarikani	9440383277
69	04.11.2019	Monday	Basic Communication (Panel Discussion)	All	Right to English (Panel Discussion)	1.Dr.T.S.Praveen Kumar,GDC Eturunagaram 2.Dr.Ram Bhasker Raju, KGC Hanamkonda 3.Dr.E.Srinivasa Rao, ABV GDC Jangaon 4.DSSR Krishna,GDC Hayatnagar	9396806948 9849169320 9848788425 9493212313
70	05.11.2019	Tuesday	Mathematics	I Year/I Sem	Volumes and Surfaces of revolution	Dr.D.Pushpa, ABV GDC,Jangaon	9440553078
71	06.11.2019	Wednesday	Microbiology	II Year/IV Sem	Transription	Dr.N.Hari Krishna, GDC(M) Gajwel	9966222110
72	07.11.2019	Thursday	Political Science (Pair teaching)	I Year/ I Sem	Sovereign state:Challenges	1.Dr.K.Bhasker, GDC Patancheru 2.E.Swarnalatha O/o CCE TS Hyderabad	9949999690 7660020750
73	08.11.2019	Friday	Gender Sensitization	All			

File No.CCE-AC/TSAT/2/2019-TSAT

74	11.11.2019	Monday	Modern Language-Telugu (Panel discussion)	II Year / III Sem	Sahitya charitra	1.Dr.T.Krishnaiah,NGC(A) Nalgonda 2.Dr.Mrudula , GDC Narsapur 3.Dr.Rakesh Bhavani, GDC Hayatnagar 4.Dr.A.Param Jyothy , GDC Marripeda	9704731346 9441408393 9246607551 7396156568
75	13.11.2019	Wednesday	Biotechnology	IIIYear/ V Sem	Post Transcriptional Modifications	Dr.G.Kishore Kumar,SRR GDC ,Karimnagar	9703663902
76	14.11.2019	Thursday	Economics(Panel discussion)	III Year/V Sem	Issues of Indian Agriculture Sector	1.Dr.A.Venkatesham TARA GDC(A), Sangareddy 2.Dr.Nagoji GDC ,Ibrahimpattam, 3.T.Bhasker Reddy, GDC(W) Nalgonda 4.B.Kasturi Bai, Pingle GDC (W) Warangal	9989942298 9440571781 9182564607 6302596798
77	15.11.2019	Friday	Social Responsibility	All			
78	16.11.2019	Saturday	Commerce	II Year/III Sem	Sampling Methods	Dr.D.T.Chary,GDC Parkal	9849610028
79	18.11.2019	Monday	Basic Communication	All	Writing Skills	Dr.T.S.Praveen Kumar,GDC Eturunagaram	9396806948
80	19.11.2019	Tuesday	Physics	I Year/I Sem	Central Forces	Rekha Venkateswarlu,GDC(W) Nalgonda	9440493244
81	20.11.2019	Wednesday	Zoology	III Year/V Sem	Urine Formation	R.Naresh,GDC (W) Nalgonda	8919920204
82	21.11.2019	Thursday	Political Science (Panel discussion)	II Year/ III Sem	Globalisation	1.P.Venakata Ramana, GDC Kukatpally 2.Dr.Jaheeda Begum, GDC Hayatnagar, 3.Dr.K.Bhasker GDC ,Patancheru 4.Dr.B.Kavitha, GDC,Wardannapet	9177087189 9908078786 9949999690 9948857326
83	22.11.2019	Friday	Computer Science	B.Com (III Year/V Sem)	HTML Tags	Y.V.Ramarao,GDC Hayatnagar	9912890463
84	23.11.2019	Saturday	Commerce	III Year/V sem	Scope & Importance of Computerised Accounting	K.Linga Reddy, KGC Hanamkonda	9849404642

File No.CCE-AC/TSAT/2/2019-TSAT

85	25.11.2019	Monday	English	All	Soft Skills (Pair Teaching)	1.Dr.Nancy Serena,GDC Kukatpally 2.Dr.T.S Praveen Kumar,GDC Eturunagaram	8332896068 9396806948
86	26.11.2019	Tuesday	Chemistry (Pair Teaching)	III Yr /V Sem	Molecular Spectroscopy	Dr.P.Adivi Raju, GDC(M) Gajwel	9440867068
87	27.11.2019	Wednesday	Botany(Pair Teaching)	II Year/VI Sem	C3,C4 Cycles (Plant Physiology)	1.Dr.K.Sarojini Chakravarthy,IPGDC, Nampally, 2.D.Srihari Reddy, GDC Patancheru	9849370624 9441564471
88	28.11.2019	Thursday	History	II Year/III Sem	Administrative reforms of Shershah	M.Shanthaveni,IPGDC(W),Nampally	9440980955
89	29.11.2019	Friday	<i>Bio Chemistry (Student as Teacher Program)</i>				
90	30.11.2019	Saturday	Special Live Program	All	Methods/ Strategies /Best Practices adopted by the colleges		
91	02.12.2019	Monday	Telugu(Panel Discussion)	I Year/ II sem	Snehalatha Lekha	1.Dr.J.Neeraja, O/o CCE TS Hyderabad 2.Dr.Koyi Koteswara Rao, GDC (W) Nalgonda 3.Dr.M.Sampathy Kumar reddy,GDC (W) Karimnagar	7660020730 9440480274 9849470792
92	03.12.2019	Tuesday	Mathematics	III Year /V Sem	Diagonalization	M.Rajesh, GDC Agraharam	9849573963
93	04.12.2019	Wednesday	Microbiology	II Year/IV Sem	Transription	Dr.A.Madhavi, GDC (W) Begampet	9581208104
94	05.12.2019	Thursday	<i>Political Science (Student as Teacher Program)</i>				
95	06.12.2019	Friday	TSKC	All			
96	07.12.2019	Saturday	<i>Commerce (Student as Teacher Program)</i>				

File No.CCE-AC/TSAT/2/2019-TSAT

97	09.12.2019	Monday	Basic Communication (Panel Discussion)	All	Interview Skills (Panel Discussion)	1.Dr.T.S.Praveen Kumar,GDC Eturunagaram 2.Dr.Ram Bhasker Raju, KGC, Hanamkonda 3.Dr.E.Srinivasa Rao, ABV GDC Jangaon 4.DSSR Krishna,GDC Hayatnagar	9396806948 9849169320 9848788425 9493212313
98	10.12.2019	Tuesday	Physics	I Year/II Sem	Fundamentals of Vibrations	Rekha Venkateswarlu,GDC(W) Nalgonda	9440493244
99	11.12.2019	Wednsday	Biotechnology (Student as Teacher Program)				
100	12.12.2019	Thursda y	Economics (Student as Teacher Program)				
101	13.12.2019	Friday	Health & Nutrition	All			
102	16.12.2019	Monday	Modern Language-Telugu (Panel Discussion)	III Year/ V Sem	Vimarsha	1.Dr.Seetha Rama Rao , GDC (A) Khammam 2.Dr.Belli Yadaiah GDC Ramannapet 3.Dr.T.Suresh ,GDC Godavarikhnai 4.Dr. A.Paramjyothy, GDC Marripeda	9866563519 , 9848392690 , 8790569436 , 7396156568
103	17.12.2019	Tuesda y	Chemistry (Student as Teacher Program)				
104	18.12.2019	Wednsday	Zoology (Student as Teacher Program)				
105	19.12.2019	Thursda y	Public Administration (Student as Teacher Program)				
106	20.12.2019	Friday	Gender Sensitization	All			
107	21.12.2019	Saturda y	Commerce	I Year/I Sem	Depreciation Accounts	Dr.A.Bala Chandram, GDC (A) Siddipet	9550559454
108	23.12.2019	Monday	Basic Communication	All	Review (Book & Film)	DSSR Krishna,GDC Hayatnagar	9493212313

File No.CCE-AC/TSAT/2/2019-TSAT

109	24.12.2019	Tuesday	Mathematics	II Year/III Sem	Radius of Convergence	D.Venkatesh, KGC,Hanamkonda	9948185643
110	27.12.2019	Friday	Social Responsibility	All			
111	28.12.2019	Saturday	Special Live Program	All	Preparation of Competitive exams - Tips & Strategies		
112	30.12.2019	Monday	<i>English(Student as Teacher Program)</i>				
113	31.12.2019	Tuesday	<i>Physics (Student as Teacher Program)</i>				
114	02.01.2020	Thursday	History	III Year/V Sem	First World War-Causes-Consequences	S.Ganapathi Rao,KGC ,Hanamkonda	9030403940
115	03.01.2020	Friday	Computer Science	B.sc& B.Com (I Year/ II Sem)	Constructors-C++	Dr.K.Suresh babu,KGC, Hanamkonda	9849664111
116	04.01.2020	Saturday	<i>Commerce (Student as Teacher Program)</i>				
117	06.01.2020	Monday	<i>Telugu (Student as Teacher Program)</i>				
118	07.01.2020	Tuesday	Chemistry(Pair Teaching)	I Year /II Sem	Inter Halogens,Polyhalides, Pseudo Halogens	1.Dr.V.Srinivas, GDC Mulugu, 2.Dr.M.Aruna, Pingle GDC(W) Warangal	9885059533 , 9985300641
119	08.01.2020	Wednesday	<i>Botany (Student as Teacher Program)</i>				
120	09.01.2020	Thursday	Political Science(Panel Discussion)	II Year/IV Sem	Electoral Reforms	1.Dr.K.Hussain GDC (M) Gajwel 2.E.Swarnalatha O/o CCE TS Hyderabad 3.S.Yadagiri NGC Nalgonda 4.Dr.B.Kavitha ,GDC Wardannapet	9885077541 7660020750 9492875705 9948857326
121	10.01.2020	Friday	TSKC	All			

File No.CCE-AC/TSAT/2/2019-TSAT

122	17.01.2020	Friday	Computer Science (Student as Teacher Program)				
123	18.01.2020	Saturday	Commerce	III Year/VI Sem	Companies Act-2013 An Overview	Dr.Gopala Sudarshanam, GDC (M) Gajwel	9989450086
124	20.01.2020	Monday	English	All	Indianisms	B.Raghavendra, GDC Narsapur	7901290580
125	21.01.2020	Tuesday	Mathematics (Student as Teacher Program)				
126	22.01.2020	Wednesday	Zoology(Pair Teaching)	II Year/IV Sem	Forces of Evolution	1.G.N Radhika,GDC Patancheru, 2.L.Mahesh TARA GDC (A) Sangareddy	9490347231 9440830275
127	23.01.2020	Thursday	Political Science	III Year/VI Sem	Basava	Dr.K.Hussain , GDC (M) Gajwel	9885077541
128	24.01.2020	Friday	Commerce (Panel discussion)	III Year/VI Sem	Overview of GST	1.Gajendra Babu PGK,GDC Malkajgiri 2. S.Ramesh, GDC(A),Khammam 3.M.Somaiah, KGC,Hanamkonda	9440498388 9490993210 9948048949
129	25.01.2020	Saturday	Special Live Program	All	Focus on examination preparation and study opportunities in Higher Education.		
130	27.01.2020	Monday	Telugu(Panel Discussion)	II Year / IV Sem	Mana Grama Naamaalu	1.Dr.M.Sampath Kumar reddy,GDC(W),Karimnagar 2.Dr.T.Suresh ,GDC Godavarikhnai 3.Dr. Rakesh Bhavani, GDC Hayatnagar	9849470792 8790569436 9246607551
131	28.01.2020	Tuesday	Physics	I Year/II Sem	Damped Oscillations	K.Haritha ,GDC Aler	9885286905
132	29.01.2020	Wednesday	Botany(Pair Teaching)	I Year/II Sem II Year/IV sem	Asclepiadaceae,Lamiaceae(Taxonomy)	1.Dr.K.Usha Rani, O/o CCE TS Hydearabad, 2.Dr. Annie Sheran KGC Hanamkonda	9849172438 9492434304
133	30.01.2020	Thursday	Economics (Panel Discussion)	II Year/IV Sem	Tax system in India	1.Dr.Nagoji GDC ,Ibrahimpattam, 2.E.Pavani , Govt.City College, Nayapul 3.T.Bhasker Reddy, GDC(W) Nalgonda 4.B.Kasturi Bai, Pingle GDC (W) Warangal	9440571781 9959632449 9182564607 6302596798

134	31.01.2020	Friday	Computer Science (Student as Teacher Program)				
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For Commissioner of Collegiate Education

Signature Not Verified

Digitally signed by Dr C
Manjulatha
Date: 2019.07.22 12:11:15
IST
Reason: Approved

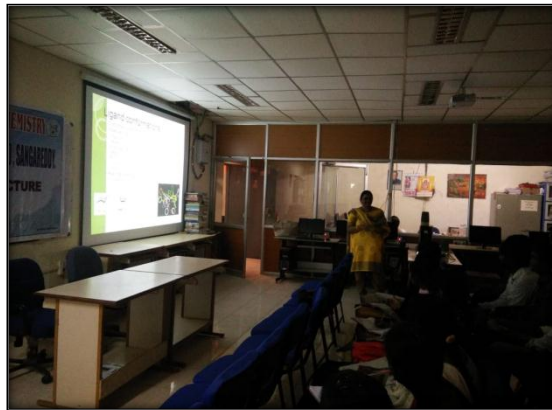
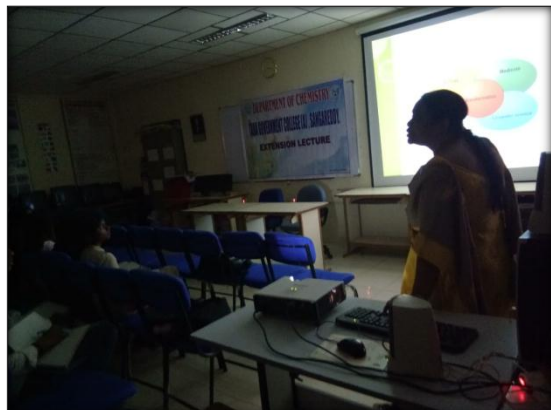


**Department of Chemistry,
Tara Govt. College(A), Sangareddy.**

RECORD OF EXTENSION LECTURES ARRANGED

2018-19

S.No.	Name of Resource person	Affiliation	Date	Topic	No. of students
1	Dr. Sabitha.Y	Managing Director & Chief Scientist from Ciencia Life Sciences, Hyderabad	15.02.19	Molcular Docking	25



Extension lecture on Molcular Docking by Dr. Sabitha.Y, Managing Director & Chief Scientist from Ciencia Life Sciences, Hyderabad



Attendance Certificate

11 October 2019

Mr A Vishweshwara Sharma, Assistant Professor of English at TARA Government college, Sangareddy (A), has attended the Orientation Programme for newly recruited lecturers of Tribal welfare Residential Degree Colleges on 11 October as a resource person for 3 batches and gave extension lectures on '**Effective Classroom management : creating a platform for Debate League**'.

His absence at his college may be treated as On Duty (OD) for one day on 11-10-2019.

PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE
EDUCATION TELANGANA STATE :: HYDERABAD

PRESENT: NAVIN MITTAL, I.A.S.,

Sub:- Contract faculty- Contract Lecturers working in Government Degree Colleges in the State - Identified the surplus Contract Lecturers due to relocation of regular faculty - Relocation of Contract Lecturers Working in Government Degree Colleges - On duty facility to Certain faculty - Orders - Issued.

Read:- 1. Govt.Memo.No.2859/CE/A1/2015, dated 08.06.2019
2. File NoCCE-AC/GEN/98-Academic Cell (Computer No.157641) dated 19.12.2019.
3. Counselling conducted on 13.12.2019 and Options given by the individuals.

- - -

The Commissioner of Collegiate Education, Telangana State, Hyderabad have identified the surplus Contract Lecturers due to relocation of regular faculty. In reference 2nd read above a counselling was held on 13.12.2019 at IPGDC(W), Nampally.

In the circumstances reported in references 1 to 3rd read above, the Commissioner of Collegiate Education, Telangana State, Hyderabad is hereby direct to work on "On Duty" till last day of summer vacation 2019-20 Academic Year and join their original place of work on the re-opening day of 2020-21 as shown hereunder:-

Sl. No.	Name of the Contract Lecturer	Subject	Presently working	"On Duty to Work" at
119	M.Santosh	Physics	GDC (A) Sangareddy	GDC (A) Mahabubnagar

Further, the Principals of Government Degree College concerned are requested to report compliance in the matter promptly.

The receipt of these proceedings shall be acknowledged.

(Orders issued with the approval of the Commissioner of Collegiate Education, Telangana State, Hyderabad)

Signature Not Verified

Digitally signed by N VIJAYA BHASKAR RAO

Date: 2019.12.31 16:05:41 IST

Reason: Approved



For COMMISSIONER OF COLLEGIATE EDUCATION

To

The Principal, Government Degree Colleges as mentioned above.

Copy to the Individual

(through Principal of the College)

Copy to the DTO / STO concerned

Copy to the GDC-CS concerned

PROCEEDINGS OF THE COMMISSIONERATE OF COLLEGAITE EDUCATION
TELANGANA::HYDERABAD

Present: Navin Mittal IAS

Sub:- Commissionerate of Collegiate Education-Govt. Degree Colleges- Reorganization of courses-Admissions in Govt. Degree Colleges-Workload Calculation-Reorganization of posts and Shifting of Surplus Employees along with post- Orders - Issued.

Read: 1. G.O.Rt.No.65 Higher Education (CE) Dept., dated 13.04.2018
- 2. File No.CCE-AC/GEN/82/2019-Academic Cell dated 19.10.2019
3. File No.CCE-AC/GEN/83/2019-Academic Cell dated 31.10.2019

The Commissioner of Collegiate Education has identified an imbalance in the teaching faculty in the colleges based on the workload calculation. In view of this, surplus regular faculty identified in some Government Degree Colleges are hereby shifted along with the posts to the required colleges based on the workload calculation for optimum utilization of regular teaching staff under administrative grounds.

In the circumstances reported in references 1 to 3rd read above, the Commissioner of Collegiate Education, Telangana State, Hyderabad is hereby shift the Lecturer along with the post as shown hereunder:-

Sl. No.	Name of the Lecturer Sri/Smt.	Subject	Presently working college	Shifting of the post along with the Person to the College
18	Rajendra Kumar	Hindi	Government Degree College, Shadnagar	Government Degree College (A), Sangareddy

The Principals of Government Degree Colleges are requested to relieve and admit to duty immediately and report compliance.

The Principals of Government Degree Colleges concerned are requested to make necessary entries in the respective staff register and scale register and report compliance immediately.

The receipt of these Proceedings shall be acknowledged.

(Orders issued with the approval of the Commissioner of Collegiate Education, Telangana State, Hyderabad)

Signature Not Verified

Digitally signed by Dr N Vijaya Bhaskar Rao

Date: 2019.11.01 18:17:15 IST

Reason: Approved



For Commissioner of Collegiate Education

To

The Individual Concerned

(through Principal of Government Degree College concerned)

Copy to the Principal, Government Degree College concerned.

PROCEEDINGS OF THE COMMISSIONERATE OF COLLEGAITE EDUCATION
TELANGANA::HYDERABAD

Present: Navin Mittal IAS

Sub:- Commissionerate of Collegiate Education-Govt. Degree Colleges- Reorganization of courses-Admissions in Govt. Degree Colleges-Workload Calculation-Reorganization of posts and Shifting of Surplus Employees along with post- Orders - Issued.

Read: File No.CCE-AC/GEN/81/2019-Academic Cell dated 12.10.2019

-

The Commissioner of Collegiate Education has identified an imbalance in the teaching faculty in the colleges based on the workload calculation. In view of this, surplus regular faculty identified in some Government Degree Colleges are hereby shifted along with the posts to the required colleges based on the workload calculation for optimum utilization of regular teaching staff under administrative grounds.

In the circumstances above, the Commissioner of Collegiate Education, Telangana State, Hyderabad is hereby shift the Lecturer along with the post as shown hereunder:-

Sl. No.	Name of the Lecturer	Subject	Presently working college	Shifting of the post along with the Person to the College
20	Ramulu	Public Administration	Government Degree College, Sadasivpet	Government Degree College (Co-Ed), Sangareddy

The Principals of Government Degree Colleges are requested to relieve and admit to duty immediately and report compliance.

The Principals of Government Degree Colleges concerned are requested to make necessary entries in the respective staff register and scale register and report compliance immediately.

The receipt of these Proceedings shall be acknowledged.

(Orders issued with the approval of the Commissioner of Collegiate Education, Telangana State, Hyderabad)

Signature Not Verified

Digitally signed by Dr C Manjulatha

Date: 2019.10.12 18:23:15 IST

Reason: Approved



For Commissioner of Collegiate Education

To

The Individual Concerned

(through Principal of Government Degree College concerned)

Copy to the Principal, Government Degree College concerned.

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI.NAVIN MITTAL, I.A.S.**

Sub: Centre of Excellence for Studies in Classical Telugu, Central Institute of Indian Languages(MHRD), Manasagangothri, Mysore-**"A five Day Workshop on "Prachina Telugu Sahitya Adhyayanam" from 16th to 20th September 2019**- Permission accorded to the List of Participants from Telugu Faculty from various GDCs to attend the Work Shop-Orders – Regarding.

Ref: Letter received from Project Director of Workshop, Centre of Excellence for Studies in Classical Telugu, Central Institute of Indian Languages, Mysore, dated: 06.09.2019

Vide reference read, the Commissioner of Collegiate Education has accorded permission to the list of following Telugu Faculty members from various GDCs of Telangana State to participate in the **Workshop on "Prachina Telugu Sahitya Adhyayanam" from 16th to 20th September 2019** which will be held at Central Institute of Indian Languages (MHRD), Manasagangothri, Mysore.

Sl. No	Name of the College	Name of the Faculty
1	Tara GDC, Sangareddy/GDCW, Nalgonda	Dr.Rapolu Srinivas
2	SRRGDC, Karimnagar	K.Malla Reddy
3	GDC, Siddipet	Nandigama Nirmala Kumari
4	GDCw, Kalwakurthy/GDCW, Jagtial	Goli Sreelatha
5	NG GDC, Nalgonda	Dr.N.Deepika

The absence of the above said faculty members shall be treated as **ON DUTY** for the said date and they are not eligible to claim TA/DA from the Colleges. In view of the above, the Principals of concerned GDCs are informed to relieve them to attend the above said Workshop.

Signature Not Verified

Digitally signed by Dr C Manjulatha
Date: 2019.09.09 01:20:00 IST
Reason: Approved



For Commissioner of Collegiate Education

To
The Principals of GDC concerned.

PROCEEDINGS OF THE COMMISSIONERATE OF COLLEGAITE EDUCATION
TELANGANA::HYDERABAD

Present: Navin Mittal IAS

Sub:- Commissionerate of Collegiate Education-Govt. Degree Colleges- Reorganization of courses-Admissions in Govt. Degree Colleges-Workload Calculation-Reorganization of posts and Shifting of Surplus Employees along with post- Orders - Issued.

Read: File No.CCE-AC/GEN/81/2019-Academic Cell dated 12.10.2019

-

The Commissioner of Collegiate Education has identified an imbalance in the teaching faculty in the colleges based on the workload calculation. In view of this, surplus regular faculty identified in some Government Degree Colleges are hereby shifted along with the posts to the required colleges based on the workload calculation for optimum utilization of regular teaching staff under administrative grounds.

In the circumstances above, the Commissioner of Collegiate Education, Telangana State, Hyderabad is hereby shift the Lecturer along with the post as shown hereunder:-

Sl. No.	Name of the Lecturer	Subject	Presently working college	Shifting of the post along with the Person to the College
18	Jyothi Sardar	Hindi	Government Degree College (W), Sangareddy	Government Degree College (Co-Ed), Sangareddy

The Principals of Government Degree Colleges are requested to relieve and admit to duty immediately and report compliance.

The Principals of Government Degree Colleges concerned are requested to make necessary entries in the respective staff register and scale register and report compliance immediately.

The receipt of these Proceedings shall be acknowledged.

(Orders issued with the approval of the Commissioner of Collegiate Education, Telangana State, Hyderabad)

Signature Not Verified

Digitally signed by Dr C Manjulatha

Date: 2019.10.12 18:25:57 IST

Reason: Approved



For Commissioner of Collegiate Education

To

The Individual Concerned

(through Principal of Government Degree College concerned)

Copy to the Principal, Government Degree College concerned.

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI.NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education-Tara GDC, Sangareddy-
A.Vishweshwara Sharma, Assistant Professor of English-
Served as a **Resource person** for a day on **11.10.2019** in
three day Orientation Programme organized by TTWREIS for
newly recruited TS Residential Degree College Lecturers-
Sanction of **On Duty**-Orders-Regarding.

Ref: Letter received from Principal, Tara GDC, Sangareddy,
dated: 13.10.2019.

Vide references read, the Commissioner of Collegiate Education has
accorded On Duty to **A.Vishweshwara Sharma**, Assistant
Professor of English, Tara GDC, Sangareddy served as a Resource
person on **11.10.2019** in a three day Orientation Programme
organized by Telangana Tribal Welfare Residential Educational
Institutions Society (TTWREIS) for newly recruited TW residential
Degree College Lecturers at Rajendranagar, Hyderabad.

The absence of the above said Assistant Professor shall be treated
as **ON DUTY** on above said date. In view of the above, the
Principal, Tara GDC, Sangareddy is informed to consider his absence
in the college as **On DUTY**.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by PODILA BALA BHASKAR
Date: 2019.10.17 10:55:16 IST
Reason: Approved



For Commissioner of Collegiate Education

To
The Principal of GDC concerned.

PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
TELANGANA::HYDERABAD

PRESENT: Sri Navin Mittal, I.A.S.,

Sub: TSCES – Dr. Ch. Jyothsna, Assistant Professor of Political Science, Government Degree College, Sadasivpet, Sangareddy Dist. - Permission to work at Government Degree College(A), Sangareddy on "On Duty" basis- Orders - Issued.

Read: As per the Note orders of the CCE in Note File bearing No. File No. CCE-AC/GEN/6/2019-ACADEMIC CELL (Computer No. 72006).

In the circumstances stated in the reference read above, the Commissioner of Collegiate Education, Telangana, Hyderabad is hereby accorded permission to Dr. Ch. Jyothsna, Assistant Professor of Political Science, Government Degree College, Sadasivpet, Sangareddy Dist. to work at Government Degree College (A), Sangareddy on "on duty" for the Academic year 2019-2020.

The Principal, Government Degree College, Sadasivpet, Sangareddy Dist. is requested to relieve the incumbent of the college immediately so as to enable her to work at Government Degree College(A), Sangareddy on "On Duty "basis. She will be claiming her salary at her parent institution on production of attendance certificate at the end of every month from the Principal, Government Degree College (A), Sangareddy.

The Principal, Government Degree College (A), Sangareddy is requested to admit the incumbent to duty and then submit the date of relief and joining to the Commissioner of Collegiate Education promptly.

The receipt of these proceedings should be acknowledged by return of post.

(Orders of the Commissioner of Collegiate Education have been obtained in the note file)

Signature Not Verified

Digitally signed by Dr C Manjulatha

Date: 2019.07.15 18:26:14 IST

Reason: Approved

For COMMISSIONER OF COLLEGIATE EDUCATION

To

Dr. Ch. Jyothsna, Assistant Professor of Political Science, Government Degree College, Sadasivpet, Sangareddy Dist. (through the Principal of the College).

Copy to the Principal, Government Degree College, Sadasivpet, Sangareddy Dist.

Copy to the Principal, Government Degree College (A), Sangareddy.

PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION

TELANGANA::HYDERABAD

PRESENT: Sri Navin Mittal, I.A.S.,

Sub: TSCES –Smt. M. Praveena, Assistant Professor of English, Government Degree College(A),Sangareddy - Permission to work at Government Degree College, Patancheru, Sangareddy Dist. on "On Duty" basis– Orders - Issued.

Read: As per the Note orders of the CCE in Note File bearing No. File No. CCE-AC/GEN/6/2019-ACADEMIC CELL (Computer No. 72006).

In the circumstances stated in the reference read above, the Commissioner of Collegiate Education, Telangana, Hyderabad is hereby accorded permission to Smt. M.Praveena, Assistant Professor of English, Government Degree College(A),Sangareddy to work at Government Degree College, Patancheru, Sangareddy Dist. on "on duty" for the Academic year 2019-2020.

The Principal, Government Degree College(A), Sangareddy is requested to relieve the incumbent of the college immediately so as to enable her to work at Government Degree College, Patancheru, Sangareddy Dist. on "On Duty "basis. She will be claiming her salary at her parent institution on production of attendance certificate at the end of every month from the Principal, Government Degree College, Patancheru, Sangareddy Dist.

The Principal, Government Degree College, Patancheru, Sangareddy Dist. is requested to admit the incumbent to duty and then submit the date of relief and joining to the Commissioner of Collegiate Education promptly.

The receipt of these proceedings should be acknowledged by return of post.

(Orders of the Commissioner of Collegiate Education have been obtained in the note file)

Signature Not Verified

Digitally signed by Dr C Manjulatha

Date: 2019.07.15 18:28:48 IST

Reason: Approved

For COMMISSIONER OF COLLEGIATE EDUCATION

To

Smt. M. Praveena, Assistant Professor of English, Government Degree College(A),Sangareddy (through the Principal of the College).

Copy to the Principal, Government Degree College (A),Sangareddy.
Copy to the Principal, Government Degree College, Patancheru, Sangareddy Dist.

PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
TELANGANA::HYDERABAD

PRESENT: Sri Navin Mittal, I.A.S.,

Sub: TSCES – Sri Rapolu Srinivas, Assistant Professor of Telugu, Government Degree College(A),Sangareddy - Permission to work at Government Degree College for Women, Nalgonda on “On Duty” basis– Orders - Issued.

Read: As per the Note orders of the CCE in Note File bearing No. File No.CCE-AC/GEN/6/2019-ACADEMIC CELL(Computer No. 72006).

In the circumstances stated in the reference read above, the Commissioner of Collegiate Education, Telangana, Hyderabad is hereby accorded permission to Sri Rapolu Srinivas, Assistant Professor of Telugu, Government Degree College (A), Sangareddy to work at Government Degree College for Women, Nalgonda on “on duty” for the Academic year 2019-2020.

The Principal, Government Degree College(A),Sangareddy is requested to relieve the incumbent of the college immediately so as to enable him to work at Government Degree College for Women, Nalgonda on “On Duty” basis. He will be claiming his salary at his parent institution on production of attendance certificate at the end of every month from the Principal, Government Degree College for Women, Nalgonda.

The Principal, Government Degree College for Women, Nalgonda is requested to admit the incumbent to duty and then submit the date of relief and joining to the Commissioner of Collegiate Education promptly.

The receipt of these proceedings should be acknowledged by return of post.

(Orders of the Commissioner of Collegiate Education have been obtained in the note file)

Signature Not Verified

Digitally signed by Dr C

Manjulatha

Date: 2019.07.15 17:52:26 IST

Reason: Approved

For COMMISSIONER OF COLLEGIATE EDUCATION

To

Sri Rapolu Srinivas, Assistant Professor of Telugu, Government Degree College(A),Sangareddy (through the Principal of the College).

Copy to the Principal, Government Degree College (A),Sangareddy.

Copy to the Principal, Government Degree College for Women, Nalgonda.

PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE
EDUCATION
TELANGANA::HYDERABAD

PRESENT: Sri Navin Mittal, I.A.S.,

Sub: TSCES – Sri D. Srinivas, Assistant Professor of History, Government Degree College, Sathupally, Khammam Dist- Permission to work at Government Degree College, Sangareddy on “On Duty” basis– Orders - Issued.

Read: As per the orders and approved list of the Commissioner of Collegiate Education, Nampally, Hyderabad in note file No. CCE-AC/GEN/6/2019, Dated 20.06.2019.

In the circumstances stated in the reference read above, the Commissioner of Collegiate Education, Telangana, Hyderabad is hereby accorded permission to Sri D. Srinivas, Assistant Professor of History, Government Degree College, Sathupally, Khammam Dist. to work at Government Degree College, Sangareddy on “on duty” basis for the Academic year 2019-20.

The Principal, Government Degree College, Sathupally, Khammam Dist. is requested to relieve Sri D. Srinivas, Assistant Professor of History of the college immediately so as to enable him to work at Government Degree College, Sangareddy on “On Duty” basis. He will be claiming his salary at his parent institution on submission of attendance certificate at the end of every month from the Principal, Government Degree College, Sangareddy Dist.

The Principal, Government Degree College, Sangareddy is requested to admit Sri D. Srinivas, Assistant Professor of History to duty and then submit the date of relief and joining to the Commissioner of Collegiate Education promptly.

The receipt of these proceedings should be acknowledged by return of post.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by BHANAVATH SWAMY

Date: 2019.06.26 16:43:29 IST

Reason: Approved 

For COMMISSIONER OF COLLEGIATE EDUCATION

To

Sri D. Srinivas, Assistant Professor of History, Government Degree College, Sathupally, Khammam Dist. (through the Principal of the College).

Copy to the Principal, Government Degree College, Sathupally, Khammam Dist.

Copy to the Principal, Government Degree College, Sangareddy Dist. Copy to Services-I,II,IV Sections of this office.

TARA GOVERNMENT COLLEGE, SANGAREDDY – 502 001
(AUTONOMOUS)

BONAFIDE CERTIFICATE

Certified that the project report “Antimicrobial Silver Nanoparticle coating on Currency notes and Mobile phones using Eco-friendly Tollens process for prevention of infectious diseases”

is the bonafidework of

S.No.	Name of the Student	Roll Number	Group	Year
1	A.Bhanupraksh	17016058445001	B.Sc.(BZC)	III
2	J.Manjulatha	17016058457025	B.Sc.(MZC)	III
3	A.Pranaya	17016058481001	B.Sc.(BCCA)	III
4	P. Pooja	17016058445028	B.Sc.(BZC)	III
5	J.Swetha	17016058457026	B.Sc.(MZC)	III
6	G.Sai Ganesh	17016058457023	B.Sc.(MZC)	III

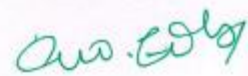
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Antimicrobial Silver Nanoparticle coating on Paper currency notes and Mobile phones using Eco-friendly Tollens process for prevention of infectious diseases

INTRODUCTION:

Contaminated Paper currency notes may cause a public health risk by spreading nosocomial (Hospital acquired infections) infections when simultaneous handling of food and in addition to this, also cause normal sort of contaminations in persons with immunodeficiency. Especially when banknotes recovered from hospitals may be highly contaminated by *Staphylococcus aureus*, *Salmonella* species and *Escherichia coli*. Laboratory studies revealed that methicillin-resistant *S. aureus* can easily survive on paper currency notes, whereas *E. coli*, *Salmonella* species and viruses, including human influenza virus, Norovirus, Rhinovirus, hepatitis A virus and Rotavirus, which can be transmitted through hand contact. Large-scale, 16S rRNA, metagenomic studies and culturomics have the capacity to dramatically expand the known diversity of bacteria and viruses on money and fomites [1].

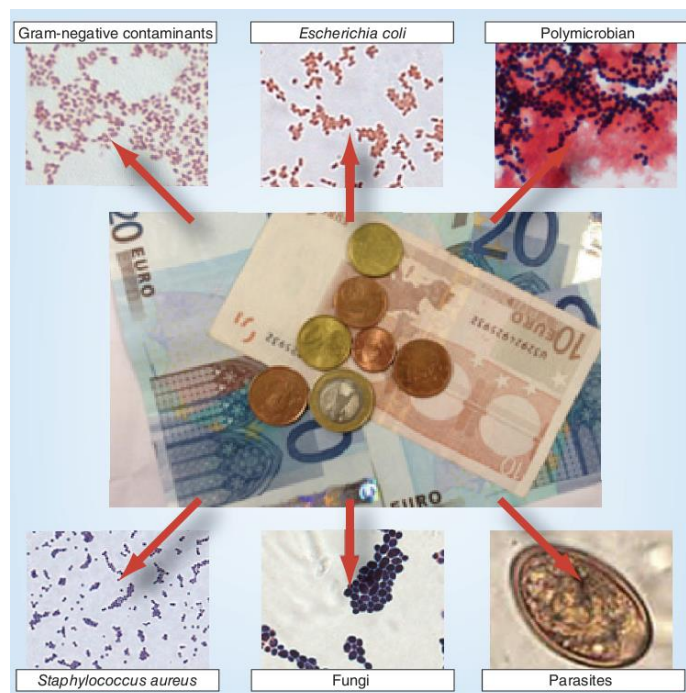


Figure 1: Depiction microbes on paper currency notes (**Courtesy:** *Future Microbiol.* (2014) 9(2), 249–261).

Similarly, constant handling of the Mobile phone by different users exposes it to an array of microorganisms, and makes it a good carrier for microbes, especially those associated with the skin resulting in the spread of different microorganisms from user to user. Because of the multifaceted benefits of the mobile phones, it is easy to overlook its hazard to health; this is against the background that many users may have no regard for personal hygiene, and the number of people who may use the same phone. Many research studies has shown that the mobile phone could be a health hazard with tens of thousands of microbes living on each square inch of the phone [2,3].



Figure 2: Depiction microbes on Mobile phones.

(**Courtesy:** <https://www.phonesoap.eu/medical-professional>)

However, Nosocomial infections caused by microorganisms which usually originated from hospital environments and cross-contamination due to the incorrect use of medical equipment can be prevented or reduced by replacing normal equipments with Silver nanoparticles (AgNPs) coated medical devices [4,5]. Many medical studies have revealed that silver is effective against more than 650 pathogens, having a broad spectrum of activity. Further its use in the form of Nanoparticles enhances this property up to great extent and allows its use in a wide range of applications [6, 7]. Therefore, in recent years Nano-silver is considered as one of the most viable

alternatives to antibiotics because it seems to have high potential to solve the problem of multidrug resistance, which is often observed in several bacterial strains [8-10].

Nanoparticles are usually a clusters of atoms, with sizes ranging between 1 and 100 nm, whereas the word “Nano” is used to indicate one billionth of a meter [11-13]. Because of the variation in the size of AgNPs, they exhibited variety of physical and chemical characteristics to that of metallic silver [14, 15].

The silver is well known for its antimicrobial activity. In Nano-metric form, silver has shown accentuated antimicrobial characteristics. Due to their nano scale size, AgNPs can enter in to cells and inhibit enzymatic systems in the respiratory chain of some bacteria and thereby alter their DNA synthesis. AgNPs, their use can be recommended as a good alternative for the control of microorganisms, with less risk of toxicity to human cells [16].

Various studies have revealed the effectiveness of AgNPs as dressings for covering burns to surgical devices and bone prostheses, and are incorporated into clothing – always with the aim of producing antimicrobial effect [17-20].

In this context, we have been used silver nanoparticles (AgNP) to coat the surfaces of both Paper currency notes and mobile phones for the prevention of microbial contamination.

RESEARCH PROBLEM:

In recent time, healthcare-associated infections are one of the most serious patient safety issues in healthcare today [21]. Most microbes are able to survive on surfaces and Paper currency note’s surfaces can act as sources of pathogen transmission if no disinfection is performed. In addition, the survival of nosocomial bacterial strains, including methicillin-resistant *Staphylococcus aureus* (MRSA), in the environment is of great interest to infection control professionals [22]. Moreover, workers who are working with food and edible products have been implicated in several outbreaks of food-borne diseases who were frequently handling contaminated paper currency notes and human occupational activities could introduce the risk of food contamination [23]. Pathogens that can infect food workers have multiple sources among them paper currency notes occupy considerable portion and contaminated workers in turn become potential sources of contamination in food processing and preparation facilities [24].

In addition to the Paper currency notes, mobile phones also act as potential non-vector causative factors for microbial contamination due to its constant contact with humans. According to many microbial studies conducted by Microbiologists reveal the combination of constant handling with the heat generated by the mobile phones creates a prime breeding platform for many microorganisms that are normally found on the skin. Staphylococci species, particularly *S. epidermidis* are which belongs to the normal flora of the human skin, respiratory and gastrointestinal tracts. 20-50% of human beings contain *S. aureus* in their nasal carriage. are also found regularly on Clothes, bed linen, and other human environments usually contains Staphylococci species [25]. *Staphylococcus aureus*, a common bacterium found on the skin and in the nasal fluids of up to 25% of healthy people and animals can cause illnesses from pimples and boils to pneumonia and meningitis, and is a close relative of methicillin Resistant *Staphylococcus aureus* (MRSA). Human hand acts as main reservoir of *S. aureus* from where it is introduced into food during preparation [26]. The hands also serve as a major vehicle of transmission of various pathogens including the enteric species [27]. *Proteus mirabilis* is one of the most common Gram-negative pathogens found in clinical specimens. It can cause a variety of community or hospital-acquired infections, including those of the urinary tract, respiratory tract, wounds and burns, bacteraemia, neonatal meningoencephalitis, empyema and osteomyelitis [28]. After *Escherichia coli*, *P. mirabilis* is the member of the Enterobacteriaceae most often isolated in European clinical microbiology laboratories [29] and accounting for ~3% of nosocomial infections in the United States [30]. *Pseudomonas aeruginosa* is a metabolically versatile γ -Proteobacterium, which inhabits terrestrial, aquatic, animal, human, and plant-host-associated environments [31].

To address the above issues the common utility objects like Paper currency notes and mobile phone surfaces should be disinfected regularly with broad spectrum antibiotics. These antibiotics are chemically unstable under the normal handling conditions and their efficacy will reduced significantly with time. Hence these antibiotics should be used regularly used for disinfection, which leads to evolution of multi-drug resisted microbial strains. This further ruins the public health care with diseases which will not be controlled by normal dosage of antibiotics.

To answer the above research problem innovative approach of coating Silver nanoparticles on surfaces of Paper currency notes and mobile phones has been adopted. The

most applied method for AgNPs preparation is by the reduction of Ag^+ in aqueous solution. For this purpose we have used simple Tollens process with slight modifications.

Owing to their peculiar properties Nanoparticles attracts great interest for applicative methods in many disciplines [32], among them the most advance application is in the field of biology and medicine [33]. Many metals like silver, copper, gold, magnesium etc. have been exhibited potential antimicrobial property in the form of Nano-particles and among these silver was the most efficient [34]. The antimicrobial activity of Silver nanoparticles (AgNPs) against both pathogenic fungi and bacterial strains is attracting researcher's attention in multidisciplinary applications of health care. Many bacterial strains have great intrinsic antimicrobial resistance limiting the number of effective antibiotics. Thus, metallic antimicrobial agents such as silver nanoparticles (AgNPs) are considered as potential agents to help manage and prevent infections. AgNPs can be used in several applications against bacteria which are resistant to common antibiotics or even multiresistant bacteria such as *P. aeruginosa*.

OBJECTIVES:

- The major objective of the project is to develop a protective strategy for prevention of microbial infections caused by contaminated Paper currency notes and Mobile phones using concepts of nanotechnology.
- To Design the novel synthetic strategy for coating silver nanoparticles (AgNP) on Paper currency notes and mobile phone screen using simple tollens reagent and evaluate its antimicrobial efficacy against both bacteria and fungi by microbial screening methods.

REVIEW OF LITERATURE:

- Nosocomial infections caused by contaminated Paper currency notes have a significant impact on public health in recent time. According to the studies conducted by *Emmanouil Angelakis et al.*[1] stated that that contaminated money and coins are a public health risk when associated with the simultaneous handling of food, and Paper currency may spread nosocomial infections. We have highlighted the potential for banknotes and coins to carry bacteria and fungi, as well as their potential capacity to

spread infectious agents. In addition, banknotes and monetary coinage can act as potential reservoirs for antibiotic-resistant bacteria, such as MRSA.

- Similarly mobile phones also act as non vector factors for cross-contamination. **Saeed Banawas et al.**[35] reported that the cell phones of healthcare workers can be contaminated by a wide range of bacteria including multidrug resistance bacteria. Bacteria may be readily able to adhere to the surface of mobile phones, and the heat emitted by the cell phone enhances bacterial growth and these bacteria can then be transferred to one person to another. Another study conducted by **Raghavendra Rao Morubagal et al.**[36] also revealed the presence of pathogenic bacteria on Mobile phones which are capable of causing infections when dealt with health care associates.
- **R. Salomoni et al.** [16] in their study explained the antibacterial activity of AgNPs especially multidrug resistant strains of *Pseudomonas aeruginosa* which are common pathogens in nosocomial infections.
- According to study conducted by **K. M. Alananbeh et al.**,[37] AgNP have been possess potential antifungal activity against various fungal strains like *Aspergillus* sp. i.e. *A. niger* and *A. terreus*. The gradual growth reduction was clear in both *Aspergillus* species with the increase in concentration of the AgNP.
- **Yadong Yin et al.** [38] reported a simple and convenient procedure based on the Tollens process for the preparation of silver nanoparticles with a relatively narrow distribution in size in the range of 20–50 nm. These silver particles could be easily prepared either as stable aqueous dispersions or as decorative coatings on microspheres and surfaces.
- **Gayatri Dhulappanavar et al.** [39] reported an eco-friendly synthesis of AgNP using Lemon fruit juice (*Citrus limon L.*) as a reducing and stabilizing agent.
- According to study conducted by **Padma S Vankar and Dhara Shukla** [40] showed that Antimicrobial finish on fabric provided durable textile finish on cotton and silk fabric. The Preparation of silver nanoparticles (AgNP) have been carried out biosynthetically using aqueous extract of Lemon leaves (*Citrus limon*) which acts as reducing agent and encapsulating cage for AgNP.
- Polymer nanocomposites containing metal nanoparticles have attracted a great interest due to their unique chemical and physical properties. “Green” chemistry promotes application of natural fibers in such structures, among them cellulose is one of the most

frequently used. However, cellulose fabrics have ability to absorb moisture, so under certain conditions of humidity and temperature they can be subjected to microbial attack. One of the most popular and best known antibacterial agents is silver, which serves as a potential antibacterial material acting against an exceptionally broad spectrum of bacteria including activity against antibiotic-resistant bacteria. **Dagmara K. Chmielewska et al.**[41] revealed in their studies that Silver nanoparticles (Ag NPs) were grown at the cellulose fibers surface by direct reduction of AgNO_3 with electron beam (EB) application.

- **E. Smiechowicz et al.** [42] reported the enhanced antibacterial activity of nanocomposite cellulose fibers of Lyocell type modified with nanosilver particles and nanosilica.

RESEARCH METHODOLOGY:

Nanotechnology deals with various structural aspects of matter having dimensions of the order of a billionth of a meter. Based on the size, Nano-materials are usually intermediate between macroscopic solid materials and of atomic and molecular systems. Specific physical, chemical and biological properties of Nano-materials make them dissimilar from the macroscopic bulk materials. These properties of Nano-particles provide us the scope of multiple applications in advance research to day to day life.

Based on the size, morphology, physical and chemical properties NPs (Nano-particles) were categorized into different types namely ceramic nanoparticles, carbon-based nanoparticles, metal nanoparticles etc. Among these Metal based Nps have shown multifaceted applications. Metal nanoparticles are prepared from metal precursors. These nanoparticles can be synthesized by chemical, electrochemical, or photochemical methods. In chemical methods, the metal nanoparticles are obtained by reducing the metal-ion precursors in solution by chemical reducing agents. These have the ability to adsorb small molecules and have high surface energy. In the present study we use nanotechnology to answer the research problem, i.e. to design antimicrobial protective layer on Paper currency notes and mobile phone surfaces for prevention of microbial contamination. For this we have chosen AgNP because of its significant antimicrobial activity,

AgNP have several merit over normal antibiotics which includes long period of effectiveness and will not initiate drug resistance among the microbial strains.

In the present study we have used very simple Tollens process which is used to identify aldehyde functional group in the organic chemistry.

CONCEPT:

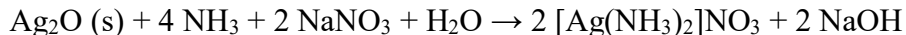
Tollens' reagent is usually used to determine the presence of aldehyde functional group on aliphatic, aromatic and carbohydrate (reducing sugars) moieties, it will also give positive test with some alpha-hydroxy ketones which can tautomerize into aldehydes. The reagent is prepared from aq. silver nitrate solution, ammonia and some sodium hydroxide (to maintain a basic pH of the reagent solution). It was named after its discoverer, the German chemist Bernhard Tollens [43]. A positive test with Tollens' reagent is indicated by the precipitation of elemental silver, often producing a characteristic "silver mirror" on the inner surface of the reaction vessel.



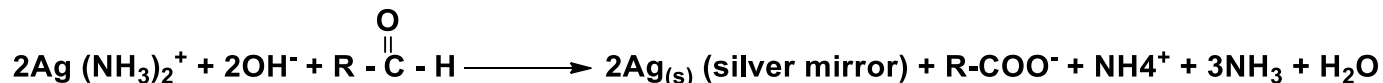
This reagent is freshly prepared in the laboratory for immediate use due to its short shelf life and easily decomposes hence it is not commercially available. Commonly the preparation involves two steps. First a few drops of dilute sodium hydroxide are added to some aqueous 0.1 M silver nitrate. The HO^- ions convert the silver aquo complex form into silver oxide, Ag_2O , which precipitate from the solution as a brown solid:



In the next step, sufficient aqueous ammonia is added to dissolve the brown silver(I) oxide. The resulting solution contains the $[\text{Ag}(\text{NH}_3)_2]^+$ complexes in the mixture, which is the main component of Tollens' reagent. Sodium hydroxide is reformed:



Aldehydes/Reducing sugars are easily oxidized by mild oxidizing agents such as Ag^+ . The silver mirror test is the reaction of a sample with a solution containing silver-ammonia complex ions. When this reagent oxidizes the aldehyde, the silver ions are reduced to metallic silver, which forms a black precipitate, and if the test tube is clean, a silver mirror on the test tube. The overall reaction is as follows:



MATERIALS:

Silver nitrate (AgNO_3 ; > 99.5% purity), Sodium hydroxide, D-Glucose anhydrous were purchased from SD fine (India). All chemicals were of analytical reagent grade and were used without further purification. Other chemicals used in this project extracted from natural sources.

METHODS:

Preparation of silver nanoparticles (AgNP):

A mixture of 5ml 0.001M AgNO_3 and 5ml 0.001M NaOH solution mixed to form turbid precipitated solution. To this, aqueous ammonia was slowly added to make clear solution of Tollens reagent, followed by the addition of 5ml 0.001M glucose solution. The mixture is taken in 10ml vials and immersed in a sonication bath for one hour for synthesis of AgNP. These aqueous dispersions of silver nanoparticles were also very stable and no sedimentation formed even after being stored for a longer periods. The solution of AgNP was then diluted to 2, 3, 4 folds with de-ionized water.

Coating of AgNP on Paper currency notes:

The Paper currency notes initially cleaned with cotton wool to remove dust and dirt particles and then AgNP solution sprayed on it uniformly and swapped with cotton wool dipped in dilute Lemon fruit juice (*Citrus limon L.*) as it stabilized the AgNP on Paper currency notes and also reduces any traces of Ag⁺ ions left over [40]. The AgNP plausibly deposited on cellulose fibers of Paper currency notes which provide firm binding.

Coating of AgNP on Mobile phone Screen:

Coating of AgNP on mobile phone screen (tempered glass) is difficult as Polyethylene terephthalate (PET) or Thermoplastic polyurethane (TPU) which provided smooth surface over which adsorption or binding of AgNP is not possible. Therefore we opted a innovative approach, in which Bio-film of orange peel extract was initially coated over mobile phone screen. The bio-film cross-linked with polymeric material of screen and provides a transparent texture. Upon this layer AgNP solution sprayed uniformly and wiped with cotton wool dipped in dilute Lemon fruit juice (*Citrus limon L.*) for stabilization of nanoparticles.

Characterization of AgNP:

The AgNP samples collected by scratching AgNP treated Paper currency notes were characterized by using Scanning electron microscope (SEM). Morphology of the samples was studied using a scanning electron microscope with a detector of back-scattered electrons (SEM-BSE) equipped with an energy dispersive spectrometer (EDS) which allows to determine precisely elemental composition of materials. Samples for SEM-BSE were prepared according to the standard procedure, fixed with conductive glue and covered with a thin gold layer. The thermal investigation of cellulose fibers with silver particles was carried out with Q 500 TGA (T. A. Instruments) from 30 to 600°C at a heating rate of 10°C per min, under a constant flow (60 ml/min) of nitrogen gas.

Antimicrobial Screening:

The efficacy of AgNP was tested by Antimicrobial Screening on both bacterial (Gram positive and Gram negative strains) and fungal species.

Antibacterial activity:

Inoculums of bacterial strains were prepared by using Nutrient broth (pH 7.2) and for antibacterial screening the agar medium was sterilized by autoclaving at 120°C for 15 min. The Petri plates and pipettes were sterilized by dry heat in a hot- air oven at 150°C for 1 hr. About 20 mL of the molten agar medium was poured in each of sterilized Petri plates .The microorganisms employed in this study were one gram positive bacteria; *Staphylococcus aureus* (MTCC – 96) and one gram negative bacteria, *Pseudomonas aeruginosa* (MTCC – 424). The inoculum was standardized at 1×10^6 CFU/ml comparing with turbidity standard (0.5 MacFarland tube). The AgNP solutions with different concentrations (standard, 2, 3, 4 fold dilutions) were spray uniformly over sterilized whatman filter paper followed by wiping with cotton wool dipped in dilute Lemon fruit juice. This paper was cut into 5 mm discs and were screened in vitro for their antibacterial activity by the cup-plate agar diffusion method [44]. The auto calved Nutrient broth media Inoculation of *Pseudomonas aeruginosa* (gram-negative) and *Staphylococcus aureus* (gram-positive) were Incubate over night at 37° C in shaker for Bacterial growth. From this 0.3ml of bacterial culture was taken and inoculated by using spreader on freshly prepared auto calved agar plates. After drying of plate prepared AgNP 5 mm sample discs were kept on microbial plate along with positive controls Norfloxacin for *Staphylococcus* and *Pseudomonas* strains. After overnight incubation at 37° C in BOD incubator zone of inhibition is measured by measuring scale. The zone of inhibition (in mm) was compared with standard drugs.

Antifungal activity:

Sclerotium rolfsii inoculam was inoculated to the freshly prepared sterilized Potato Dextrose Broth and allowed for fungal growth. After the growth of fungus, inoculum was added to the sterilized PDA plates for anti fungal Activity. Further, 5 mm AgNP discs were prepared by using whatman filter paper as discussed above. The Inoculation of *Sclerotium rolfsii* fungal strain which were obtained from MTCC in autoclaved PDB media and incubate for 3-4 days at 30° C in

shaker for fungal growth. From that 20 μ l of Fungal culture was taken and inoculated by inoculation loop on freshly prepared autoclaved agar plates. Different 5 mm AgNP discs were kept on microbial plate along with antifungal agent as a control i.e. Ketoconazole. These plates were incubated for 5-6 days at 30° C in BOD incubator and zone of inhibition (in mm) is measured by measuring scale.

RESULTS AND DISCUSSIONS:

(Data Analysis-Findings)

It is evident from SEM-BSE micrographs of AgNP–cellulose composites (**Fig-3**) obtained for 0.001M concentrations of the applied AgNO₃ solution that the silver nanoparticles present on the surface of cellulose fibers of Paper currency notes. The size and shape of the silver particles varies from 20nm to 50nm. Whereas the scratched material of mobile phone screens also confirmed the presence of AgNP with size and shape of the silver particles varies from 15nm to 50nm. (**Fig-4**)

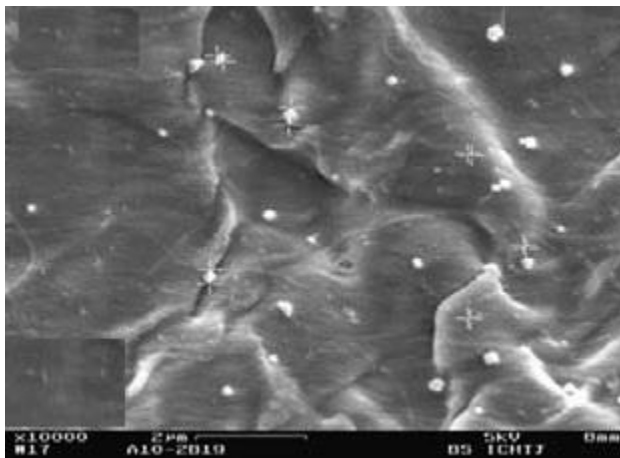


Figure 3: SEM image of AgNP distributed on cellulose fibers of Paper currency notes.

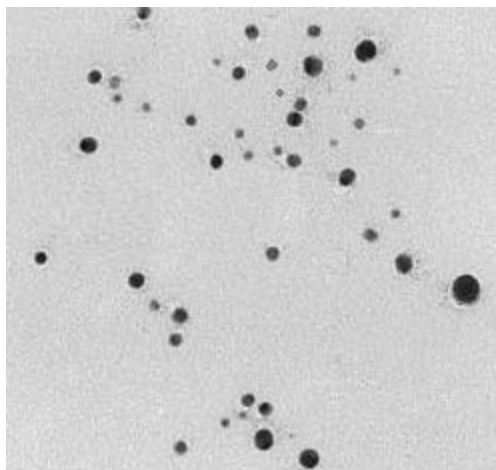


Figure 4: SEM image of AgNP in scratched material of AgNP-coating of Mobile phone screen.

From the anti-microbial studies it is evident that the AgNP treatment on Paper currency notes and cell phone screens provide potential antimicrobial barrier against both bacteria and fungi. The *in vitro* antimicrobial (anti-fungal & anti-bacterial) results are tabulated in Table 1.

Table 1. Antimicrobial activity (Zone of inhibition in mm) of different samples (Different dilutions)

Entry	Sample	<i>P. aeruginosa</i>	<i>S. aureus</i>	<i>S.rolfsii</i>
1	Standard	7	8	9
2	2-fold dilution	7	6	8
3	3-fold dilution	6	5	2
4	4-fold dilution	2.5	2.5	2
5	5-fold dilution	2.5	2.5	2
6	Control ^[a]	11	15	5

[a] Controls: Norfloxacin for *S. aureus*, and *P.aeruginosa* and Ketoconazol for *S.rolfsii*.

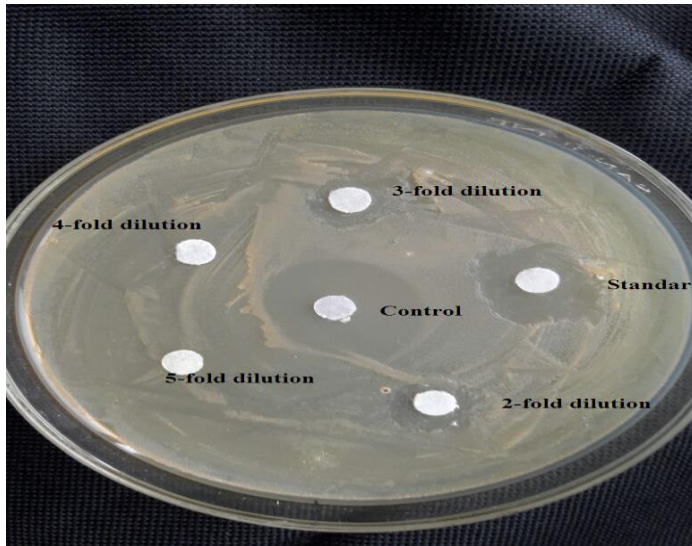


Figure5. Antimicrobial activity (Zone of inhibition in mm) against *P.aeruginosa*.

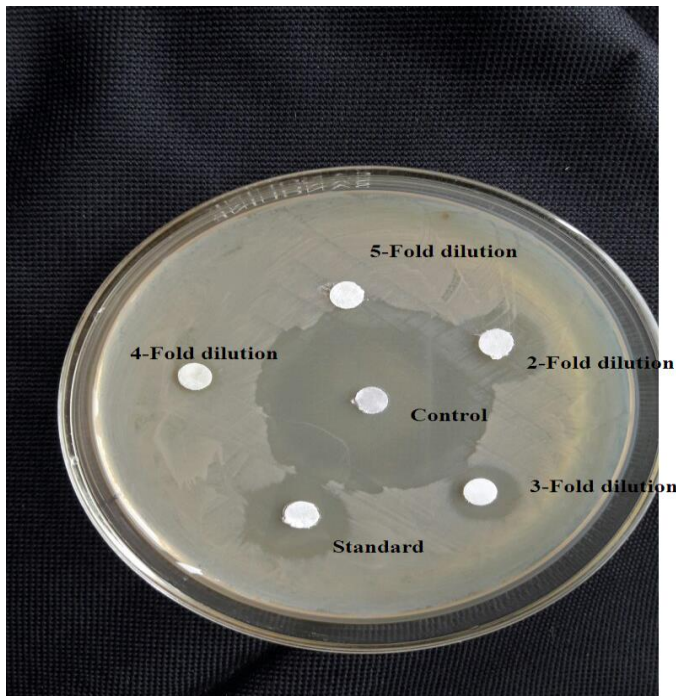


Figure 6. Antimicrobial activity (Zone of inhibition in mm) against *S. aureus*.

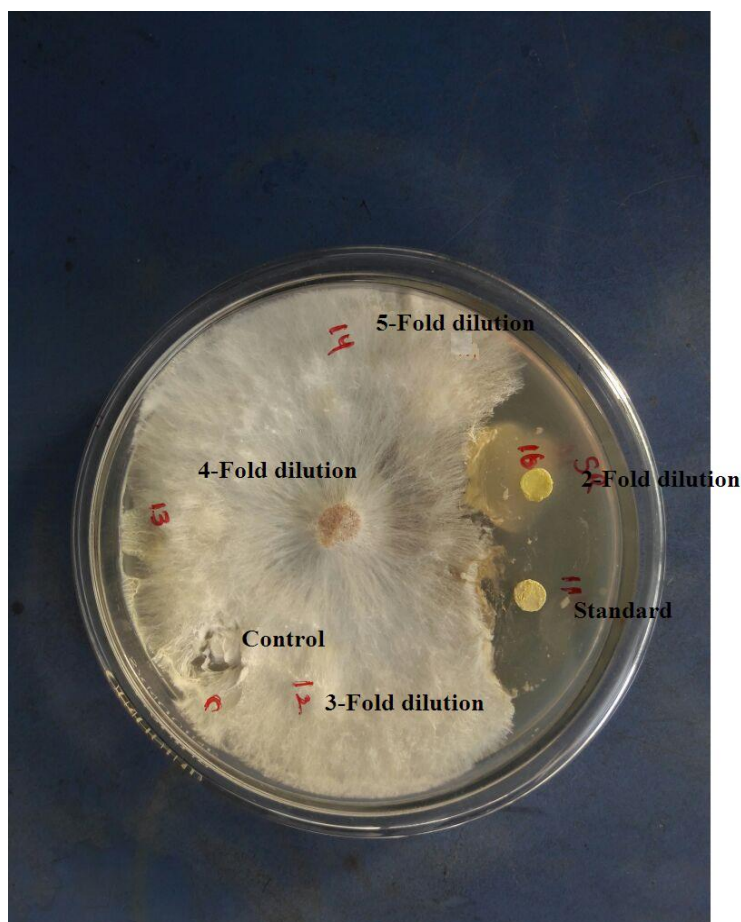


Figure 7: Antimicrobial activity (Zone of inhibition in mm) against *S.rolfsii*.

The presence of definite zone of inhibition surrounding the disc indicated antimicrobial activity. All the samples have shown Excellent to good antibacterial activity against both Gram positive bacteria and Gram negative bacteria compared to the standard antibiotic Norfloxacin. The samples up to 3-fold dilutions have shown excellent activity but beyond that (4 and 5-fold dilutions) antibacterial activity drastically decreased. Whereas, anti-fungal activity of the AgNP samples showed more potentiality compared to standard antifungal agent Ketoconazol especially for standard and 2-fold diluted AgNP samples.

This benign process is completely eco-friendly as the chemicals used are non-hazardous and extracted from natural sources. moreover the procedure of coating AgNP is very economical as each 500 Rs Paper currency note or Mobile phone screen needed 20 pisa only.

CONCLUSION:

From the current project it is clear that AgNP coating on Paper currency notes and Mobile phone screens by using innovative modified Tollens process provide an excellent protection against microbial contamination which will be fatal in nosocomial infections caused by microorganisms in hospitals when contaminated Paper currency notes and Mobile phones handled by healthcare associates. The problem of cross contamination will be serious in patients with immunodeficiency disorders like HIV/AIDS or patients who were underwent organ transplantation to whom usually immune-depressant drugs were given. The outlook of the projects also opens new avenue for public health care aspects especially in situations where multidrug bacterial strains like *mycobacterium tuberculi* evolved by excessive use of antibiotics. The process is very convenient, ecofriendly and economical to scale up for bulk usage.

SUGGESTIONS:

Further studies should investigate the combination of AgNPs and antibiotics against resistant hospital strains for the development of new materials and substances for medical application. As “*prevention is better than cure*” the following suggestions were made based on this project:

- The paper currency notes should be printed with inks impregnated with the AgNP.
- Automatic Teller Machines (ATM) should be reloaded with AgNP suspension for spraying on used Paper currency notes.
- The interiors of hospitals to be painted with AgNP impregnated paints to prevent Nosocomial infections and to keep the intensive care units (ICU) hygiene and sterile.
- To prevent contagious diseases like swine flu, the public transport utilities like buses and metros to be coated with AgNP impregnated paints.
- The mobile phone screen guards to be manufactured with AgNP incorporated polymers.

ACKNOWLEDGEMENTS:

We are thankful to Ciencia Life sciences, Hyderabad, India for providing bacterial and fungal strains for antimicrobial screening.

ABBREVIATIONS

rRNA	Ribosomal ribonucleic acid
AgNP	Silver Nano-particles
DNA	Deoxyribonucleic acid
MRSA	Methicillin-resistant Staphylococcus aureus
EB	Electron beam
SEM	Scanning electron microscope
BSE	Back-scattered electrons
EDS	Energy dispersive spectrometer
MTCC	Microbial Type Culture Collection
PDA	Potato Dextrose Agar
PDB	Potato Dextrose broth
BOD	Biochemical oxygen demand
HIV	Human immunodeficiency virus
AIDS	Acquired immune deficiency syndrome

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PHOTO GALLERY

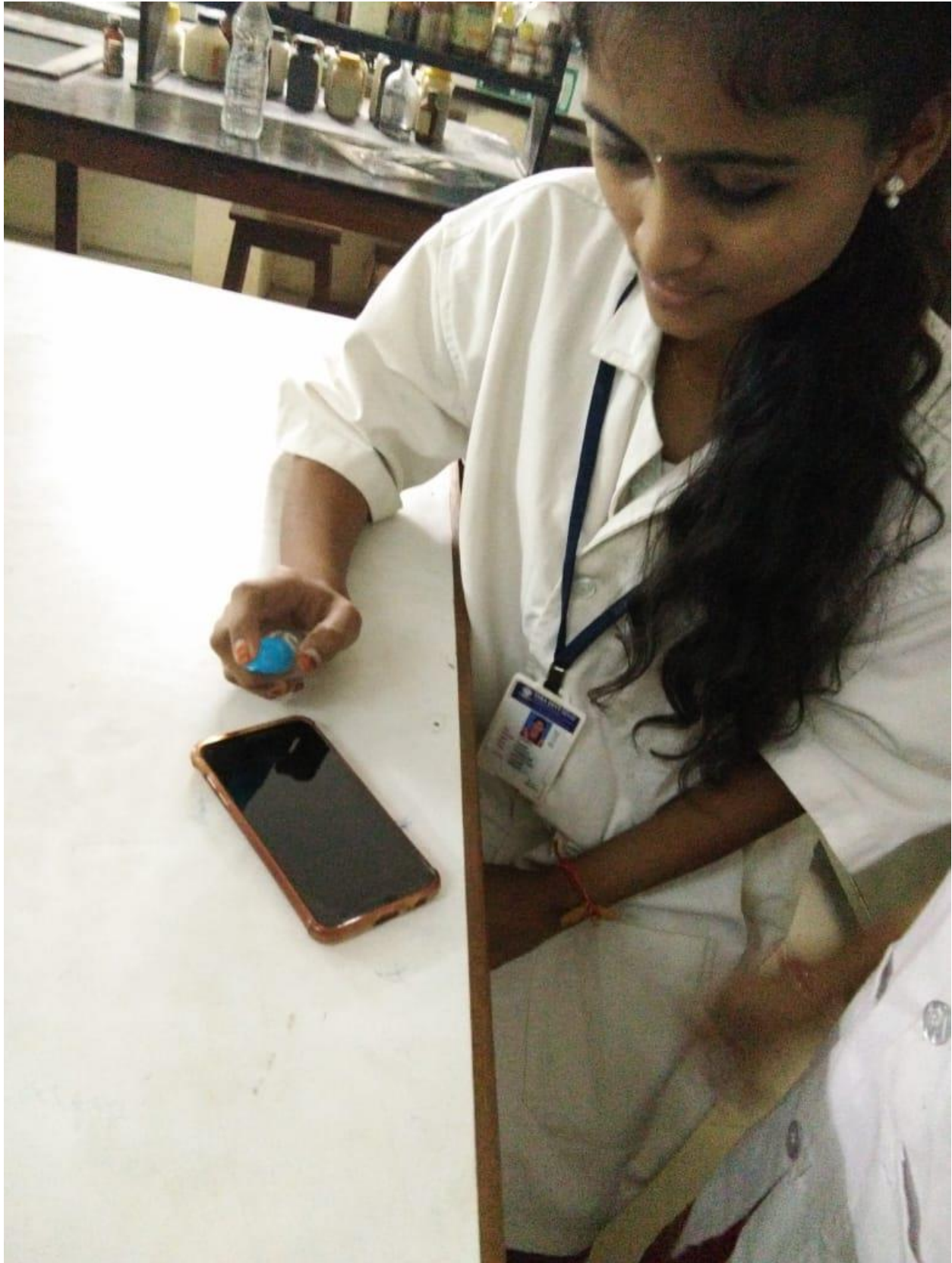


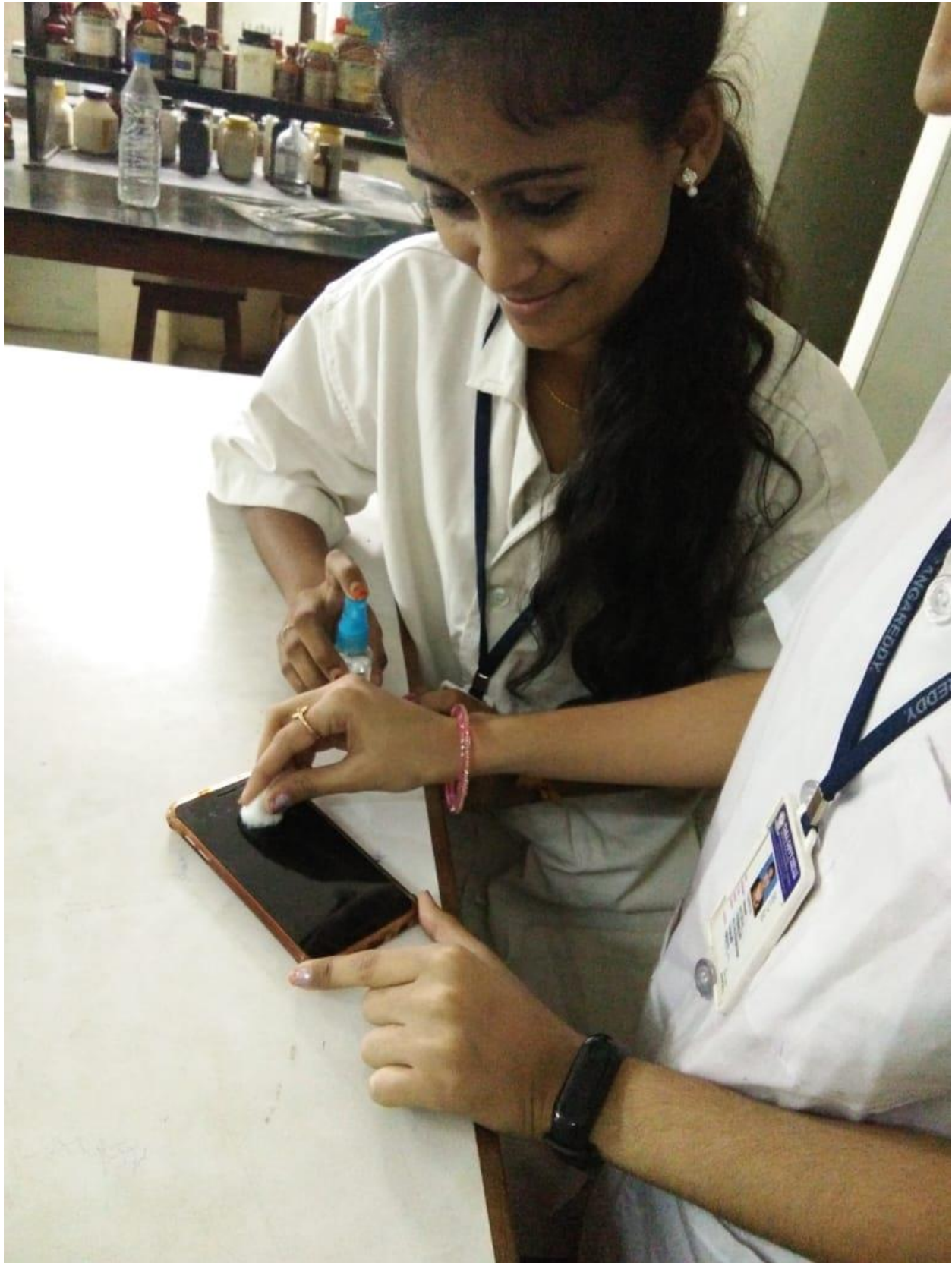


















**Memorandum of Understanding (MoU)
For Academic and Scientific Cooperation
Ciencia Life Sciences, Hyderabad**



**Department of Chemistry,
TARA GOVERNMENT COLLEGE,
(AUTONOMOUS)
Sangareddy.**

Sulthana
Managing Director
Ciencia Life Sciences, Hyderabad.

P. Vinod
Principal
Tara Govt. College(A),
Sangareddy.

P. Vinod
Head of Department,
Department of Chemistry,
Tara Govt. College (A), Sangareddy



**Memorandum of Understanding (MoU)
For Academic and Scientific Cooperation
Ciencia Life Sciences, Hyderabad**



**Department of Chemistry,
TARA GOVERNMENT COLLEGE,
(AUTONOMOUS)
Sangareddy.**

Sadhana.y
Managing Director
Ciencia Life Sciences, Hyderabad.

Prini
Principal
Tara Govt. College(A),
Sangareddy.

Aravind
**Head of Department,
Department of Chemistry,
Tara Govt. College (A), Sangareddy**

**PROCEEDINGS OF COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA
PRESENT: SRI.NAVIN MITTAL, IAS.**

Sub:- Accreditation of GDCs-New system of Assessment by NAAC- Status of preparation for NAAC Reaccreditation-Visits to certain GDCs-Reg.
Ref:- CCE-AC/QLTY/NAAC/2/2018-ACADEMIC CELL

Vide reference read, certain GDCs due for NAAC reaccreditation have submitted the status of preparation to the Commissioner of Collegiate Education. In this connection, GDC (W) Siddipet has submitted IIQA and is preparing SSR for fresh accreditation.

In view of the above, Principal, GDC (W) Siddipet has requested Commissioner, Collegiate Education for the guidance of Sri.A.Vishweswara Sharma, Asst. Professor of English, GDC (A) Sangareddy, in the submission of data on College website from 28th to 31st January 2020.

In this connection, Principal, GDC (A) Sangareddy is informed that the absence of above mentioned faculty shall be considered as ON DUTY.

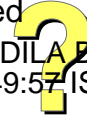
The faculty visiting the college have to submit the report on the actual status of preparation in respective GDC on or before 03.02.2020.

Signature Not Verified

Digitally signed by PODILA BALA BHASKAR

Date: 2020.01.31 10:49:57 IST

Reason: Approved



For Commissioner of Collegiate Education

To
The Principals of GDCs concerned



TARA GOVERNMENT COLLEGE (AUTONOMOUS)



Sangareddy District Identified College & District Resource Centre)

(Affiliated to Osmania University & Accredited by NAAC with 'B' grade, 2.75 CGPA)

SANGAREDDY-502 001, SANGAREDDY (Dist.), T.S.

E-mail: prl-gdc-srd-ce@telangana.gov.in Website: www.taragc.ac.in

Dr. Chandra Mukherji, M.A., M.Phil., Ph.D.
Principal

Mobile: 07032960368
E-mail: tara.sangareddy@gmail.com

Lr.Rc.No:190/TGC-SRD/2019-20

06 January 2020

TO
The Commissioner of Collegiate Education,
Telangana State, Nampally,
Hyderabad-500001.

Esteemed sir,

Sub:Joining of Smt.T.Navya, Contract Lecturer in Commerce, Govt. Degree College (W), Sangareddy- Identified the Surplus Contract lecturers due to Relocation of regular faculty- Submission of joining report -**Reg.**

Ref: 1.CCE-SER/2/CLEC/9/2019-SER@,Dt:31.12.2019
2. Relieving letter from GDC(W), Sangareddy
3. Applicant Joining Letter, Dt:03.01.2020

In obedience to the orders of CCE reference cited, I submit that Smt.T.Navya , Contract Lecturer in Commerce, Govt. Degree college(W),Sangareddy.The Hon'ble CCE Identified the surplus Contract Lecturers due to relocation of regular faculty she has been transferred to Tara Govt. College(A),Sangareddy. She has reported to duty on 03.01.2020 AN at Tara Govt. College(A), Sangareddy.

This is for your kind information.

Thanking you

Yours faithfully

Principal
PRINCIPAL
TARA GOVT. COLLEGE
AUTONOMOUS
SANGAREDDY-502 001.

Date
03/01/2020

TO
The Principal,
Tara Govt. Degree College (A),
Sangareddy.

Sub: Contract Lecturers working in Govt. Degree
Colleges in the State - Identified the surplus
contract lecturers - due to relocation of regular
faculty - Joining Report.

Ref: File NO. CCE-SER2/CLEC/a/2019-SER2
Govt. memo NO. 2859/CE/AI/2015, Dt. 08.06.2019.
Counselling conducted on 13.12.2019 and options
given by the individuals.

02
3/01/2020

Respected Madam,

I am T. Navya, contract lecturer in
Commerce here with submitting my joining
Report in the Tara Govt. Degree College (A),
today i.e. on 03/01/2020.

Thanking you madam.

Yours Faithfully



T. Navya



concerned.
n/a immediately
and her
in relevant.

AO / Es la Nishu

**GOVERNMENT OF TELANGANA
COLLEGIATE EDUCATION DEPARTMENT**

From:
Dr.Anita,M.A., M.Phil.,Ph.D.,
Principal,
Govt. Degree College for Women,
Sangareddy, Sangareddy Dist.

To
The Principal,
Govt. Degree College (A),
SANGAREDDY

Lr.Rc.No.A1/356 /GDCWS/2020

Date: 02-01-2020.

Respected Madam,

Sub: - Contract Faculty- Relocation of Contract Lecturers Working in Government Degree Colleges- Relieving of Smt.T.Navya, Contract Lecturer in Commerce due to posting at Tara Government College(A), Sangareddy - Reg.

Ref:- Proc. File No. CCE-SER2/CLEC/9/2019-SER2 Dt. 31-12-2019 of C.C.E., T.S., Hyd.

-x-x-x-

With reference to the subject cited above, I am herewith relieving Smt. T. Navya, Contract Faculty in Commerce of Govt. Degree College for Women, Sangareddy as per the Orders of the C.C.E., T.S., Hyderabad vide reference cited above on 03-01-2020 F.N.

Smt. T. Navya, C.F. in Commerce of this college is hereby instructed to report at her new station i.e., Tara Government College(A), Sangareddy, Sangareddy District.

AO/EST.

Q

Copy to
Smt.T.Navya, Contract Lecturer in Commerce
The Commissioner of Collegiate Education, Hyderabad
The pay Bills
Spare

3.1.2020

PRINCIPAL
Govt. Degree College (W)
Sangareddy.

3.1.2020

*Concerned
Connect to
relevant files
and folder n/a*

PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE
EDUCATION TELANGANA STATE :: HYDERABAD

PRESENT: NAVIN MITTAL, I.A.S.,

Sub:- Contract faculty- Contract Lecturers working in Government Degree Colleges in the State – Identified the surplus Contract Lecturers due to relocation of regular faculty - Relocation of Contract Lecturers Working in Government Degree Colleges - Orders - Issued.

Read:- 1. Govt.Memo.No.2859/CE/A1/2015, dated 08.06.2019
2. File NoCCE-AC/GEN/98-Academic Cell (Computer No.157641) dated 19.12.2019.
3. Counselling conducted on 13.12.2019 and Options given by the individuals.

- - -

The Commissioner of Collegiate Education, Telangana State, Hyderabad have identified the surplus Contract Lecturers due to relocation of regular faculty. In reference 2nd read above a counselling was held on 13.12.2019 at IPGDC(W), Nampally and they opted the places as per their choice.

In the circumstances reported in references 1 to 3rd read above, the Commissioner of Collegiate Education, Telangana State, Hyderabad is hereby Relocate the following Contract Lecturer working in Government Degree College as mentioned against his/her name as shown hereunder:-

Sl. No .	Name of the Contract Lecturer	Subject	Presently working	Relocated at
79	T. Navya	Commerce	GDC (W) Sangareddy	GDC (A) Sangareddy

Further, the Principals of Government Degree College concerned are requested to report compliance in the matter promptly.

The receipt of these proceedings shall be acknowledged.

(Orders issued with the approval of the Commissioner of Collegiate Education, Telangana State, Hyderabad)

Signature Not Verified

Digitally signed by N VIJAYA BHASKAR RAO

Date: 2019.12.31 16:55:26 IST

Reason: Approved

For COMMISSIONER OF COLLEGIATE EDUCATION

To

The Principal, Government Degree Colleges as mentioned above.

Copy to the Individual

(through Principal of the College)

Copy to the DTO / STO concerned

Copy to the GDC-CS concerned

PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE
EDUCATION TELANGANA, HYDERABAD

Present: Sri Navin Mittal, I.A.S.

Sub:- TSCES – Government Degree Colleges – Permission to
work on “On Duty” basis – Orders – Issued.

Read: U.O Note. File No. CCE-AC/GEN/41/2019-ACADEMIC
CELL, Dated.21.10.2020.

In the circumstances stated in the reference read above, the
Commissioner of Collegiate Education, Telangana, Hyderabad is
hereby directed to work on on “On Duty” basis for the Academic
year 2020-21 to the following teaching staff as follows.

Sl. No.	Zone	Name of the faculty	Subject	Present place of working	On Duty at
1	VI	Dr.Rapolu Srinivas	Telugu	GDC (A), Sangareddy	GDC (W), Nalgonda

The Principal, Government Degree College(A), Sangareddy is
requested to claim his salary from the parent institution on
production of attendance certificate every month issued by the
Principal, Government Degree College(W), Nalgonda.

Both the Principals of Government Degree Colleges are
requested to report compliance immediately

The receipt of these proceedings should be acknowledged by
return of post.

(Orders of the Commissioner of Collegiate Education have been obtained in the note file bearing No.CCE-AC/GEN/41/2019-ACADEMIC CELL)

Signature Not Verified

Digitally signed by YADAGIRI GOSIKA
Date: 2020.11.23 13:00:20 IST
Reason: Approved



For COMMISSIONER OF COLLEGIATE EDUCATION

To

- 1) Dr.Rapolu Srinivas, Assistant Professor of Telugu,
Government Degree College(A), Sangareddy
(through the Principal of the College).
- 2) The Principal, Government Degree College(A), Sangareddy.
- 3) The Principal, Government Degree College(W), Nalgonda.

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI.NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education-Department of Telugu, Osmania University, Hyderabad- **Preliminary meeting for revision of UG and PG syllabus in Telugu subject** at Head & Chairperson BoS of Telugu Chamber, Department of Telugu, University College of Arts & Social Science, Osmania University, Hyderabad on **25th February 2020**- Permission accorded to the list of faculty from various GDCs of Telangana State to attend the meeting-Orders-Regarding.

Ref: Letter received from the Head, Department of Telugu, Osmania University, Hyderabad, dated:24.02.2020.

Vide reference read, the Commissioner of Collegiate Education has accorded permission to the list of following faculty members from various GDCs of Telangana State to participate in **preliminary meeting for revision of UG and PG syllabus in Telugu subject** at Head & Chairperson BoS of Telugu Chamber, Department of Telugu, University College of Arts & Social Science, Osmania University, Hyderabad on **25th February 2020**.

S.No.	Name of the Lecturers	College Name
1	Dr. J. Bharathi	Vivekananda Degree College, Hyderabad.
2	Dr.Uma Shashi, Principal	Govt. Women's Degree College, Gajwel.
3	Dr. Koyi Koteswar Rao	Govt. Degree college for womens, Nalgonda.
4	Dr. K.Narayana Murthy	BJR Degree college, Narayanaguda.
5	Dr. Veledanda Sridhar	Govt. Degree College, Hayathnagar.
6	Dr. R. Sumathi Devi	Tara Degree College, Sanga Reddy.

The absence of the above said faculty members from GDCS shall be treated as **ON DUTY** for the said date and they are not eligible to claim TA/DA from the Colleges. In view of the above, the Principals of concerned GDCs are informed to relieve them to attend the above said Seminar.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by PODILA BALA BHASKAR

Date: 2020.02.25 06:29:36 IST

Reason: Approved

For Commissioner of Collegiate Education

To
The Principals of GDCs concerned.

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI.NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education-Tara GDC, Sangareddy-Permission accorded to **Dr.Chandra Mukherji**, Principal, Tara GDC, Sangareddy to attend **International Seminar** to be held at Department of Hindi, The English and Foreign Languages University(EFLU), Hyderabad on **06.02.2020** & **07.02.2020** as **Resource Person**–Orders-Regarding.

Ref: Email received from the Principal, Tara GDC, Sangareddy, dated: 05.02.2020.

Vide references read, the Commissioner of Collegiate Education has accorded permission to **Dr.Chandra Mukherji**, Principal, Tara GDC, Sangareddy to attend **International Seminar** to be held at Department of Hindi, The English and Foreign Languages University(EFLU), Hyderabad on **06.02.2020** & **07.02.2020** as **Resource Person**.

The absence of the above said Assistant Professor in the college shall be treated as **ON DUTY** for the said period. In view of the above, the Principal, Tara GDC, Sangareddy is informed to relieve and attend the above said Seminar.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by PODILA BALA BHASKAR

Date: 2020.02.05 18:43:36 IST

Reason: Approved



For Commissioner of Collegiate Education

To
The Principal of GDC concerned.

Collaboration with Indian Institute of Science (I.I.Sc.) Bangalore.

The faculty members of the college are collaborating with the country's premier research institutions for the usage of laboratories/computing facilities for their own research projects.

One of the faculty members of our college, V Satya Prakash, Asst Prof of Physics, has collaborated with India's premier research institution IISc, which is **India's No 1** as per **NIRF 2022** rankings. This collaboration is reached in the year 2019-20 to do his research work on **conductivity of electrolyte materials**. As a part of this collaboration, he accessed **Sahasra T Cray XC 40**, country's **first Peta Flops Super Computer**, at Super Computing Education and Research Centre(**SERC**), **Indian Institute of Science (IISc)**, Bangalore. This super computer used by him is the fourth **fastest super computer in India** and it ranks **327th** position in the **world (2019)**.

The screenshot shows the IISc website with the following elements:

- Header: Indian Institute of Science, भारतीय विज्ञान संस्थान, English language dropdown, and a search bar.
- Navigation: About, Academics, Admissions, Research, News & Events, Engage with IISc, NIRF, A-Z.
- Banner: Covid-19: IISc response and updates.
- Main Content: NIRF 2022 rankings with two gold medals labeled '1' for 'UNIVERSITY' and 'RESEARCH'.
- Text: IISc ranked India's top University and Research institution.
- Image: SERC logo (Supercomputer Education and Research Centre).
- Text: SUPERCOMPUTER EDUCATION AND RESEARCH CENTRE, WELCOME TO SERC.
- Footer: HOME, SERC, SYSTEMS, SOFTWARE, SERVICES, PEOPLE, NEWS & PUBLICATIONS, OPPORTUNITIES, and a search bar.

The screenshot shows the SERC website with the following elements:

- Section: SUPERCOMPUTER.
- Text: CRAY XC40 "SahasraT".
- Image: A banner image showing the SERC logo, a building, and the IISc logo.
- Text: For queries related to use of SERC services,
- Section: Users in IISc Network.
- Text: (Preferable) Use SERC HelpDesk: This will help in tracking the queries, accessing FAQs and many other features.
- Text: (Less preferable): Email helpdesk.serc@iisc.ac.in with a suitable subject line.

On Wed, 1 Jan 2020 at 15:26, Aditya Krishna Swamy <adityaks@iisc.ac.in> wrote:

Dear Prof. Satyaprakash,

Greetings and best wishes for the new year 2020!

We have activated your account on SahasraT. Please find the instructions to access SERC network and SahasraT attached with this email. Also attached is a template job script.

For all technical support, you may write to supercomputing.serc@iisc.ac.in with a copy to my email address.

Thanks,
Aditya

On Wed, 4 Dec 2019 at 12:51, Aditya Krishna Swamy <adityaks@iisc.ac.in> wrote:

Dear Prof. Satya Prakash,

I'm glad to update you that SERC has approved your proposal subject to the following requirements:

1. Existing software version (6.1) maybe used. If a version update is made in future, we will inform and provide you access to the same.
2. Jobs need to use a minimum of 256 cores on SahasraT CPU.

Kindly let me know if your proposed jobs will be able to meet these requirements. If yes, you may go ahead and send us the signed Agreement form (link below) and DD and we will inform you on how to access our systems.

http://www.serc.iisc.ac.in/serc_web_new/wp-content/uploads/2019/12/UsageAgreementForm-1.pdf

Let me know if you have any questions.

Thanks,
Aditya

On Fri, 8 Nov 2019 at 15:40, Satyaprakash Vpet <satyaprakashvpet@yahoo.in> wrote:

Sir,

I am very grateful to you for your quick response.

The following are the details of using Sahasra T Cray XC 40 CPU:

1) **Quantum Espresso 6.3** version I am using currently. **If installing this version is possible, it is**

OK. Otherwise Espresso 6.1 is also OK.

2) Total core hours required are **15x45x24 = 16200 core hours** (15 jobs each of taking 24 cores and 45 hours)

3) Number of **parallel runs** is **2** and typical **size of each run** is **24 cores per job**

Thanking you Sir

Yours faithfully

V Satya Prakash
Asst Prof of Physics
Tara Govt Degree&PG

College(Autonomous)

Sangareddy, Telangana,
India-502001.



OSMANIA UNIVERSITY
HYDERABAD - 500 007

No. 702 /BOS// Acad-I/2021

Date: 30-08-2021

NOTIFICATION

Sub : BOARD OF STUDIES – Reconstitution of Board of Studies in Political Science (UG) under the Faculty of Social Sciences, OU - Notification - Issued.

In exercise of the powers conferred by the Ordinance No. II (as amended in the Ordinance XVI and XXX), sanction is accorded for the reconstitution of the Board of Studies in Political Science (UG) under the Faculty of Social Sciences, O.U. with the following Members:-

1. The Chairperson, Board of Studies in Political Science, UC A&SS, Osmana University.
2. The Head, Department of Political Science, UCA&SS, O.U.
3. Prof. A.V. Satish Chandra, Dept. of Political Science, UCA&SS, O.U.
4. Dr. M. Krishna Kumar, Dept. of Political Science, UCA&SS, O.U.
5. Dr. Ch. Venkateshwarlu, Dept. of Political Science, UCA&SS, O.U.
6. Dr. Sabavath Ravi, Dept. of Political Science, UCA&SS, O.U.
7. Dr. P. Venkata Ramana, Dept. of Political Science, Govt. College, Chanchalguda, Hyderabad.
8. Dr. Ch. Jyotsna, Dept. of Political Science, Tara Degree College, Sangareddy.
9. Dr. K. Bhaskar, Dept. of Political Science, Govt. City (A) College, Nayapool, Hyderabad.
10. Dr. Hussain, Dept. of Political Science, Govt. Degree College, Gajwel.
11. Dr. S. Sharwani, Dept. of Political Science, Govt. Degree College, Falaknuma, Hyderabad.
12. Dr. K. Prabhu, Dept. of Political Science, Govt. Degree College, Chevella.

The term of the Office of the Board of Studies in Political Science (UG) shall be for a period of Two (2) years with effect from the date of issue of this notification. However, any Member of the Board shall cease to be a Member when he/she vacates the Office when he/she was holding at the time of his/her nomination, unless otherwise permitted by the Vice-Chancellor.

The Membership is purely honorary. The TA and DA will be paid to the External Members as per the rules of the University in force whenever they attend the meeting of the Board of Studies.

Girraj Govt. College (A), Nizamabad
Re-Accredited by NAAC with "B"

Date: 06-11-2021

From:

The Principal,
Girraj Govt. College(A),
Nizamabad.

To:

Dr. A. Venkatesham
Head, Dept. of Economics
Tara Govt. College (Autonomous),
Sangareddy

sir,

Sub: GG College (A), Nzb- BOS Meeting in Dept. of Economics on 9-11-2021-Request to attend-Reg.

Ref: Proc. File No-GDC/NZB-GEN/261/2021-O/o PRINCIPAL-GDC-NZB-CE Dt: 01-11-2021

With the reference subject cited above, the BOS Meeting of Economics Department is to be held on 09-11-2021 at 3.00 PM in the Department of Economics in the College with the following Agenda.

1. Finalize and approval of Final Year V and VI Semester (UG) Syllabus, Question paper pattern etc., of CBCS common core syllabus as proposed by TSCHE.
2. Review on Results of I, III, V and II,IV ,VI Semester of UG in the academic year 2020-21
3. Review of academic activities of the Dept for the academic year 2021-22 .
4. Any other item with the permission of the chair.

Hence, I request you to make it convenient to attend the BOS meeting. Your cooperation is highly solicited.

Thanking you

PRINCIPAL

Encloses

1. Copy of BOS Members in Economics

**Signed by Dr.e Laxmi
Narayana**

Date: 08-11-2021 18:37:49

Reason: Approved

Proceedings of the Principal (FAC), Girraj Govt. College (A), Nizamabad.

(Re-Accredited by NAAC with "B")

Present: Dr. E. Laxminarayana, M.A, Ph.D Principal (FAC)

Sub: Reconstitution of Board of Studies Members for Dept. of Economics for the tenure of Three Years from the academic year 2021-22 – Orders – Issued.

ORDER:

Sanction is accorded for reconstitution of Board of Studies Members for Dept. of Economics with the following members for the tenure of Three Years from the academic year 2021-22.

1. Dr. Y. Venu Prasad Head, Dept of Economics, GG College (A),Nzb	Chairperson, Board of Studies
2. Dr. P. Nagaraj Associate Professor of Economics, BOS Chairperson, Telangana University. Nzb.	University Nominee
3. Dr.K. Krishna Reddy Head, Dept. of Economics Dr. B. R Ambedkar Open University , Telangana.	Subject Expert
4. Dr. A. Venkatesham Head, Dept. of Economics Tara Govt. College (Autonomous), Sangareddy Osmania University, Hyd.	Subject Expert
5. Sri Bachu Venkatesh Kamadhenu Food Processing Industries Rudrur, Nizamabad,T.S.-503188	Expert from Industry
6. Dr. V. Mutyam Reddy Asst.Prof of Eco, GG College (A),Nzb	Member
7. Dr. D. Adeppa Asst.Prof of Eco, GG College (A),Nzb	Member
8. Dr. G. Sriram Asst.Prof of Eco, GG College (A),Nzb	Member
9. Smt. Tabassum Shaeen. Asst.Prof of Eco, GG College (A),Nzb	Member
10. Kum. B. Bhargavi. BA EPP (2017-20) MA (Economics), Arts College, OU, Hyd.	P.G Meritorious Student Member

PRINCIPAL

Copy submitted to:

1. The Registrar, TU, Nizamabad.

Copy to:

2. The Coordinator Autonomy & UGC, GGC (A) Nizamabad.
3. The Controller of Examinations, GGC (A), Nizamabad.
4. All the members of BOS.

Signed by Dr.e Laxmi
Narayana

Date: 01-11-2021 17:15:23

Reason: Approved



CERTIFICATE OF COLLABORATION

between

Department of Chemistry, Girraj Govt. College(A), Nizamabad

&

Department of Chemistry, TARA Govt. College, Sangareddy(A)


Department of Chemistry, Girraj Govt. College(A), Nizamabad and Department of Chemistry, TARA Govt. College, Sangareddy(A) agree on engaging in collaboration for rendering Research and Academic quality enhancement for the mutual progression of both the institutions. The subject to mutual consent, the area of cooperation will include the following aspects;

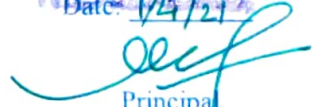
1. Participation in seminars, workshops and academic meetings.
2. Extension Lectures and Training.
3. Joint Research activities and publications.
4. Designing and development of teaching and learning modules.
5. Certificate programs and projects for skill development.
6. Quality enhancement initiatives.

TERMS OF IMPLEMENTATION:


1. Details of the implementation of any particular exchange resulting from this Collaboration shall be negotiated between the two organizations.
2. This Collaboration becomes effective on the day it is signed and remains valid for three years.
3. This Collaboration will be renewed after three years upon the consent of both organizations.
4. Any amendment or modification to the present text shall be submitted for review to the competent authorities, and shall not binding unless reduced to writing and signed by both the organizations.
5. This Collaboration does not bind either of the two parties legally or financially. Its aim is to promote relations that will mutually benefit each organization, this being the primary aim of academic collaboration.

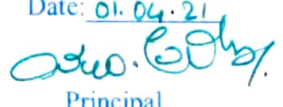
In witness whereof, the organizations hereto have offered their signatures.


Head of Department,
Department of Chemistry
Girraj Govt. College(A), Nizamabd
Date: 1/4/21


Principal,
Girraj Govt. College(A), Nizamabd
Date: 1/4/2021

PRINCIPAL
GIRRAJ GOVT. COLLEGE
NIZAMABAD


Head of Department,
Department of Chemistry
Tara Govt. College, Sangareddy(A)
Date: 01.04.21


Principal,
Tara Govt. College, Sangareddy(A)
Date: 01.04.21

PRINCIPAL
TARA GOVT. COLLEGE
(AUTONOMOUS)
SANGAREDDY-502 001



**MART Specialities
Lab LLP**

*Memorandum of Understanding (MoU) between
MART Specialities Lab LLP, Hyderabad*

&

*Department of Chemistry, TARA Govt. College, Sangareddy
(Autonomous)*

MART Specialities Lab LLP, Hyderabad and **Department of Chemistry, TARA Govt. College, Sangareddy(A)** agree on the importance and the usefulness of establishing scientific and academic links, in order to assert and to consolidate the ties of friendship between two institutions. The subject to mutual consent, the area of cooperation will include the following aspects;

1. Design and developments of Student research projects
2. Participation in Research and academic meetings.
2. Student Training Programmes.
3. Joint Research activities and publications.
4. Providing Analytical services to the research projects.
5. Support in Patent Filing procedures.
6. Quality enhancement initiatives.

TERMS OF IMPLEMENTATION:

1. Details of the implementation of any particular exchange resulting from this MoU shall be negotiated between the two organizations.
2. This MoU becomes effective on the day it is signed and remains valid for THREE years.
3. This MoU will be renewed after THREE years upon the consent of both organizations.
4. Any amendment or modification to the present text shall be submitted for review to the competent authorities, and shall not binding unless reduced to writing and signed by both the organizations.
5. This MoU does not bind either of the two parties legally or financially. Its aim is to promote relations that will mutually benefit each organization, this being the primary aim of academic collaboration.

In witness whereof, the organizations hereto have offered their signatures.

Managing Partner

MART Specialities Lab LLP, Hyderabad, Hyderabad.

Date: 31.12.2021

Head of Department,
Department of Chemistry

Tara Govt. College, Sangareddy(A)

Date: 31.12.21.

PRINCIPAL

TARA GOVT. COLLEGE, SANGAREDDY(A)

Date: 31.12.21

**PRINCIPAL
TARA GOVT. COLLEGE
AUTONOMOUS
SANGAREDDY-502001**



**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education– On Duty to faculty from GDCs –TSBIE-ERTW-II(TB)-
Revision of Intermediate II year Telugu Syllabus - Subject
Committee Meeting– Orders Issued-Reg.

Ref: Letter received from The Secretary, Telangana State Board of
Intermediate Education, dated: 28.07.2021.

Vide reference read above, the Commissioner of Collegiate Education has accorded permission to the following faculty members to attend the meeting for Revision of syllabi of Telugu textbook for Intermediate II year as **Subject Committee members** at **Telangana State Board of Intermediate Education, Nampally, Hyderabad** on **29.07.2021**.

Sl.No.	Name and Designation	Subject	Contact No. & Email.I.D	Date of Meeting
1.	Dr. J.Neeraja Assistant Professor, Govt. City College (A), Nayapul,Hyderabad.	Telugu	9848370018 nj.ccets@gmail.com	29.07.2021
2.	Dr. K.Koteshwara Rao Assistant Professor, Govt. City College (A), Nayapul, Hyderabad.	Telugu	9440480274 koyikoti@gmail.com officegdcw.nlg@gmail.com	
3.	Sri. B.Venkateshwarlu, Assistant Professor, Govt.Degree College, Husnabad, Siddipet	Telugu	9491598040 Venkateshwarluboorla 500@gmail.com.	
4.	Dr.P.Bhaskara Yogi, Assistant Professor, Govt.Degree College Sangareddy	Telugu	9912070125 Bhaskarayogi.p@gmail.com	

The absence of the above said faculty members in the college shall be treated as **On Duty** on the days they attend the meeting and they are not eligible to claim TA/DA from the colleges. In view of the above, the concerned Principals are informed to relieve them to attend the above said meeting on the above said dates.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by Ghanshyam
Date: 2021.07.28 13:13:00 IST
Reason: Approved

For Commissioner of Collegiate Education

Copy To
Secretary, TSBIE, Hyderabad
Principal, Govt. City College, Nayapul
Principal, GDC, Husnabad
Principal, GDC, Sangareddy

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education– On Duty to faculty from GDCs –TSBIE-ERTW-II(TB)-
Revision of Intermediate II year Telugu Syllabus - Subject
Committee Meeting– Orders Issued-Reg.

Ref: Letter received from The Secretary, Telangana State Board of
Intermediate Education, dated: 20.07.2021.

Vide reference read above, the Commissioner of Collegiate Education has accorded permission to the following faculty members to attend the meeting for Revision of syllabi of Telugu textbook for Intermediate II year as **Subject Committee members** at **Telangana State Board of Intermediate Education, Nampally, Hyderabad** on **22.07.2021, 23.07.2021** and **24.07.2021**.

Sl.No.	Name and Designation	Subject	Contact No. & Email.I.D	Date of Meeting
1.	Dr. J.Neeraja Assistant Professor, Govt. City College (A), Nayapul,Hyderabad.	Telugu	9848370018 nj.ccets@gmail.com	22.07.2021 23.07.2021 24.07.2021
2.	Dr. K.Koteshwara Rao Assistant Professor, Govt. City College (A), Nayapul, Hyderabad.	Telugu	9440480274 koyikoti@gmail.com officegdcw.nlg@gmail.com	
3.	Sri. B.Venkateshwarlu, Assistant Professor, Govt.Degree College, Husnabad, Siddipet	Telugu	9491598040 Venkateshwarluboora 500@gmail.com.	
4.	Dr.P.Bhaskara Yogi, Assistant Professor, Govt.Degree College Sangareddy	Telugu	9912070125 Bhaskarayogi.p@gmail.com	

The absence of the above said faculty members in the college shall be treated as **On Duty** on the days they attend the meeting and they are not eligible to claim TA/DA from the colleges. In view of the above, the concerned Principals are informed to relieve them to attend the above said meeting on the above said dates.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by Ghanshyam
Date: 2021.07.20 16:47:45 IST
Reason: Approved

For Commissioner of Collegiate Education

Copy To
Secretary, TSBIE, Hyderabad
Principal, Govt. City College, Nayapul
Principal, GDC, Husnabad
Principal, GDC, Sangareddy

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education– On Duty to faculty from GDCs –TSBIE-ERTW-II(TB)-
Revision of Intermediate II year Telugu Syllabus - Subject
Committee Meeting– Orders Issued-Reg.
Ref: Letter received from The Secretary, Telangana State Board of
Intermediate Education, dated: 16.07.2021.

Vide reference read above, the Commissioner of Collegiate Education has accorded permission to the following faculty members to attend the meeting for Revision of syllabi of Telugu textbook for Intermediate II year as **Subject Committee members** at **Telangana State Board of Intermediate Education, Nampally, Hyderabad** on **17.07.2021**.

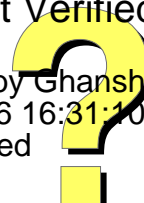
Sl.No.	Name and Designation	Subject	Contact No. & Email.I.D	Date of Meeting
1.	Dr. J.Neeraja Assistant Professor, Govt. City College (A), Nayapul,Hyderabad.	Telugu	9848370018 nj.ccets@gmail.com	17.07.2021
2.	Dr. K.Koteshwara Rao Govt.Degree College for Women, Nalgonda.	Telugu	9440480274 koyikoti@gmail.com officegdcw.nlg@gmail.com	
3.	Sri. B.Venkateshwarlu Govt.Degree College, Husnabad, Siddipet	Telugu	9491598040 Venkateshwarluboora 500@gmail.com.	
4.	Dr.P.Bhaskara Yogi Govt.Degree College Sangareddy	Telugu	9912070125 Bhaskarayogi.p@gmail.com	

The absence of the above said faculty members in the college shall be treated as **On Duty** on the days they attend the meeting and they are not eligible to claim TA/DA from the colleges. In view of the above, the concerned Principals are informed to relieve them to attend the above said meeting on the above said dates.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by Ghanshyam
Date: 2021.07.16 16:31:10 IST
Reason: Approved



For Commissioner of Collegiate Education

Copy To
Secretary, TSBIE, Hyderabad
Principal, Govt. City College, Nayapul
Principal, GDC W, Nalgonda
Principal, GDC, Husnabad
Principal, GDC, Sangareddy

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education– On Duty to faculty from GDCs –TSBIE-ERTW-II(TB)-
Revision of Intermediate II year Telugu Syllabus - Subject
Committee Meeting– Orders Issued-Reg.

Ref: Letter received from The Secretary, Telangana State Board of
Intermediate Education, dated: 12.07.2021.

Vide reference read above, the Commissioner of Collegiate Education has accorded permission to the following faculty members to attend the meeting for Revision of syllabi of Telugu textbook for Intermediate II year as **Subject Committee members** at **Telangana State Board of Intermediate Education, Nampally, Hyderabad** on **13.07.2021**.

Sl.No.	Name and Designation	Subject	Contact No. & Email.I.D	Date of Meeting
1.	Dr. J.Neeraja Assistant Professor, Govt. City College (A), Nayapul,Hyderabad.	Telugu	9848370018 nj.ccets@gmail.com	13.07.2021
2.	Dr. K.Koteshwara Rao Govt.Degree College for Women, Nalgonda.	Telugu	9440480274 koyikoti@gmail.com officegdcw.nlg@gmail.com	
3.	Sri. B.Venkateshwarlu Govt.Degree College, Husnabad, Siddipet	Telugu	9491598040 Venkateshwarluboorla 500@gmail.com.	
4.	Dr.P.Bhaskara Yogi Govt.Degree College Sangareddy	Telugu	9912070125 Bhaskarayogi.p@gmail.com	

The absence of the above said faculty members in the college shall be treated as **On Duty** on the days they attend the meeting and they are not eligible to claim TA/DA from the colleges. In view of the above, the concerned Principals are informed to relieve them to attend the above said meeting on the above said dates.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by Ghanashyam
Date: 2021.07.12 14:16:16 IST
Reason: Approved

For Commissioner of Collegiate Education

Copy To
Secretary, TSBIE, Hyderabad
Principal, Govt. City College, Nayapul
Principal, GDC W, Nalgonda
Principal, GDC, Husnabad
Principal, GDC, Sangareddy

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education– On Duty to faculty from GDCs –TSBIE-ERTW-II(TB)-
Revision of Intermediate II year Telugu Syllabus - Subject
Committee Meeting– Orders Issued-Reg.
Ref: Letter received from The Secretary, Telangana State Board of
Intermediate Education, dated: 07.07.2021.

Vide reference read above, the Commissioner of Collegiate Education has accorded permission to the following faculty members to attend the meeting for Revision of syllabi of Telugu textbook for Intermediate II year as **Subject Committee members** at **Telangana State Board of Intermediate Education, Nampally, Hyderabad** on **09.07.2021**.

Sl.No.	Name and Designation	Subject	Contact No. & Email.I.D	Date of Meeting
1.	Dr. J.Neeraja Assistant Professor, Govt. City College (A), Nayapul,Hyderabad.	Telugu	9848370018 nj.ccets@gmail.com	09.07.2021
2.	Dr. K.Koteshwara Rao Govt.Degree College for Women, Nalgonda.	Telugu	9440480274 koyikoti@gmail.com officegdcw.nlg@gmail.com	
3.	Sri. B.Venkateshwarlu Govt.Degree College, Husnabad, Siddipet	Telugu	9491598040 Venkateshwarluboorla 500@gmail.com.	
4.	Dr.P.Bhaskara Yogi Govt.Degree College Sangareddy	Telugu	9912070125 Bhaskarayogi.p@gmail.com	

The absence of the above said faculty members in the college shall be treated as **On Duty** on the days they attend the meeting and they are not eligible to claim TA/DA from the colleges. In view of the above, the concerned Principals are informed to relieve them to attend the above said meeting on the above said dates.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by Ghanshyam
Date: 2021.07.08 13:48:32 IST
Reason: Approved

For Commissioner of Collegiate Education

Copy To
Secretary, TSBIE, Hyderabad
Principal, Govt. City College, Nayapul
Principal, GDC W, Nalgonda
Principal, GDC, Husnabad
Principal, GDC, Sangareddy

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education– On Duty to faculty from GDCs –TSBIE-ERTW-II(TB)-
Revision of Intermediate II year Telugu Syllabus - Subject
Committee Meeting– Orders Issued-Reg.
Ref: Letter received from The Secretary, Telangana State Board of
Intermediate Education, dated: 01.07.2021.

Vide reference read above; the Commissioner of Collegiate Education has accorded permission to the following faculty members to attend the meeting for Revision of syllabi of Telugu textbook for Intermediate II year as **Subject Committee members** at **Telangana State Board of Intermediate Education, Nampally, Hyderabad on 06.07.2021.**

Sl.No.	Name and Designation	Subject	Contact No. & Email.I.D	Date of Meeting
1.	Dr. J.Neeraja Assistant Professor, Govt. City College (A), Nayapul,Hyderabad.	Telugu	9848370018 nj.ccets@gmail.com	06.07.2021
2.	Dr. K.Koteshwara Rao Govt.Degree College for Women, Nalgonda.	Telugu	9440480274 koyikoti@gmail.com officegdcw.nlg@gmail.com	
3.	Sri. B.Venkateshwarlu Govt.Degree College, Husnabad, Siddipet	Telugu	9491598040 Venkateshwarluboorla 500@gmail.com.	
4.	Dr.P.Bhaskara Yogi Govt.Degree College Sangareddy	Telugu	9912070125 Bhaskarayogi.p@gmail.com	

The absence of the above said faculty members in the college shall be treated as **On Duty** on the days they attend the meeting and they are not eligible to claim TA/DA from the colleges. In view of the above, the concerned Principals are informed to relieve them to attend the above said meeting on the above said dates.

(Orders of the CCE have been obtained in the note file)

Signature Not Verified

Digitally signed by Ghanshyam
Date: 2021.07.01 18:41:03 IST
Reason: Approved

For Commissioner of Collegiate Education

Copy To

Principal, Govt. City College, Nayapul

Principal, GDC W, Nalgonda

Principal, GDC, Husnabad

Principal, GDC, Sangareddy

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE
EDUCATION GOVERNMENT OF TELANGANA, HYDERABAD
PRESENT: SRI NAVIN MITTAL, I.A.S.**

Sub: Collegiate Education - Government Degree College, Zaheerabad, Sangareddy Dist. - Deputation of faculty members on On Duty basis for assisting in NAAC Peer Team visit - 29.11.2021 to 02.12.2021- On Duty Orders issued - Reg.

Ref: Letter received from Principal, Government Degree College, Zaheerabad, Sangareddy Dist. Dated: 27.11.2021.

In pursuance of the circumstances informed in the reference read above, the Commissioner of Collegiate Education, Hyderabad, hereby accorded permission to the following faculty members from various GDCs to work in Government Degree College, Zaheerabad, Sangareddy Dist. from 29.11.2021 to 02.12.2021 for providing assistance in NAAC related work.

Sl. No.	Name of the Faculty member	Subject	Name of the College
1	Md. Jaleel	English	GDC A, Sangareddy
2	Dr. L. Raji Reddy	Commerce	GDC Patancheru

In view of the above, the concerned Principals are instructed to relieve the above mentioned faculty members on the above mentioned dates and their absence in the college on the dates mentioned above may be treated as On Duty. The faculty members are not eligible to claim TA/DA from the college.

(Orders of the CCE have been obtained in the note file)

Signed by Ghanshyam

Date: 27-11-2021 16:52:58

Reason: Approved

For Commissioner of Collegiate Education

Copy To

Principal, GDC Sangareddy

Principal, GDC Patancheru

Principal, GDC Zaheerabad



Tara Government College Sangareddy (Autonomous)



An ISO 9001: 2015 certified college

Department of Botany

TRAINING ON SOIL TESTING

The MoU has been done between the department of Botany and Soil Testing Lab, Sangareddy, for two years where Smt. Haritha Madam, Assistant Director of Agriculture has signed the agreement and agreed on the importance and the usefulness of establishing scientific and academic links.

The objective of this MoU is to train the students and to facilitate the testing of the samples collected randomly by the students. Nearly 50-60 students have been given the training in the month of December- 2021 in two batches. The analysis was done for the samples collected by the students and the report was given by the lab authorities. Based on the report the levels of Macro and Micro nutrients have been identified. The students visited the farmers and recommended the use of Biofertilisers prepared by the Department.

A certificate course has been introduced in soil testing, the classes were taken by the faculty in the Botany Dept. and an examination has also been conducted and the certificate has been given to the students.



Memorandum of Understanding (MoU)
Between
DEPT OF BOTANY,
TARA GOVERNMENT COLLEGE (A), SANGAREDDY
&
SOIL TESTING LAB, SANGAREDDY




Soil Testing Lab, Sangareddy and Department of Botany, Tara Government College, Sangareddy agree on the importance and the usefulness of establishing scientific and academic links, in order to assert and to consolidate the ties of friendship between two departments. The subject to mutual consent, the area of cooperation will include the following aspects;

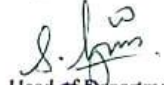
1. The objective of this MoU is to facilitate the testing of samples collected by the students for macro and micro nutrient analysis.
2. Participation in seminars and workshops.
3. Extension Lectures and Training.
4. Certificate programs and projects for skill development.
5. Coordination in creating awareness among the farmers for the significance of soil testing to have a better yield.
6. Quality enhancement initiatives.

TERMS OF IMPLEMENTATION:

1. Details of the implementation of any particular exchange resulting from this MoU shall be negotiated between the two organizations.
2. This MoU becomes effective on the day it is signed and remains valid for two years.
3. This MoU will be renewed after two years upon the consent of both organizations.
4. Any amendment or modification to the present text shall be submitted for review to the competent authorities, and shall not be binding unless reduced to writing and signed by both the organizations.
5. This MoU does not bind either of the two parties legally or financially. Its aim is to promote relations that will mutually benefit each organization, this being the primary aim of academic collaboration.

In witness where of, the organizations here to have offered their signatures.


PRINCIPAL
Tara Govt College
Sangareddy
SANGAREDDY-502001
Date: 16/06/21


Head of Department,
Department of Botany
Tara Government College (A)
Sangareddy-502 001, Telangana


Asst Director of Agriculture
Soil Testing Lab
Sangareddy
Assistant Director of Agriculture
Soil Testing Laboratory
SANGAREDDY-502 001



Asst. Director - Ms. Haritha Madam



Training the Students



Training the Students



Soil Testing Lab, Sangareddy



Principal Ms. M.Praveena Madam addressing the Students



Certificates given to the students



Tara Government College Sangareddy

(Autonomous)

Accredited with "B" by NAAC

An ISO 9001 : 2015 certified college



Certificate of Appreciation

This is to certify that Mr. /Ms. _____ of Tara Government College Sangareddy (A), has successfully completed the **"Certificate Course in Soil Testing"** that was conducted at Tara Government College Sangareddy (A) from 2nd December 2021 to 23rd December 2021. The course was organized by the **Department of Botany**, Tara Government College, Sangareddy (A) in collaboration with **Soil Testing Lab, Sangareddy**.

This certificate of appreciation is bestowed on the student for his / her participation and successful completion of the certificate course.


Co-ordinator & In charge
Dept. of Botany


Co-ordinators


Principal

S.NO	CONTENTS	PG.NO.
1	INTRODUCTION SOIL HEALTH MANAGEMENT IMPORTANCE AND OBJECTIVES	
2	IMPORTANCE OF SOIL TESTING	
3	SOIL SAMPLING METHODS AND PROCEDURES	
4	SOIL PARAMETERES	
5	DETERMINATION OF SOIL COLOUR AND TEXTURE BY FIELD METHOD	
6	DETERMINATION OF SOIL REACTION	
7	DETERMINATION OF ELECTRONIC CONDUCTIVITY	
8	DETERMINATION OF ORGANIC CARBON	
9	DETERMINATION OF AVAILABLE NITROGEN	
10	DETERMINATION OF AVAILABLE PHOSPHORUS	
11	DETERMINATION OF AVAILABLE POTASSIUM	
12	DETERMINATION OF BORON	
13	DETERMINATION OF SULPHUR	
14	DETERMINATION OF MICRO NUTRIENTS	
15	INTERPRETATION OF SOIL TEST ^{DATA} Ranges & Reclamations	

TARA GOVERNMENT COLLEGE (A), SANGAREDDY

SOIL TESTING-EXAMINATION

25 MARKS-1hr

1. Write about the soil sampling and also about the steps in soil testing? **5 marks**

Short Answers= 2marks each

2. Define labeling?
3. At what time you have to collect the soil samples?
4. Write a short note on soil texture?
5. What is the pH for acidic and basic soils?
6. State the principle of estimation of Gypsum required for alkali soil?
7. Write a short note on a wet digestion method?
8. What is the major nutrient deficiencies in soil and what are the symptoms seen on plants?
9. What is the percentage of Nitrogen in the atmosphere? How does the fixation takes place?
10. Define the soil?
v. Draw a diagram of soil profile

TARA GOVERNMENT COLLEGE, SANGAREDDY

(AUTONOMOUS)

(ISO 9001:2015 certified)

(District Identified College & District Resource Centre)

(Affiliated to Osmania University & Accredited by NAAC with 'B' grade, 2.75 CGPA)

SANGAREDDY (Dist.), Telangana.



E-mail: prl-gdc-srd-ce@telangana.gov.in

Website: <https://gdcts.cgg.gov.in>

TASK DATA

<p>TASK-HYSEA WINTalk series on AI/ML</p>	<p>Dear Sir/Madam,</p> <p>Greetings for the day!</p> <p>This mail is regarding WINTalk Series session on AI/ML which has been rescheduled on 16th September 2022 from 3:00 PM to 4:00 PM.</p> <p>The panelists for the session are Mr. Srinivas Atreya, Chief Data Scientist, Round Sqr, Mr. Kishore Seshagiri, EVP, Brodrige Financial services.</p> <p>Moderator for the session Mr.Shrikant Sinha, CEO-TASK.</p> <p>Joining link for the session:</p> <p>https://task.radiusedutech.com/</p> <p>Attached is the flyer for the WINTalk Series session</p>	<p>14.09.2022</p>
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	Request you to share with faculty and Students and encourage them to make use of this opportunity.	
<p>TASK - INNOHAT System - Training on RPA</p>	<p>Dear Sir/Madam,</p> <p>TASK in association with InnoHat System is conducting an Instructor-led virtual Training Program on Robotic process automation (RPA). This program is offered to all TASK registered students and Faculty. Below are the complete details and attached is the EDM.</p> <p>Training Program:-RPA</p> <p>No of Days:-5 Days</p> <p>Training Start Date:19th Sep 2022</p> <p>Training End Date: 23rd Sep 2022</p> <p>Timings: 6.00 PM to 7.00 PM</p> <p>Note: Students/Faculty who attend all five days will get the participation certificate from the InnoHat system.</p> <p>Registration link: - https://forms.gle/J8XoHtvRgyLK64vp9</p> <p>Faculty and students from Engineering/Degree can attend this training program.</p> <p>Last Date to register: 16th Sept 22.</p>	13.09.2022

<p>ASK - College Registration/Renewal Notification for the Academic Year 2022-23</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Telangana Academy for Skill and Knowledge (TASK) is established under Department of ITE & C, Government of Telangana to enhance the employability quotient of youth in Telangana state.</p> <p>TASK releases a notification for College Registration/Renewal for the Academic Year 2022-23. I would like to request you to please complete the registration process online.</p> <p>Website: https://task.telangana.gov.in/</p> <p>The last date is on 30th September 2022, for detailed notification please find the attached document.</p> <p>Below are the important dates:</p> <p>College Registration/Renewal</p> <p>Start Date & Time</p> <p>End Date & Time</p> <p>Without late Fee</p>	<p>13.09.2022</p>
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	<p>01-09-2022</p> <p>10 AM onwards</p> <p>30-09-2022</p> <p>till 11.59 PM</p> <p>With a late fee of Rs.1000/- + Applicable Taxes</p> <p>01-10-2022</p> <p>10 AM onwards</p> <p>10-10-2022</p> <p>till 11.59 PM</p>	
<p>TASK - HYSEA Drona 12 weeks online faculty immersive learning program</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK – HYSEA would like to conduct a 12 weeks online faculty immersive learning program for IT industry needs.</p> <p>Kindly nominate your faculty in below link on or before 5th September 2022</p> <p>https://docs.google.com/forms/d/e/1FAIpQLScBUvs7m-23qmsYMxPJefoqtvayaUCG3S3REBRblBNAJpBVA/viewform</p> <p>Program Design:</p>	<p>29.08.2022</p>

3 emerging technology tracks (Full stack, AI/ML/ Digital transformation)

Self-learning on Infosys Springboard and help at frequent intervals by Mentors via masterclass.

Experiential learning via capstone & presentation that will be evaluated for understanding of the code & business sense.

One / Two days Faculty immersive experience in corporate to understand project management process and various roles & responsibilities.

Learning Objectives

By the end of the program faculty will be able to:

1. Analyse various emerging technologies
2. Apply the concepts to solve problems
3. Understand the program management process
4. Demonstrate understanding of various roles in IT industry

What's in it for the Faculty?

Get hands on with what Industry needs

Emerging Technology – hands on ability to code

Business Sense & Customer Centricity

Program Management with focus on Professional Skills Development

Exposure to nuances of IT industry

What is the program execution plan?

Faculty enrolls into a technology track.

Learn the concepts in an online mode. A pool of faculty for each track will be available at stipulated hours for doubt clarification.

Applies the concepts in a capstone program.

The faculty makes a presentation of the capstone.

Industry emerging technology practicing experts evaluate the capstone & offer feedback.

Certification – 4 weeks each track – 12 weeks program

Completion of 1 track – Eligible for 1 track course completion certificate

Completion of 2 tracks – Eligible for faculty immersive experience + 2 track course completion certificate

Completion of 3 tracks – Award Program Completion certificate

Eligibility:

Faculty in teaching Computer Science, IT or related subjects in Engineering, BCA, MCA, Degree, and Polytechnic institutions.

	<p>Proposed Date</p> <p>Program launch – 2:00 PM to 3:30PM, 5th Sept 22</p> <p>Please reach out to me for any further clarifications.</p>	
<p>TASK- Quantum Science and Technology Hackathon 2022</p>	<p>Dear Sir/Madam,</p> <p>Greetings of the Day!</p> <p>TASK in association Quantum Ecosystems and Technology Council of India is organising Quantum Science and Technology Hackathon 2022.</p> <p>The Real Value of Quantum Computers lies in the problems that they can solve for Humanity, which are either difficult or impossible to solve purely with Classical Computers.</p> <p>We are announcing the Quantum Science and Technology Hackathon 2022 !</p> <p>Registration and Idea Submission starts : Registration closes on 15th September 6:29 pm and the registered participants continue Hacking till end of October.</p> <p>Eligibility :</p> <p>To tackle challenges in applying quantum technologies, we need not only people with skills in computer science,</p>	<p>16.08.2022</p>

physics, and math, but also people with expertise in the application domains of this hackathon: financial services, life sciences, quantum security, and quantum sensors/communications, and even applications you can propose yourself!

Anybody starting students studying for undergraduate degrees

The detailed Schedule is attached.

[Link to Register Online Hackathon | HackerEarth developer event | Quantum Science and Technology Hackathon 2022](#)

Through this Hackathon, we want to :

- Enable hackers to come up with solutions using a Quantum Stack/Technology of their choice
- Collaborate across Geographies and get access to mentors from around the world to help them solve the problems. Provide access to Incubation and mentorship support for people who want to create a startup from their project
- Provide an opportunity for students and practitioners to learn and be part of a larger community, providing them access to Leading Researchers and experts who can help them with their careers.
- Some of the Partners and Sponsor Companies will offer Internships and other job opportunities to hackers who they find suitable for their work. Completion of a project in the hackathon will go a long way in building confidence in the Industry.
- Pick up some of the winning projects to be part of the Open Source Projects that we want the Ecosystem to focus

on.

The Hackathon themes are around Financial Services, Life Sciences (Pharmaceutical, Healthcare, Biosciences, and Biotech), Quantum Security, Quantum sensors, and Quantum Communications. Apart from this, there is a Theme Others under which people can hack on any problem using and leveraging Quantum Science, technology and concepts.

There are some really exciting PRIZES

- Cash Prizes totaling to Rs 10 Lacs
- Winners in each Category – Top 3 get access to demo day with investors and incubators
- All winners get Winner Certificates and QETCI Membership opportunities
- Winning Projects get Credits for access to quantum hardware
- Two Projects will get an opportunity to present their projects at the Quantum. Tech APAC Conference in Singapore
- Project teams that want to register their startups, will get support from empanelled Companies in the registration process, as well as any patent filing process.

So what are you waiting for - Start Hacking

Online Hackathon | HackerEarth developer event |

	<p>Quantum Science and Technology Hackathon 2022</p> <p>I request you to share with the students and encourage them to make use of this opportunity.</p>	
<p>TASK-Celonis Academic Alliance registration for FDP</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Thank you for Joining the awareness session . I am sharing more details about the program and the next steps for faculty/institution.</p> <p>Celonis is the worldwide leader in Process Mining and Execution Management that empowers people to analyse any gap while creating, building and sharing their innovations. Our technology is changing the nature of work and the way we live. Our solutions deliver a brave new model of technology that is fluid, instant and more secure. Customers can innovate faster by rapidly developing, automatically delivering and more safely consuming any application.</p> <p>As part of efforts to empower academia, want to discuss on Celonis Academic Alliance Program and work jointly on the following:</p> <ul style="list-style-type: none"> · Offer a high quality curriculum that combines in-depth technical training and professional skills development. · Choose courses to complement your academic program and prepare students for certification. · Leverage our learning platform to track student 	<p>11.08.2022</p>

	<p>success and connect with educators and Process Mining experts.</p> <ul style="list-style-type: none"> · Local student chapter including annual project competitions, workforce development programs and others. · Point students to career building resources created with employers for our alumni. <p>We are planning to conduct a FDP for the colleges. Please share this information with all colleges and and ask them to nominate the faculty using the below link by 12th August 2022.</p> <p>https://forms.gle/w1M2kiYUNUD4mV2d8</p> <p>Details regarding the session will be shared shortly.</p> <p>For more information sharing the program URL for your reference: https://www.celonis.com/academic-alliance/ and attached are the PDF's for your reference.</p> <p>Kindly reach out to me in case of any questions.</p>	
<p>TASK - Series of Speed Mentoring Sessions by Amazon</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK</p>	<p>11.08.2022</p>

Telangana Academy for Skill and Knowledge(TASK) in collaboration with Mentor Together and Amazon is inviting your students to be part of the mentoring series on placement readiness.

Inform all your students to join this mentorship series to get the chance to interact with experts from Amazon who will help them to create a winning CV, prepare for an interview, and build their professional brand on LinkedIn.

Here is a google form and students will receive mentoring session invitations directly to their email.

Mentoring series details:

Session 01: Preparing a winning CV on 18 Aug 2022, at 4.15 pm to 5.45 pm

Session 02: Building a professional brand on LinkedIn on / 25 Aug 2022, at 4.15 pm to 5.45 pm

Session 03: Preparing for an interview on / 30 Aug 2022, at 4.15 pm to 5.45 pm

Session 04: Preparing for an interview on / 05 Sep 2022, at 4.15 pm to 5.45 pm

Session 05: Preparing for an interview on / 06 Sep 2022, at 4.15 pm to 5.45 pm

Looking forward to having your students in TASK - MT mentoring series!!

	<p>Register now to interact with industry professionals</p> <p>https://forms.gle/AMZCdyXNvgkfZU72A</p> <p>Get updates on your WhatsApp by joining this group</p> <p>https://chat.whatsapp.com/ErEguQjhfMkCz00UZoGPIH</p>	
<p>TASK - HYSEA WINtalk series on 'UI/UX' on 5th August 2022</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK - WINtalk series session on 'UI/UX' on 5th August 2022 from 3:00 pm to 4:00 pm.</p> <p>The panelists for the session are Mr.Ameya Naik,Sr.Manager Product Design,ServiceNow and Mr.Prasad Kantamneni,Founding Partner,UXReactor.</p> <p>Moderator for the session Mr. R. Srinivas Rao, Chief Operating Officer, HYSEA.</p> <p>Joining link for the session: https://task.radiusedutech.com/</p> <p>Attached is the flyer for WINtalk series session.</p> <p>Request you to share with all faculty and students and encourage them to make use of this opportunity.</p>	<p>04.08.2022</p>

<p>TASK-Celonis Academic Alliance Partnership - Online Meeting on 1st August 22</p>	<p>Dear Sir/Madam,</p> <p>TASK have planned Celonis Academic Alliance Partnership - Meeting on 1st August 22.</p> <p>Joining Link: https://celonis.zoom.us/j/98920600021?pwd=SlpsNXIxb2d1S2hZQWNjVWw5RFZJZz09#success</p> <p>ID: 98920600021 passcode: j75S3EkZ</p> <p>Timings: 03:00 PM to 04:00 PM</p> <p>Kindly join the meeting on time.</p> <p>Partnership Details:</p> <p>TASK in association with " Celonis Academic Alliance" is giving opportunity to all colleges to become a member of " Celonis Academic Alliance Program" to avail opportunities designed exclusively for Institutions, Faculties and their Students.</p> <p>About Celonis Academic Alliance Program:</p>	<p>27.07.2022</p>
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Celonis is the worldwide leader in Process Mining and Execution Management that empowers people to analyze any gap while creating, building and sharing their innovations. Our technology is changing the nature of work and the way we live. Our solutions deliver a brave new model of technology that is fluid, instant and more secure. Customers can innovate faster by rapidly developing, automatically delivering and more safely consuming any application.

Celonis collaborates with TASK as a Regional Academic Alliance Training Partner to enhance students and educators on Process Mining and EMS tool and make them ready to deploy resources at no cost.

As a part of efforts to empower academia, TASK and Celonis Academic Alliance Program work jointly on the following:

- Offer a high quality curriculum that combines in-depth technical training and professional skills development.
- Choose courses to complement your academic program and prepare students for certification.
- Leverage our learning platform to track student success and connect with educators and Process Mining experts.
- Local student chapter including annual project competitions, workforce development programs and others.
- Point students to career building resources created with employers for our alumni.

The benefits for college to participate in the Celenois Academic program include:

Onboard minimum of 50+ educators to enhance their skills on Process Mining.

Enroll 5000+ students into Celonis LMS and motivate them to complete free learning and certifications.

Actively promote Celonis Center of Excellence at all partnered institutions.

Celonis in partnership with TASK to provide virtual internship opportunity for students.

Through this association Celenois will be offering the below courses to all the TASK membership colleges.

Process Mining Fundamentals. -16hrs

Automation Boot Camp-3 hrs.

DeepDrive-10hrs

Guru-32 hrs

Machine Learning Basic-30mins

On each course completion the student/Faculty will receive E-Certification.

Eligibility Criteria:

Btech-3rd Semester (Any Discipline)

BE, BSC Computers, Msc Computers, BCA and

MCA

	<p>For more information about the program URL for your reference: https://www.celonis.com/academic-alliance/</p> <p>Kindly reach out to me in case of any questions.</p>	
<p>TASK-Celonis Academic Alliance Partnership - Online Meeting on 1st August 22</p>	<p>Dear Sir/Madam,</p> <p>TASK have planned Celonis Academic Alliance Partnership - Meeting on 1st August 22.</p> <p>Joining Link: https://celonis.zoom.us/j/98920600021?pwd=SlpsNXIxb2d1S2hZQWNjVWw5RFZJZz09#success</p> <p>ID: 98920600021 passcode: j75S3EkZ</p> <p>Timings: 03:00 PM to 04:00 PM</p> <p>Kindly join the meeting on time.</p> <p>Partnership Details:</p>	<p>27.07.2022</p>

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<p>TASK - HYSEA WINtalk series on Cloud Computing</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK would like to conduct WINtalk series session on 'Cloud Computing' on 8th July 2022 from 3:00 pm to 4:00 pm.</p> <p>The panelists for the session are Mr.Arun Michael,Cloud Delivery Head - EMEA Region, Tech Mahindra Ltd and Mr.Ramesh Swaminathan,Principal Product Manager, Informatica.</p>	<p>06.07.2022</p>

	<p>Moderator for the session Mr.Shrikant Sinha, CEO -TASK.</p> <p>Joining link for the session https://task.radiusedutech.com/</p> <p>Attached is the flyer for WINtalk series session.</p> <p>Request you to share with all faculty and students and encourage them to make use of this opportunity.</p>	
<p>TASK CEO - Principal meet - 3PM,30th June 22(Tomorrow) at TARA Government College, Sangareddy</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK would like to invite you to meet TASK - CEO at 3:00 PM, 30th June 2022(tomorrow) at Tara Government College, Sangareddy.</p> <p>Request you to please attended the meeting, He would like to meet all the Principals & TASK Coordinators.</p>	29.06.2022
<p>TASK-Oracle FDP on Artificial Intelligence with Machine learning in JAVA</p>	<p>Dear Madam,</p> <p>Greetings from TASK!</p> <p>TASK in association with Oracle Academy is planning to conduct FDP on Artificial Intelligence in Machine learning</p>	29.06.2022

with JAVA August 2022.

As I informed earlier, Oracle Academy FDP module has been upgraded to Supported Self Study (SSS) in which, now the training will be completed in 9 weeks.

In SSS, the training will be setup in Member Hub and the trainer from Oracle will take 2 sessions – orientation session on first day of training (90 minutes) and final session on last day of training (90 minutes).

Details of scheduled FDP are given below:

Topic: Artificial Intelligence with Machine Learning in Java

Training type: Virtual

Duration: 9 weeks

Start Date (Orientation): 22nd August Monday 2022

End Date (Final Session): 24th October Monday 2022

Target Audience: Degree and Engineering Faculty.

No of Faculty: Minimum 35 and Maximum 55

Link to nominate for FDP:

<https://forms.gle/oD5mg1R6tbAkbezQ7>

Last date for nomination: 4th July 2022

Faculty has to complete the course on their own in 9 weeks or less. In case, they need support from trainer then they

	<p>can write a mail or contact the trainer directly and accordingly a separate zoom call will be setup by the trainer for resolving those queries.</p> <p>Points to be noted:</p> <ul style="list-style-type: none"> · College must be a Oracle Academy member · Faculty must have college domain email id to register for the FDP · Faculty should register in Oracle Academy to enroll for the FDP(Deatils will be shared after giving nomination in above link) · Faculty who will complete all the quizzes and exams will be received certificate directly from Oracle Academy · Faculty members have requested to deliver the same course to their students after successful completion of FDP. · Post FDP instructions will be shared with all certified faculty once the training is completed. <p>Please share this information with interested faculty members to nominate in above link for the FDP with their domain email id by 4th July 2022.</p>	
<p>TASK - Skill Next 360Digi TMG Training on Cloud Computing from 4th to 7th July 2022</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK in collaboration with 360Digi TMG is conducting</p>	<p>22.06.2022</p>

training on Cloud Computing from 4th of July 2022.

Training details are as followed:

Title of the Module : Cloud computing

Duration : 5 Days (1.5 Hrs / Day; Total 7.5Hrs)

Start Day / Date : Monday, 4th July 2022

End Day / Date : Thursday, 8th July 2022

Timings : 7.30 PM – 9 PM

Resource Person : Mrs Srija

Student Eligibility : Any Graduate / Post Graduate

End Date of registration :- 1st July 2022

Registration link:-

https://docs.google.com/forms/d/e/1FAIpQLSeYewzF4IYGxnVc44HbsNOF_nrgy6NACbx65a37hY6sDNz1rA/viewform?usp=sf_link

Or

	<p>https://forms.gle/RcTsFhGrPXF8sR8s7</p> <p>Request you to circulate to All student.</p>	
<p>TASK - Skill Next 360Digi TMG Trainings For the Week from 4th july to 7th july 2022</p>	<p>Dear Sir,</p> <p>Greetings from TASK!</p> <p>TASK in collaboration with 360Digi TMG is conducting trainings on “Social media marketing” from 4th July 2022.</p> <p>Training details are as followed:</p> <p>Title of the Module : Social media marketing</p> <p>Duration : 4 Days (1.5 Hrs / Day; Total 6Hrs)</p> <p>Start Day / Date : Monday, 4th July 2022</p> <p>End Day / Date : Thursday, 7th July 2022</p> <p>Timings : 7.30 PM – 9 PM</p> <p>Resource Person : Mr. Enoch Joy</p> <p>Student Eligibility : Any Graduate / Post Graduate</p>	<p>21.06.2022</p>

	<p>End Date of registration :- 1st July 2022</p> <p>Registration link:- https://docs.google.com/forms/d/e/1FAIpQLSdSguEVSxUXsOn00ccaQC9-MZliTHqgJE9HPVzokgCahjbBWA/viewform?usp=sf_link</p> <p>Request you to circulate to the students.</p>	
<p>TASK-HYSEA WINTalk Series on Fullstack</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>This mail is regarding WINTalk series session on 'Fullstack' on 24th June 2022 from 3:00 pm to 4:00 pm.</p> <p>The panelist for the session Mr.Paparao Kapuganti,Senior Principal Architect,Infosys Ltd and Ms.Sirisha Peyyeti,Head of Consulting,Roundsqr.</p> <p>Moderator for the session Mr.Shrikant Sinha, CEO -TASK.</p> <p>Joining link for the session https://task.radiusedutech.com/</p> <p>Attached is the flyer for WINTalk series session.</p> <p>Request you to share with students and encourage them to</p>	<p>18.06.2022</p>

	make use of this opportunity.	
AWS Deep Racer Student League	<p>Dear Sir/Madam,</p> <p>Greetings for the day!</p> <p>AWS has launched the Deep Racer Student League-India 2022 Program in the presence of the Honorable Minister of Education and Minister of Skill Development and Entrepreneurship, Shri Dharmendra Pradhan ji, AWS DeepRacer Student league aims to skill students on emerging technologies via a game based racing stimulator.</p> <p>In continuation with the successful AWS DeepRacer Women's league in 2021, this year's event is open to all students who are 18+ in age and enrolled in a recognized academic institutes. Throughout the course of the event, there will be different self-learning and enablement activities that will help students to get started on Machine learning using AWS Educate and DeepRacer content.</p> <p>This year's AWS DeepRacer Student league, brings exciting employment opportunities for top 100 winners from AWS partners and an opportunity to win the AWS Artificial Intelligence (AI) and Machine Learning (ML) Scholarship program, in collaboration with Intel and Udacity.</p> <p>To know more kindly visit AWS DeepRacer Student league -India 2022.</p> <p>Awards and Recognition for participants:</p>	16.06.2022

1st Prize :

- Amazon Vocher worth 1,00,000
- Amazon Branded Swag Kit
- Direct entry to AWS Global DeepRacer Student Championship Cup

2nd Prize :

- Amazon Vocher worth 75,000
- Amazon branded Swag Kit

3rd Prize:

- Amazon Vocher worth 50,000
- Amazon branded Swag Kit
- Top 10 will be awarded with Amazon Vocher worth 5,000 and Amazon branded Swag Kit.
- Top 100 will be awarded with Digital certificate recognizing them as Semi-finalist.
- All Participants will be awarded with Digital Certificate.

Click the below link to register for the program:

<https://tinyurl.com/2p8k5z2c>

	<p>Last Date for Registration 6th July 2022.</p> <p>Request you to share with the students and encourage them to register where they can make use of this opportunity.</p>	
<p>CDAC FDP on Advance IOT</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK,</p> <p>I am glad to inform you that TASK in collaboration with CDAC and NASSCOM initiative, "Future Skills PRIME" is conducting a Faculty Development program on Advance IoT(online).</p> <p>The training program will be held in a blended model</p> <p>Program Details are as follows: -</p> <p>Course Title: - Advanced IoT.</p> <p>Dates: - 20th June to 11th July 2022</p> <p>Mode of Delivery: - Blended model(both online & offline)</p> <p>AGENDA OF THE TRAINING: - 20TH JUNE (9 AM-4PM)</p> <p>23RD JUNE (9 AM-4PM)</p> <p>27TH JUNE (9 AM- 4PM)</p>	<p>16.06.2022</p>

	<p style="text-align: center;">30TH JUNE (9 AM- 4PM)</p> <p style="text-align: center;">4TH JULY (9 AM- 4PM)</p> <p style="text-align: center;">7TH JULY (9 AM- 4PM)</p> <p style="text-align: center;">11TH JULY (9 AM- 4PM)</p> <p>Certificate will be provided after the assessment test.</p> <p>Those, who will enroll, will also get a chance to attend 4-day guided practical session at our E-City campus on mutually convenient date. Food and lodging will be provided to participants free of cost during practical sessions.</p> <p>So request you to give your faculty nominations in below link by 17th June 2022(by EOD).</p> <p>https://docs.google.com/forms/d/e/1FAIpQLSfvF8U-VK5AuK4hw6pAqzqyLCykJqUAtw9is3MNwRPu71FMBw/viewform</p> <p>Please find attachment for execution plan of the program and IOT syllabus.</p> <p>Feel free for any queries.</p>	
<p>TASK-TechGig Code Competition</p>	<p>Dear Praveena Garu,</p>	<p>23.05.2022</p>

Greetings from TASK!

TASK in association with TechGig is planning for Code competition 2022.

About TechGig:

TechGig is a division of Times Internet Limited, India's largest digital products company. We are India's largest and fastest growing developer community of 4.2 million software professionals. We are an innovative and enthusiastic technology community of super-active developers who love to compete and showcase their skills, learn new technologies, and keep up with the latest technology news to grow in their career.

We curate technology news, deep insights on latest technologies, host exciting skill contests and help developers' upskill on new-age technologies. Our coding events, Code Gladiators and Geek Goddess are well-known in the technology industry. We bring to our readers the latest software updates, deep insights on programming languages, gadget previews and a quirky take on all things technology in our podcasts and videos. We help developers learn, compete and grow in their career.

Registrations Link for the competition:

https://www.techgig.com/codegladiators/signup?sourcetype=campus_TASK

	<p>Last Date for registration 6th June 2022.</p> <p>Participation of students in this competition will enable them to:</p> <ol style="list-style-type: none">1. Win cash prizes worth INR 50 Lakh*2. Create developer profiles and get closer to their dream job.3. Job Opportunities with top IT companies <p>Eligibility: Any student above 18 years and interested in coding is eligible to apply irrespective of his academic year and stream</p> <p>Request you to kindly share with your respective colleges and students and encourage them to participate in the competition.</p> <p>Thanks,</p>	
TASK - HYSEA WINtalk series on Deveops	Dear Sir/Madam, Greetings for the day!	12.05.2022

	<p>This mail is regarding WINtalk series session on 'DevOps' on 13th May 2022 from 3:00 pm to 4:00 pm.</p> <p>The panelists for the session are Ms. Rajita Singh,Head HR,Broadridge and Mr.Satyen Sharma,Head of Delivery,Technology,State Street.</p> <p>Moderator for the session Mr.Shrikant Sinha, CEO -TASK.</p> <p>Joining link for the session https://task.radiusedutech.com/</p> <p>Attached is the flyer for WINtalk series session.</p> <p>Request you to share with colleges and students and encourage them to make use of this opportunity.</p>	
<p>Salesforce Fundamentals Free Virtual Program for 3 weeks- Starting 19th May 2022</p>	<p>Dear Sir/Madam,</p> <p>Greetings from Telangana Academy for Skill and Knowledge !!</p> <p>Join Salesforce Fundamentals, a FREE virtual learning journey to get on the path to earning your first Salesforce credential, and discover your career in the cloud.</p> <p>It's a three-week course, each week is 2 hours of self-guided</p>	<p>12.05.2022</p>

	<p>learning and 1 hour of live teaching. Weekly sessions are every Thursday at 9:30am IST starting May 19th 2022.</p> <p>From Marketing, Sales, and Consultant roles, to, Developer, and Administrator ones, there's plenty to gain for anyone who clicks or codes.</p> <p>Eligibility: TASK Registered 1st and 2nd year students of B.E/Btech, BCA, B.Sc, BCom streams.</p> <p>TASK Registered 1st year students of MBA, MCA streams.</p> <p>Students Registration Link: https://forms.gle/cVCHNUcgeqcXkEji9</p> <p>Last Date to register: 17th May 2022</p> <p>Check out what students will learn:</p> <p>The basics of Salesforce, our platforms, and the Salesforce ecosystem How Salesforce skills lead to in-demand and high-paying careers How to navigate landing your first role in the ecosystem</p>	
<p>TASK - HYSEA WINtalk series on **TESTING** for students and faculty</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK - WINtalk series session on ""TESTING"" on 29th</p>	<p>28.04.2022</p>

	<p>April 2022 from 3:00 pm to 4:00 pm.</p> <p>The panellists for the session are:</p> <p>Mr. Hemchand Srigiriraju</p> <p>AVP – Delivery & Global Head of Testing, ZenQ</p> <p>Mr. Prashanth Achanta</p> <p>EVP & CTO, firstsource</p> <p>Mr. Sessa M. Rao</p> <p>Board Member, Insideview Technologies</p> <p>Joining link for the session https://task.radiusedutech.com/</p> <p>Attached is the flyer for WINtalk series session.</p> <p>Request you to share with all faculty and students to make use of this opportunity.</p>	
<p>Salesforce Virtual Internship Program 2022 Launch- 11th April 2022- 11</p>	<p>Dear Sir/Madam,</p> <p>Greetings from Telangana Academy For Skill and Knowledge.</p>	<p>09.04.2022</p>

AM till 12 PM

TASK in association with Smartbridge is launching the Virtual Internship Program supported by Salesforce on 11th April 2022, in partnership with AICTE, NASSCOM FutureSkills, Monster India & GitHub.

We have attached the Launch Program agenda, Salesforce Virtual Internship details.

Virtual Internship Program is a 8 week project based learning program delivered through smartinternz platform. The program consists of live hands-on training sessions, self-paced learning on the salesforce trailhead platform, Ask a mentor sessions, project development, soft skills training, and followed by a career fair for eligible students.

Benefits to student:

- 100+ hrs of experiential learning on salesforce technologies

- Work on a Guided project with Mentor support

- Acquire super badges and build salesforce trailhead trailblazer profile

- Virtual internship completion certificate

- Access to career fair organized by hiring partners only for final year & passed-out students

Virtual Internship Roles:

Virtual internship program has two learning tracks as listed below

	<p>Salesforce Administrator Track : This learning track is suitable for the learner with limited coding skills.</p> <p>Salesforce Developer Track: This learning track is suitable for the learners with good coding skills. The learners enrolling for this track will be routed through Nasscom FutureSkills Platform for NOS (National Occupation Standard) aligned course.</p> <p>Eligibility:</p> <p>Students currently pursuing BE, B.Tech,MCA, MBA, B.Sc, etc belonging to 2022 and 2023 passout batch. Students who graduated in 2020 & 2021 can also apply. Students must be available virtually for a period of two months or 8 weeks.</p> <p>Target Audience for the launch: Principals, TPOs, HODs, Faculties of Engineering, Degree and MBA colleges.</p> <p>Please register for the launch using the following link : https://us06web.zoom.us/meeting/register/tZcrf-6qpzIqE9JsaO-mnJ619RpbwIMflQop</p> <p>Program timings: 11 AM till 12 PM</p> <p>Please register in advance for this meeting and after registering, you will receive a confirmation email containing information about joining the meeting.</p>	
<p>TASK-HYSEA Virtual Job Fair</p>	<p>Dear Sir/Madam,</p> <p>TASK in association with HYSEA (Hyderabad Software</p>	<p>21.03.2022</p>

Enterprises Association) is taking great pleasure in announcing the 3rd edition of HYSEA JOB FAIR(Virtual) targeting Engineering (B.E/B.Tech) and Non-Engineering (MCA, MBA, BCA, B.Sc. Comp Science, BBA, B.A, B.Sc. & B.com) pass outs of 2020, 2021 and 2022. This year HYSEA is planning to target Tier-3 towns and colleges in Telangana. In addition to the tech jobs, the Job Fair will also assist in hiring for ITES/BPO & other jobs.

A unique feature of this year's job fair includes focusing on the hiring of Women from the Economically Weaker Section of the Society who are trained by our NGO Partner NIRMAAN. For this category graduates from the year, 2019 will also be considered.

All eligible candidates interested in participating in this VIRTUAL JOB FAIR will be required to Register Online at <https://hyseajobfair2022.in/>

The registrations open on 1st March 2022 and the last date to register is 28th March 2022.

Students/Candidates are advised to read the details of the Job Fair at Webpage: <https://hyseajobfair2022.in/> before registering.

Registration Link: <https://hyseajobfair2022.in/student-registration.php>

Key points to be noted by Candidates/Students:

Each candidate/student participating in the job fair will

	<p>choose the top 10 preferences from the participating companies.</p> <p>Shortlisted candidates' details will be shared with participating companies based on the number of open positions, skill set required & candidate preference.</p> <p>Once details of the candidates are shared with companies, they are free to follow their hiring process of further tests/interviews with shortlisted candidates.</p> <p>It is possible that a candidate may receive multiple offers from different companies.</p> <p>HYSEA reserves the right to share all candidates' data with all registered companies at a later stage.</p> <p>It is entirely up to the participating companies to shortlist or make a job offer. HYSEA is just a facilitator.</p> <p>Hence, it is requested to circulate this and encourage maximum students/colleges to register for the Job Fair.</p> <p>For any help/info with the registration process, please feel free reach me out.</p>	
<p>TASK Oracle 5-Day Boot Camp and Build-a-Thon Application Development using Oracle APEX</p>	<p>Dear Sir/Madam,</p> <p>TASK in association with Oracle Academy is planning to conduct 5-Day Boot Camp and Build-a-Thon Application Development using Oracle APEX</p> <p>About the event:</p> <p>TASK in association with Oracle Academy is launching a program exclusively for students to provide Hands-On Experience on building projects. Exposure to live projects will help students to gain technical skills and also gain Hands-On experience on Oracle APEX</p>	<p>12.03.2022</p>

Eligibility :

Students from 3rd & Final year CSE, IT and ECE backgrounds

Students from Final Year Degree which support computers and Information technology.

Students who will complete the course Database Programming with SQL Learner English Course in Oracle Academy will have an opportunity to attend 5 - Day Boot Camp.

Registration link for the Boot camp will be only sent to students who have certified on Database Programming with SQL Learner English Course in Oracle Academy.

Students who will attend 5- Day Boot camp only can participate in Project Build-A-Thon.

Benefits of the Program:

Students will be trained on Oracle Application Express – Application Development Foundations content during 5 Days.

Students will have an understanding on how to make use of Oracle APEX platform.

Exposure to live Projects will help students in improving technical skills.

Students will be presented with awards based on their performance.

Mentoring support from trainers.

Tentative Dates:

7th April 2022 to 7th June 2022

Program Agenda:

Event launch

E learning- Database Programming with SQL Learner

	<p>English in Oracle Academy 5- Day Boot camp Project Build-a-Thon Project Reviews & Announcing Top 15 projects Final Jury Round & Winner Announcement</p> <p>Students would need faculty assistance to complete E learning on Database Programming with SQL Learner English Course in Oracle Academy</p> <p>So, Request you to kindly take faculty nominations (Domain Email Id) from Oracle registered colleges(attached OA registered list for your reference) in below link by 15th March 2022.</p> <p>https://forms.gle/18CF9WzC1Sb2ifwy5</p> <p>Onboarding students into Oracle Academy process will be shared with Faculty members once we get enough nominations.</p> <p>Please try to push more college participation</p> <p>Let me know in case of any queries.</p>	
SCOST NIPER Hyderabad 6- month Pharmaceutical EDP with Scholarship – reg	Dear Sir/Madam, Greetings from TASK!!	12.03.2022

We are happy to inform you that NIPER, Hyderabad has been awarded a grant from DBT, GoI through Telangana State Council of Science and Technology (TSCOST) to conduct a Skill Vigyan Program in the Pharmaceutical Sector. A Six-month Entrepreneurship Development Program (EDP) is being organized by the Department of Pharmaceutical Management, National Institute of Pharmaceutical Education and Research - Hyderabad, during March – September 2022.

This program is designed to enhance the understanding of the participants on the Entrepreneurship Journey, Various Opportunities & Challenges encountered in the Journey and the support available from the Government for Entrepreneurs.

It is a 6-month full time program where the participants will be given classroom/laboratory training for 2 months at NIPER Hyderabad and industrial training for 4 months. The participants will receive a stipend of Rs. 10,000 per month for six months.

Applications are called from interested candidates of all the Degree, Degree & PG, Pharmacy, and Engineering colleges registered with TASK. Last date for applications is 15th March 2022.

As Telangana Academy for Skill and Knowledge is known for its industry academia connect to help the youth acquire the required skillsets for future, we request your kind support to circulate the Entrepreneurship Development Program (EDP) details (Brochure and application form enclosed) to the passed-out pharmacy/related science discipline students in colleges registered with TASK.

	<p>Students with entrepreneurial interests from these colleges may kindly be encouraged to apply for the program.</p> <p>We look forward to your support in reaching the entrepreneurial aspirants from the TASK registered colleges.</p> <p>For any queries, please write to edp.niperhyd@gmail.com</p>	
<p>TSCOST NIPER Hyderabad 6- month Pharmaceutical EDP with Scholarship – reg</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!!</p> <p>We are happy to inform you that NIPER, Hyderabad has been awarded a grant from DBT, GoI through Telangana State Council of Science and Technology (TSCOST) to conduct a Skill Vigyan Program in the Pharmaceutical Sector. A Six-month Entrepreneurship Development Program (EDP) is being organized by the Department of Pharmaceutical Management, National Institute of Pharmaceutical Education and Research - Hyderabad, during March – September 2022.</p> <p>This program is designed to enhance the understanding of the participants on the Entrepreneurship Journey, Various Opportunities & Challenges encountered in the Journey and the support available from the Government for Entrepreneurs.</p>	<p>08.03.2022</p>

	<p>It is a 6-month full time program where the participants will be given classroom/laboratory training for 2 months at NIPER Hyderabad and industrial training for 4 months. The participants will receive a stipend of Rs. 10,000 per month for six months.</p> <p>Applications are called from interested candidates of all the Degree, Degree & PG, Pharmacy, and Engineering colleges registered with TASK. Last date for applications is 15th March 2022.</p> <p>As Telangana Academy for Skill and Knowledge is known for its industry academia connect to help the youth acquire the required skillsets for future, we request your kind support to circulate the Entrepreneurship Development Program (EDP) details (Brochure and application form enclosed) to the passed-out pharmacy/related science discipline students in colleges registered with TASK.</p> <p>Students with entrepreneurial interests from these colleges may kindly be encouraged to apply for the program.</p> <p>We look forward to your support in reaching the entrepreneurial aspirants from the TASK registered colleges.</p> <p>For any queries, please write to edp.niperhyd@gmail.com</p>	
<p>TASK - 'JobFair@JNTUH' ' 15th & 16th March 2022</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p>	<p>04.03.2022</p>

	<p>Announcing 'JobFair@JNTUH', a multi-industry and multi-profile job fair organised by Solvix and supported by TASK and DEET as part of JNTU's Golden Jubilee celebrations on 15th & 16th March 2022.</p> <p>With 20,000+ vacancies and over 100 companies participating in this job fair, we will help you connect with some of the biggest employers and a huge array of jobs to choose from. But hurry as registrations are filling in fast.</p> <p>Kindly share with student.</p> <p>Last Date to Register 11th March 2022</p> <p>Registration link: https://forms.gle/BfP88d8JB3jUSeCj8. Please note that there is no registration fee.</p>	
<p>TASK-HYSEA Virtual Job Fair</p>	<p>Dear Sir/Madam,</p> <p>TASK in association with HYSEA (Hyderabad Software Enterprises Association) is taking great pleasure in announcing the 3rd edition of HYSEA JOB FAIR(Virtual) targeting Engineering (B.E/B.Tech) and Non-Engineering (MCA, MBA, BCA, B.Sc. Comp Science, BBA, B.A, B.Sc. & B.com) graduates of 2020, 2021 and 2022.</p> <p>A unique feature of this year's job fair includes focusing on the hiring of Women from the Economically Weaker</p>	<p>04.03.2022</p>

Section of the Society who are trained by our NGO Partner NIRMAAN. For this category graduates from the year, 2019 will also be considered.

All eligible candidates interested in participating in this VIRTUAL JOB FAIR will be required to Register Online at <https://hyseajobfair2022.in/>

The registrations open on 1st March 2022 and the last date to register is 15th March 2022.

Students/Candidates are advised to read the details of the Job Fair at Webpage: <https://hyseajobfair2022.in/> before registering.

Registration Link: <https://hyseajobfair2022.in/student-registration.php>

Key points to be noted by Candidates/Students:

Each candidate/student participating in the job fair will choose the top 10 preferences from the participating companies.

Shortlisted candidates' details will be shared with participating companies based on the number of open positions, skill set required & candidate preference.

Once details of the candidates are shared with companies, they are free to follow their hiring process of further tests/interviews with shortlisted candidates.

It is possible that a candidate may receive multiple offers from different companies.

HYSEA reserves the right to share all candidates' data with all registered companies at a later stage.

It is entirely up to the participating companies to shortlist

	or make a job offer.	
Verisk Applied students data	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find the attachment of the applied students for Verisk. Students will receive communication mail from the company for the interview.</p>	07.02.2022
TASK Oracle FDP on Artificial Intelligence in Machine Learning with Java March 2022	<p>Dear Madam,</p> <p>Greetings from TASK!</p> <p>TASK in association with Oracle Academy is planning to conduct FDP on Artificial Intelligence in Machine Learning with Java (Duration : 9 weeks) in the month of March 2022.</p> <p>Oracle Academy FDP module has been upgraded to Supported Self Study (SSS) in which, now the training will be completed in 9 weeks.</p> <p>In SSS, the training will be setup in Member Hub and the trainer from Oracle will take 2 sessions – orientation session on first day of training (90 minutes) and final session on last day of training (90 minutes).</p> <p>Details of scheduled FDP are given below:</p>	25.01.2022

Topic: Artificial Intelligence in Machine Learning with Java

Training type: Virtual

Duration: 9 weeks

Start Date (Orientation): 11th March 2022

End Date (Final Session): 13th May 2022

Target Audience: Degree and Engineering Faculty.

Link to nominate for FDP:

<https://forms.gle/UYdkBWJZbDu3oEj69>

Last date for nomination: 30th Jan 2022

Faculty has to complete the course on their own in 9 weeks or less than 9 weeks. In case, they need support from trainer then they can write a mail or contact the trainer directly and accordingly a separate zoom call will be setup by the trainer for resolving those queries.

Points to be noted:

- College must be a Oracle Academy member
- Faculty must have college domain email id to register for the FDP
- Faculty should register in Oracle Academy to enroll for the FDP(Deatils will be shared after giving nomination in above link)
- Faculty who will complete all the quizzes and exams will be received certificate directly from Oracle Academy
- Faculty members have requested to deliver the

	<p>same course to their students after successful completion of FDP.</p> <p>· Post FDP instructions will be shared with all certified faculty once the training is completed.</p> <p>Please nominate faculty to attend the FDP with their domain email id by 30th Jan 2022</p>	
<p>TALLY Training Schedule; Date- 28th to 30th, December-2021 & Time: 9:30 AM to 4:30 PM</p>	<p>Dear Madam / Sir, Greetings from TASK!</p> <p>We are confirming the Tally training schedule at your college for the proposed period with the following details. We request you to follow the Covid norms.</p> <p>TALLY Training Schedule:</p> <p>28th to 30th December, 2021</p> <p>Trainer details</p> <p>1). Mr. Ramakrishna - 91007 98186</p> <p>Following are the requirements from our end for TALLY Training Sessions</p> <p>As a part of our ongoing TASK skilling initiatives, we have scheduled TALLY training sessions at your college on TALLY with GST for all years TASK registered commerce students. This is for six hours each day, ideally between 9:30 AM and 4:30 PM including 60 minutes for lunch. Each class to have 40 to 50 students max.</p>	<p>27.12.2021</p>

In this connection we would like you to provide us the following:

1. Neat and Tidy Class Room with seating capacity of 50.
2. Projector with Sound System.
3. White Board & Markers.
4. Lunch and Tea for trainer
5. Collar mikes or normal mikes

Also a request regarding help with accommodation. Since the trainer will be travelling from Hyderabad it would be great if your college can provide the same as it would also be safer.

Also a request regarding help with local transport, it would be great if your college can provide a cab for pick and drop of the trainer, as many of them are not familiar about the college locations at long distances.

If at all any cancellation regarding this schedule please let us know immediately

Please find the attachment of attendance. We will soon share the feedback form, assessment and request to handover all the documents to the trainer after the sessions.

	<p>We would request you to take the print out of the same attachment which we are sending for attendance.</p> <p>Thanks in advance for your support.</p> <p>Sridevi Guduru, Project Manager - 9989931684</p> <p>Telangana Academy for Skill and Knowledge</p> <p>Begumpet</p>	
TASK- BLUEPRISM ACADEMIA FDP DETAILS	<p>Dear Sir/Madam,</p> <p>Please find the recordings of Day 4 below.</p> <p>Day 4 - https://youtu.be/EP2fiIVnCn8</p>	23.12.2021
TASK - ExcelR - Training on Data Science	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK in association with ExcelR is conducting a Instructor led virtual Training Program on Data science. This program is offered to all the TASK registered Degree colleges. Below are the complete details and attached is the EDM.</p> <p>Training Program :-Data science</p> <p>Training Start Date :04-01-2022</p>	21.12.2021

	<p>Training End Date : 2-02-2022</p> <p>Note:- (we will not have training on Saturday & Sunday)</p> <p>Timings : 6.00 PM to 8.00 PM</p> <p>Note:-13th and 14th of jan also we will not have the training as they are festival holidays.</p> <p>Registration link : https://docs.google.com/forms/d/e/1FAIpQLSdtiOoSNlqUvKgvmA1alMXUwamNUWyp8XGet_epCDNgEfwQg/vie wform?usp=sf_link</p> <p style="text-align: right;">OR</p> <p>https://forms.gle/RU6327Ct4jQddLsE6</p> <p>Faculty from Degree can attend this training program. Topics such as Data Science Project Lifecycle , Data Mining Unsupervised , Data Mining Unsupervised , will be covered in this training program.</p> <p>Request you all to take this forward to your respective Degree colleges and take the nominations .</p> <p>Request you all to take the nomination before 30th december.</p>	
<p>TCS BPS Fresher Hiring for 2022 Graduates</p>	<p>Dear Sir/Madam,</p>	<p>20.12.2021</p>

	<p>Greetings from TASK!</p> <p>We thank you for your continuous support in identifying quality talent and greatly value your contribution towards TCS BPS Fresher Hiring.</p> <p>With pleasure, we would like to invite your students for “TCS BPS Fresher Hiring” for YOP 2022 Arts, Commerce & Science Graduates.</p> <p>For more details and to register : Pls. refer to the below poster or click on this link https://on.tcs.com/3D8qBkQ</p>	
<p>CII-EDU SUMMIT on 21 December 2021 at HICC Novotel: Madhapur: Hyderabad</p>	<p>Dear Educators,</p> <p>CII-EDU SUMMIT</p> <p>‘Academic Excellence in Higher Education through Industry Collaborations’</p> <p>1000-1630 hrs: 21 December 2021; Hotel HICC Novotel, Madhapur, Hyderabad</p> <p>I am pleased to inform you that CII Telangana in collaboration Department of Collegiate & Technical Education, Government of Telangana is organizing EDU Summit with the theme ‘Academic Excellence in Higher Education through Industry Collaborations’ between 1000-1630 hrs on 21 December 2021 at Hotel HICC Novotel, Madhapur, Hyderabad. (Program registration starts at 0915 hrs).</p> <p>The objective of the Edu Summit is to deliberate on the</p>	<p>20.12.2021</p>

	<p>Need for Strengthening the Core Courses, Accreditation & Ranking Processes, Importance of Multi-Disciplinary Education, and Developing the Academic Leaders. We are writing to cordially invite you and colleagues to join the conference.</p> <p>Kindly note that there is no registration fee however prior registration is mandatory and seats at the venue will be allocated on a first-come-first-serve basis. Kindly note that COVID protocols will be followed at the program venue.</p> <p>TASK is collaborating Partner for EDU Summit.</p> <p>We request you to use the attached Registration form for nominations of TPO/Faculty from your college. Please share the filled up Registration form with aruna.mantena@cii.in</p> <p>Registration Link for the program at Hotel HICC Novotel: https://bit.ly/CIIedusummit2021-HICCNovotel</p> <p>Program flyer copies are attached for reference.</p> <p>We look forward to your support and confirmation from your college.</p>	
<p>Infosys Spring board Career Compass - Journey from Me to We December 21 - 23, 2021</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK – Infosys Spring board would like to conduct Career</p>	<p>18.12.2021</p>

	<p>Compass from 21st to 23rd Dec 2021 from 3:30 PM to 5:30 PM.</p> <p>Kindly send the attachments to all students .</p>	
<p>TASK- BLUEPRISM ACADEMIA FDP DETAILS</p>	<p>Dear Sir/Madam,</p> <p>Greetings for the day!!</p> <p>Please find the details of scheduled Blue Prism academia program FDP :</p> <p>Topic : Foundation Training Training Type : Virtual Duration: 3 hrs per day Start Date : 20-12-2021 End Date : 23-12-2021 Trainer : Smart Bridge trainer Time:10 am to 1:00 pm Session Link - https://zoom.us/meeting/register/tj0rcOitqT8oGND6KSoaN1dnIbX8PsrAtinJ</p> <p>Benefits:</p> <p>Participation Certificates would be provided.</p> <p>Request all the faculty to join the session on time.</p>	17.12.2021
<p>Blue Prism TASK FDP- Faculty Nominations</p>	<p>Dear Madam,</p> <p>Greetings from TASK!</p> <p>TASK – Blue Prism would like to conduct a Faculty Development Program(FDP) from 20th to 23rd Dec 2021.</p> <p>Request you to please nominate the faculty in below link by</p>	15.12.2021

17-12-2021 end of the day.

<https://forms.gle/AP8TqsMsHKtEuoa28>

Details of scheduled Blue Prism academia program FDP are given below:

Topic : Foundation Training

Training Type : Virtual

Duration: 3 hrs per day

Start Date : 20-12-2021

End Date : 23-12-2021

Trainer : Smart Bridge trainer

Time:10 am to 1:00 pm

Benefits:

Participation Certificates would be provided.

Eligibility Criteria:

	<p>Faculty of Engineering.</p> <p>Faculty of Degree(B.com computers and B.sc and BCA).</p> <p>Kindly let me know if you need any additional information from my end.</p>	
Task-BluePrism Academia Program partnership Certificate	<p>Dear Sir/Madam,</p> <p>Please find the attachment of Blueprism academia program partnership certificate.</p>	10.12.2021
Recruitment - TCS BPS Hiring 2021 & 2020 Graduates II BCom, BA, BBA/BBM/BMS, BSc (CS/IT)/General	<p>Dear Sir/Madam,</p> <p>Request you to share the link to apply with students.</p> <p>Students who were unable to take the online assessment previously due to exams etc also can apply(Students who have applied and are not qualified are not eligible to apply).</p> <p>Attached are the documents for your reference.</p> <p>Link to apply: https://forms.gle/wexydtSwg5uE4vdL9</p> <p>Last date to apply : 12th December 2021</p> <p>Students would receive communication from TCS only.</p> <p>We thank you for your continuous support in identifying quality talent and greatly value your contribution towards TCS Campus Hiring Program. With pleasure, we would like to invite you for 'TCS BPS Off Campus Recruitment'.</p> <p>We are currently hiring 2021 & 2020 BCom, BA, BBA/BBM/BMS, BSc (IT &CS), BCA candidates for</p>	09.12.2021

immediate requirements.

Interview process - Online Test--> HR--> TR--> MR.
Interviews to be conducted virtually

Job Description- is herewith attached for your kind perusal.

As the requirement is urgent, joining of selected candidates will be immediate.

Both, Clearing Online Test & subsequent rounds of Virtual Online Interviews are mandatory for selection and receiving an offer.

IMPORTANT:

Looking at the pandemic scenario, the selected candidates shall work from home, once the situation normalizes candidate needs to start reporting to nearest assigned TCS Operations Centre. Candidate may / may not have location preference, decision on deployment will be purely business in nature.

Please encourage interested candidates to fill in their respective details in the below format and share it with you. (Same excel format attached) Request you to share collated information in one single file and share it with us so that candidates can receive Online Test & Online Interviews related information.

DT No. is not mandatory while updating the student details to be considered for the Test. However, you may inform the candidates to register their profile in TCS Next Step portal under BPS section and submit the complete form as DT No. will be required later to process the candidature of selected candidates.

Candidates who have already registered in TCS NextStep Portal under BPS Section and have their DT No. can share the same no and need not create new profile.

Important Points Regarding TCS NQT Test:

- Aptitude test will be remote proctored (online).

	<ul style="list-style-type: none"> · Students should login 15 minutes prior for the test; Eg – If test timing is 12pm, students should login by 11:30 or 11:45am. · If students login after test time – system will not allow them to attempt test. · Test details will be shared on their registered Email ID (as mentioned by students on NextStep Portal). · Students can appear for Online Remote Proctored Assessment using a laptop/desktop, Mobile devices are not supported for this assessment. · Please ensure students are equipped with Windows/Ubuntu OS, Google Chrome browser, Minimum 2 MBPS Internet connectivity & A working webcam as it will be a proctored examination. 	
<p>Campus Connect 2.0 Launch and Invite for Principals' Meet Wednesday - 15 December, 2021</p>	<p>Dear Professor,</p> <p>Warm Greetings from Campus Connect Team!</p> <p>Digital Literacy is essential for every individual. Infosys has always benefitted from the association with educational institutions such as yours and the corporate experience helps us anticipate the needs of the industry.</p> <p>Launching Campus Connect 2.0</p> <p>We are pleased to launch Campus Connect 2.0 for our partnering colleges across the country. The offerings are now powered by Infosys Springboard, our online digital platform for learning.</p> <p>We invite you to participate in the Principals' Meet on 15th December 2021 from 10:00 AM - 1:30 PM and join the discussion to strengthen our Industry - Academia partnership.</p> <p>The tentative agenda for the Principals' Meet is as follows:</p> <ul style="list-style-type: none"> · Infosys Digital literacy mission 	<p>03.12.2021</p>

- Campus Connect 2.0 framework and partnership model
 - o Internship
 - o Microcredit Courses
 - o Industry ready new age roles
 - o Masterclasses
 - o Research Collaboration Opportunities
 - o Partnership scorecard model
- Interaction with eminent speakers
- Rewards and Recognition
- Strengthening Industry academia partnership – A Discussion

The Principals' Meet details are given below:

Event Date

Wednesday, 15th December 2021

Time

10:00 AM to 1:30 PM

Venue

Virtual event

Nomination for the event

The success of this event depends on your valuable presence, and hence we would urge you to attend the same along with your Head of Institute (Principal, Chairman, Director), Head of department(max 3 nominations from an

institution).

Nomination Link

<https://exp.infosysmeridian.com/register/PMMeet2021>

Rewards and recognition

We would like to thank you for your support towards onboarding your students to the platform, leveraging the content and the opportunities offered by Infosys. We are also celebrating educational institutions who have used Infosys Springboard to their advantage through our rewards and recognition awards for the following categories:

Best Ambassadors

Extra Milers

Ace Partners

Institutions that have onboarded all their students onto Infosys Springboard

Institutions that have led in terms of learning time on Infosys Springboard

SPOC's of colleges who have collaborated with Campus Connect

Digital Leaders

Learning Trailblazers

Star Achievers

Institutions who have created and used microsites effectively

Institutions wherein students complete numerous courses

Colleges that complete maximum no. of certifications

	<p>Your institution could stand a chance to win these awards. Please onboard all your students, encourage them to learn and complete the courses & certifications available on the platform. Also create your own microsites and use them in your teaching-learning process.</p> <p>Testimonials</p> <p>If you wish to share a testimonial video or message with us to publish during the event, please share it with us through an email to Springboard-support@infosys.com with the subject line "Principals' Meet – 2021: Testimonials"</p> <p>For any queries or clarification(s), please write to Springboard-support@infosys.com with the subject line "Principals' Meet – 2021: Queries"</p> <p>We look forward to your active participation.</p>	
<p>iNFO SYS GBFS TRAINING PROGRAM- VIRTUAL MODE- STUDENTS LIST</p>	<p>Dear Madam,</p> <p>Thank you for sharing the students data.</p> <p>Kindly share the data in attached format.</p>	<p>01.12.2021</p>
<p>Capgemini Campus drive for BCA and BSc graduates - 2022 Batch! Registration</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology</p>	<p>01.12.2021</p>

	<p>for an inclusive and sustainable future. It is a responsible and diverse organization of over 300,000 team members in nearly 50 countries. With its strong 50-year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2020 global revenues of €16 billion.</p> <p>Capgemini in India comprises over 150,000 team members working across 13 locations: Bangalore, Bhubaneswar, Chennai, Coimbatore, Gandhinagar, Gurugram, Hyderabad, Kolkata, Mumbai, Noida, Pune, Salem and Tiruchirappalli.</p> <p>We are excited to announce the launch of our campus drive for BCA and BSc graduates of 2022 batch. We cordially invite all the eligible students of your institute to register and apply.</p> <p>Please find below the details of the eligibility criteria for your reference, last date for the registration is 12th December 2021.</p>	
<p>TALLY Training Schedule (Date: 6th Dec to 10th Dec 2021 and Time: 2:00 PM to 4:00 PM)</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK is offering TALLY online training to the TASK registered students of B.com (1st, 2nd, 3rd years), M.com and MBA (1st, 2nd years). It is a five-day program and free of cost for the TASK registered students.</p>	<p>01.12.2021</p>

We request you to please inform to the students.

TALLY Training details:

Date: 6th, December-2021 to 10th, December – 2021

Time: 2:00 PM to 4:30 PM

Training is on Octa platform.

Student Registration Link:

<https://forms.gle/W4ptpokn72i5RWuc7>

Last date for closing the registrations : 4th, December - 2021
by 11:00 AM

Requesting to share the above link with the students.

	<p>Note:</p> <p>We are providing 2 certificates based on the following eligibility criteria</p> <p>1). Participation Certificate - Students must attend all 5 days of training</p> <p>2). Assessment Certificate - Students must attend all 5 days of training and also have to complete the assessment with a minimum of 60% marks. Assessment will be on the last day of the training.</p>	
<p>Virtual event hosted by Brookings on Digital Mentoring - 2nd Dec 21, 6.30 PM</p>	<p>Dear Sir/Madam,</p> <p>We hope you're all doing well. We are really excited to share about a virtual event upcoming at Brookings THURS 2nd DEC, 6.30 PM IST, where Mentor Together policy brief on a digital mentoring policy and practice ecosystem for India, will be launched.</p> <p>As you all know that, TASK Partnered with Mentor Together with the objective of Speed Mentoring is to support students to learn skills that are essential for them to get into the workforce. For the details CLICK HERE.</p> <p>The workshop will also have as panelists Hana Brixi, Global Director for Gender, at the World Bank, and Jayesh Ranjan, Principal Secretary, Government of Telangana for Department of Information Technology, Electronics and Communications (ITE&C), and Industries and Commerce (I&C).</p>	<p>30.11.2021</p>

	<p>The event followed by the policy brief builds on evidence from the Mentor To Go program, and has as a central thesis that a digital mentoring policy and practice ecosystem could tackle at scale the triple threat of a skills deficit, a network gap, and restrictive gender norms, which constrain young women in India from equitable labor force participation rate.</p> <p>We would love to have you are all attending if this time and date aligns. Link to sign up here: bit.ly/2dec21.</p> <p>The role of the college is central in our recommendations, so I think it would be really great to have TPOs attend and hear the global perspective on mentoring.</p> <p>The overall model of TASK has been a key idea in the digital mentoring ecosystem</p>	
<p>Student registration form</p>	<p>Dear Praveena ma'am,</p> <p>We have closed the pre-placement talk and there is an update on the CTC being revised to 2.5Lacs PA</p> <p>Awaiting registration data to conduct further assessment of the applicants</p> <p>Do call me if you have any further questions</p>	<p>30.11.2021</p>
<p>Taragc Sangareddy - TASK- Naandi</p>	<p>Dear Madam,</p>	<p>26.11.2021</p>

<p>foundation- Mahindra Pride Classroom Training Programme- Batch V- Reg</p>	<p>We are pleased to confirm the Mahindra Pride classroom training program from 29th Nov 2021 onwards.</p> <p>Below are the details of the trainer.</p> <p>Ms. Anitha – Mobile Number: 9030886639</p> <p>Kindly arrange all the necessary arrangements.</p>	
<p>TASK-Esri India: ArcGIS Platform Launch Event: Reimagine Location in Your Apps</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK in collaboration with Esri INDIA planning to launch a new ArcGIS Platform - A location-focused platform-as-a-service (PaaS) offering for the developers in India on 26th November 2021.</p> <p>Request you to share the below information to the faculty and students to enroll for this program.</p>	<p>22.11.2021</p>
<p>TASK - Hackmania is launching global hackathon series</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK in Association with Hackmania is launching a big global hackathon series starting with a bilateral hackathon amongst India and the United States of America.</p>	<p>17.11.2021</p>

Don't forget to secure your spot for DAOHACK – INDIA-USA BILATERAL EDITION, a virtual online hackathon with USD 25,000 as prizes for the top 15 teams.

Registration Link:

<https://hackathon.hackmania.com/hackathons/daohack>

Last Date for registrations: 20th November 2021, 6:00 PM IST

DAOHACK is being organised to find and fund the best solutions built on the Decentralized Autonomous Organisation tech stack.

Certificate :

All participants get a blockchain authenticated/verified participation certificate with the details mentioned.

All winners get a blockchain authenticated/verified winning certificate with the details mentioned.

(EVERY PARTICIPANT GETS A PARTICIPATION CERTIFICATE authenticated on the blockchain with a unique ID for every single student who registers and participates. This is being presented by our challenge sponsors DOCK.) ALL winners get winning certificates.

	<p>Prizes by USDAO:</p> <p>Winner: USD 2,500 in Ethereum. Runner-Up: USD 1,500 in Ethereum. Conditional Prize (for top 10 teams): USD 2,500 in USDAO tokens, only for continuing to work on solutions post hackathon.</p> <p>Prizes by DOCK</p> <p>Winner: USD 2,500 in DOCK tokens. Runner-Up: USD 1,500 in DOCK tokens. 2nd Runner-Up (for top 10 teams): USD 1,000 in DOCK tokens.</p> <p>NOTE: Request you to Nominate a SPOC from your college for Hackathon and share their details</p> <p>Attached is the hackathon ppt for a better understanding. We do have mentors, but they will only be mentoring virtually on blockchain technologies.</p>	
<p>TASK - Students Registration Notification 2021-22 from 15th Nov 2021 to 31st Dec 2021.</p>	<p>Respected Sir/Madam,</p> <p>Greetings from TASK!!</p>	<p>16.11.2021</p>

	<p>I take this opportunity to thank you for your continuous support to TASK. It has been striving to enhance the employability quotient of the youth and enabled them choose multiple avenues as they graduate.</p> <p>We are glad to inform you that TASK is opened student registrations across the state for the Academic year 2021-22 for the students who are pursuing B.E / B.Tech / B.Pharmacy / BA / B.Sc / B.Com / BCA / BBM / BBA / MBA / MCA / MA / M.Com / M.Sc / Polytechnic from 15th Nov 2021 to 31st Dec 2021.</p> <p>Kindly communicate to the students and encourage them to register in below link:</p> <p>Link to register: https://tasklms.telangana.gov.in/lms/login/signup_process.php</p> <p>Note: Attached Student Registration Notification FY 2021-22.</p>	
<p>TASK-Oracle Cloud Infrastructure(OCI) 7th Dec 2021</p>	<p>Dear Sir/Mam,</p> <p>TASK in association with Oracle Academy is coming up with Oracle Cloud Infrastructure(OCI) event is on 7th December 2021 at 11 AM to 12:30 PM.</p> <p>Oracle is accepting only 60 faculty nominations from 20 colleges and the faculty who have Oracle MEMBER HUB access only can attend this event.</p>	<p>11.11.2021</p>

	<p>About the Event:</p> <p>Oracle Cloud Infrastructure (OCI) leads cloud computing with a deep and broad platform of cloud services that enables customers to build and run a wide range of applications in a scalable, secure, highly available and high-performance environment.</p> <p>Throughout the course, learners gain an understanding of:</p> <ul style="list-style-type: none"> • the core infrastructure of cloud • how it works with databases • cloud security, administration, monitoring, and management <p>who are eligible?</p> <p>Faculty members who have the access of Oracle MEMBER HUB Faculty who are having institution domain id Request you to please inform the faculty members who have member hub access to give their nomination in below link on or before 15th November 2021.</p> <p>https://forms.gle/j9rZ25FVaW9wacdv6</p> <p>Please reach out to me for any queries.</p>	
<p>TASK - NRSC Industry Visit</p>	<p>Dear Sir/Madam,</p>	<p>28.10.2021</p>

Greetings From TASK!

TASK in Collaboration with National Remote Sensing Centre (NRSC) Indian Space Research Organisation (ISRO) offering Industry Visit to all the TASK registered Colleges.

About NRSC:

National Remote Sensing Centre (NRSC) is one of the primary centres of Indian Space Research Organisation (ISRO), Department of Space (DOS). NRSC has the mandate for the establishment of ground stations for receiving satellite data, generation of data products, dissemination to the users, development of techniques for remote sensing applications including disaster management support, geospatial services for good governance and capacity building for professionals, faculty and students.

Who Can Visit: Any Students from all Streams/Branch of Engineering/Degree &PG / MBA / MCA...

When: Every Friday except holidays

Timings: 10:00 AM to 12:00 PM

No. of Students: 200 - 250 maximum per visit

	<p>Note: Students coming for ISRO (Industry Visit) Should be wearing formals & follow the covid norms (mask, sanitiser)</p> <p>kindly share the student's data a week prior so that we can share it with NRSC Team as we prefer first come first serve basis.</p>	
5G Empower for the youth of Telangana!	<p>Dear Sir,</p> <p>Greetings from TASK!</p> <p>STL Academy is ready to train the students on 5G training. Please find below instructions.</p> <p>I would like to request each college please download the template and enter the details, who are interested to enroll for 5G Training.</p> <p>To upload bulk students please follow the following steps:</p> <p>Step 1 Visit the website https://5g.stlacademy.tech/ and click on Upload button in the top right corner of the menu.</p> <p>Step 2 Download the CSV file template by clicking on the Click here link. Fill the student database as per the template format.</p>	21.10.2021

	<p>Step 3 On the same page input your institute / college name, contact person name, contact number and upload the file template.</p>	
<p>Infosys Off-Campus Recruitment Program: Invitation to participate in BCA and BSc graduates hiring</p>	<p>Dear Sir,</p> <p>Please find below email from Infosys regarding Infosys off Campus Recruitment Program for BCA and BSc students from 2019,2020 and 2021 batches.</p> <p>Attached is the eligibility criteria for your reference.</p> <p>Eligible students who wish to participate in the program can do so by filling out the Infosys Off-Campus Recruitment Program Application Form latest by Sunday, November 7, 2021.</p> <p>Please refer to the email from Infosys reg Online test Pattern and other information.</p> <p>Infosys Campus Recruitment Program will be conducted online in a phased manner comprising of Infosys online test and virtual interview. Candidates who clear Infosys online test will progress to the interview round.</p> <p>Please be aware that we will not have any visibility regarding the applied students details, shortlisted student details , Interview schedule , selected student details or DOJ As the students would apply using link provided by Infosys</p>	<p>19.10.2021</p>

	<p>Please Note : Student would receive communication from Infosys only.</p> <p>Request you to share the details with all students.</p>	
<p>TASK - College Renewal Notification released for the academic Year 2021- 22</p>	<p>Dear Sir/Madam,</p> <p>Greetings from Telangana Academy for Skill and Knowledge (TASK).</p> <p>Telangana Academy for Skill and Knowledge (TASK) is established under Department of ITE & C, Government of Telangana to enhance the employability quotient of the youth in the state.</p> <p>TASK invites Registrations and Renewals for the Academic Year 2021 – 22 from Colleges offering B.E / B.Tech/ B Pharmacy/ MCA/ MBA/ PGDM/ BA/ B.Sc/ B.Com/ BBM/ BBA/ M.A/ M.Sc/ M.Com/ Polytechnic in the state of Telangana.</p> <p>Use the following link to renewal you College:</p> <p>https://tasklms.telangana.gov.in/lms/college/register.php</p> <p>Note: Attached College Registration Notification For</p>	<p>04.10.2021</p>

	<p>Academic Year 2021-22 for your reference.</p> <p>For any queries please feel free to contact me.</p>	
<p>Infosys Campus Recruitment Program: Operations Executive role</p>	<p>Dear Sir/Madam,</p> <p>Infosys online test for Operation Executive is scheduled at 3PM on Sunday, October 3.</p> <p>Candidates must carefully go through the attached Infosys online test guidelines and rules to adhere to the mandatory instructions. If any malpractice or violation of instructions is detected during the test, candidate's application will be cancelled.</p> <p>Students can access the sample test paper here to prepare for the online test.</p> <p>Candidates who clear Infosys online test will proceed to the virtual interview round.</p> <p>Request you to share the information with students.</p>	01.10.2021
<p>TASK - Infosys BPM Online FDP from 8th to 19th Nov 2021(Batch2)</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p>	01.10.2021

We are happy to initiate the 2nd batch of Infosys BPM online Faculty Development Program from 8th to 19th November 2021.

Infosys will deliver Global Business Foundation Skills curriculum which is aimed at bridging this gap between course-curriculum at graduate schools and the industry requirements. Our target audience is faculty members in English and Mathematics, who handle undergraduate students from streams like BA, BCom, BSc, BBA, BCA. To ensure that we have a multiplier effect we follow the train the trainer methodology. We use the adult learning methodology for training the faculty members from streams like BA, BCom, BSc, BBA, BCA. The Broad categories of the curriculum that would be covered includes –Facilitation Skills, Language Enhancement/Communication (Spoken and Written), Email Etiquette, Interview Skills, Analytical Skills (Creative thinking, introduction to management tools), Quantitative Aptitude, Corporate Etiquette etc. This training is conducted free of cost for the teachers under the banner of Infosys BPM -Corporate Social Responsibility. Our expectation is that each teacher will further train minimum 100 students.

Request you to share faculty details in attached format on or before 7th Oct 2021. The nominated faculty should be committed to make a difference in the student community.

Below are the details of the three modules that are covered as part of the program.

Track

Dates

Days

Time

Facilitation Skills

8th Nov and 9th Nov, 2021

Monday, Tuesday

09:45 AM to 2:00 PM

Language Enhancement

10th Nov, 11th Nov, 12th Nov & 15th Nov

Wednesday, Thursday, Friday & Monday

09:45 AM to 2:00 PM

Quantitative Aptitude and Analytical Skills

16th Nov, 17th Nov, 18th Nov & 19th Nov

Tuesday, Wednesday, Thursday & Friday

09:45 AM to 2:00 PM

To ensure that the program is implemented effectively, request you to take a note of the following guidelines and share them with the participants :

As it is an online program, the batch should contain not more than 35 participants. The participants should be committed and open to learning.

The participants need to be available online 15 minutes before the session starts. They need to be present throughout the session to be marked present.

	<p>Participants with 100% attendance only will be given participatory certificates. No exceptions will be allowed</p> <p>Looking forward to a successful Batch!</p> <p>Please feel free to reach out to me for any clarifications and support.</p>	
<p>Infosys Springboard</p>	<p>Dear Sir/Madam,</p> <p>Thanks for your interest for Springboard, Please share the students list in attached format.</p> <p>Sharing an overview of Infosys new initiative – Infosys Springboard:</p> <p>Why Infosys Springboard?</p> <p>Infosys as part of our ESG (Environment, Social and Governance) vision has launched a new “Digital literacy Initiative”, enabling Digital Talent at scale, to empower people, communities, and society. Through this initiative, Infosys plans to enable over 10 million people with digital and life skills by 2025. Towards this, we have launched the digital learning platform, Infosys Springboard in March 2021.</p> <p>Who can leverage Infosys Springboard?</p> <p>Students across India in the age group of 10 - 22 years as well as lifelong learners who are from government, Semi government or private institutions can benefit from Infosys Springboard. It caters to students from all streams not just Engineering and science. We already have ~400,000 students registered on Infosys Springboard.</p>	<p>27.09.2021</p>

What content is available on Infosys Springboard?

Infosys Springboard includes learning content developed by Infosys and leading content providers, spanning across digital and emerging technologies and life skills which are needed for students at all levels and streams. For a holistic learning experience, the platform has technology and soft skills playgrounds, programming challenges, and social learning features.

300+ schools/colleges have started using this content for their students.

Salient Features:

Infosys Springboard is available free of cost for all learners in India including Govt and Private schools and NGOs. All the cost is taken by Infosys as part of our CSR initiative. Infosys Springboard is powered by Infosys Wingspan®, an integrated digital learning and collaboration platform which is a cloud hosted multitenant platform made available on Mobiles, tablets and Laptop/Desktop computers. Learners can learn relevant content on device of their choice anytime and anywhere.

- Cloud hosted App – Wider accessibility for anywhere
- Android and IOS enabled – Access Anytime, Anywhere, Any Device
- Authoring Access – Institutes/schools can create content of their choice/assessments on the platform
- Telemetry for all levels - Realtime updates on student learning data
- Playgrounds – Ready to use technical and soft skills playground for practice, no pre-installation required
- Assessments and Certifications – Video proctored

certifications

- Microsites –Customized microsites for educational institutions
- Cohorts based learning – Learning with each other, discussion forums for learners
- Multiple language – Already available in three languages – English, Hindi and Marathi. Planned to be made available in 13 major Indian languages by end of year. Content is also being made available in local languages.
- Infosys Masterclass and student sessions - On demand as well as per planned calendar
- Sessions with experts to discuss industry trends
- Free conferencing app
- Opportunity to participate in hackathon

What is in for educational institutions:

Customized Microsite for you

Ability to create courseware (and learning path) combining content available on portal and your own customized content

Playground for hands on practice for students: no need to worry about licenses, hardware, downloads, configuration etc

Zero cost hosting of content

Telemetry Access for your students

Authoring Access for Faculty members – Faculty members can create their own content and assessments and host it on Springboard

Masterclasses by Infosys SMEs – Live and interactive sessions for students. No additional overhead for teachers

Link to platform

	<p>Infosys Springboard can be accessed at https://infyspringboard.onwingspan.com/</p> <p>Institutes can share details for bulk registration(details attached)</p>	
<p>TASK-“C2C - Campus to Career”</p>	<p>Dear Sir,</p> <p>Greetings from Telangana Academy of Skills and Knowledge (TASK)</p> <p>We are happy to announce, yet another key initiative launched by our Industry Partner CSS Corp – which is branded as “C2C - Campus to Career” for the benefit of TASK registered institutions across Telangana.</p> <p>Through this Academic – Industry partnership, academic institutions are welcome to explore opportunities to work very closely with CSS Corp in the areas of Virtual Internship, Curriculum Integration, Setting up Incubation Center & Creating employment opportunities for your students.</p> <p>Please click on the below link to know more about CSS Corp’s “C2C – Campus to Career</p> <p>https://www.task.telangana.gov.in/Announcements/TASK_-_CSS</p> <p>Interested college please do confirm your interest by writing mail to Campus.career@csscorp.com on or before 21st September 2021.</p>	<p>21.09.2021</p>

	<p>We invite your esteemed institution to be a part of this new initiative and make Campus to Career a reality for your students.</p>	
<p>Infosys Springboard - New Digital Literacy Initiative</p>	<p>Dear Sir/Madam,</p> <p>Sharing an overview of Infosys new initiative – Infosys Springboard:</p> <p>Why Infosys Springboard?</p> <p>Infosys as part of our ESG (Environment, Social and Governance) vision has launched a new “Digital literacy Initiative”, enabling Digital Talent at scale, to empower people, communities, and society. Through this initiative, Infosys plans to enable over 10 million people with digital and life skills by 2025. Towards this, we have launched the digital learning platform, Infosys Springboard in March 2021.</p> <p>Who can leverage Infosys Springboard?</p> <p>Students across India in the age group of 10 - 22 years as well as lifelong learners who are from government, Semi government or private institutions can benefit from Infosys Springboard. It caters to students from all streams not just Engineering and science. We already have ~400,000 students registered on Infosys Springboard.</p> <p>What content is available on Infosys Springboard?</p> <p>Infosys Springboard includes learning content developed</p>	<p>20.09.2021</p>

by Infosys and leading content providers, spanning across digital and emerging technologies and life skills which are needed for students at all levels and streams. For a holistic learning experience, the platform has technology and soft skills playgrounds, programming challenges, and social learning features.

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- Playgrounds – Ready to use technical and soft skills playground for practice, no pre-installation required
- Assessments and Certifications – Video proctored certifications
- Microsites – Customized microsites for educational institutions

- Cohorts based learning – Learning with each other, discussion forums for learners
- Multiple language – Already available in three languages – English, Hindi and Marathi. Planned to be made available in 13 major Indian languages by end of year. Content is also being made available in local languages.
- Infosys Masterclass and student sessions - On demand as well as per planned calendar
- Sessions with experts to discuss industry trends
- Free conferencing app
- Opportunity to participate in hackathon

What is in for educational institutions:

Customized Microsite for you

Ability to create courseware (and learning path) combining content available on portal and your own customized content

Playground for hands on practice for students: no need to worry about licenses, hardware, downloads, configuration etc

Zero cost hosting of content

Telemetry Access for your students

Authoring Access for Faculty members – Faculty members can create their own content and assessments and host it on Springboard

Masterclasses by Infosys SMEs – Live and interactive sessions for students. No additional overhead for teachers

Link to platform

Infosys Springboard can be accessed at <https://infyspringboard.onwingspan.com/>

Institutes can share details for bulk registration(details

	attached)	
TASK - Amazon Job Requirement for 2020 and 2021 graduates	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Amazon JD is published on TASK portal.</p> <p>B.E/B.Tech, B. Sc, B.Com, BBA, BBM, B.A, BCA (any discipline) 2020/2021 graduates with 55% aggregate throughout the academics and no backlogs are eligible to apply</p> <p>Graduates from 2021 batch can apply using below link</p> <p>https://www.task.telangana.gov.in/Placements/Amazon_Development_Centre_India_Pvt_Ltd_2021</p> <p>Graduates from 2020 batch can apply using below link</p> <p>https://www.task.telangana.gov.in/Placements/Amazon_Development_Centre_India_Pvt_Ltd_2020</p> <p>As its urgent requirement last date to apply is 17th September 2021.</p> <p>Applied students would receive communication from amazon regarding the online assessment post last date to apply.</p>	16.09.2021

	<p>Applied students are expected to check their emails from Amazon for the assessment link and also need to check in spam.</p> <p>Request you to encourage eligible and interested students to apply on TASK portal.</p>	
<p>Infosys Campus Recruitment Program(Job Opening): Invitation to participate in BCA and BSc graduates hiring</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find below email from Infosys regarding Infosys Campus Recruitment Program 2021-22. BCA and BSc students from 2020, 2021 and 2022 batches.</p> <p>Attached is the eligibility criteria for your reference.</p> <p>To apply Interested and eligible students need to fill in their details in the link provided in the below email. Please refer to the email from Infosys reg Online test Pattern and other information Last Date to apply Sunday, September 19, 2021.</p>	16.09.2021
<p>TASK-“C2C - Campus to Career”</p>	<p>Dear Sir / Madam,</p> <p>Greetings from Telangana Academy of Skills and Knowledge (TASK)</p>	16.09.2021

	<p>We are happy to announce, yet another key initiative launched by our Industry Partner CSS Corp – which is branded as “C2C - Campus to Career” for the benefit of TASK registered institutions across Telangana.</p> <p>Through this Academic – Industry partnership, academic institutions are welcome to explore opportunities to work very closely with CSS Corp in the areas of Virtual Internship, Curriculum Integration, Setting up Incubation Center & Creating employment opportunities for your students.</p> <p>Please click on the below link to know more about CSS Corp’s “C2C – Campus to Career</p> <p>https://www.task.telangana.gov.in/Announcements/TASK_-_CSS</p> <p>Interested college please do confirm your interest by writing mail to Campus.career@csscorp.com on or before 24th September 2021.</p> <p>We invite your esteemed institution to be a part of this new initiative and make Campus to Career a reality for your students.</p>	
TASK - Mentor Together - TPO Meeting Invite	Dear Sir,	16.09.2021

	<p><u>TASK</u> in collaboration with <u>Mentor Together</u>, India's first and largest youth-focused mentorship non-profit organization is providing a mobile mentorship program - Mentor To Go to all students in Telangana. (https://www.task.telangana.gov.in/Partners/Mentor_Together).</p> <p>In this regard, TASK is inviting all the TPOs from its partner colleges to participate in a webinar to learn about 'Mentor To Go' and extend the program to your students.</p> <p>Mentor To Go is an android and web-based platform to help students improve their work readiness through self-learning sessions, and personalised mentorship provided by industry professionals from a range of careers. Mentor to Go's vision is to provide career mentorship to young people anywhere, anytime across the length and breadth of India.</p>	
<p>Infosys Campus Recruitment Program(Job Opening): Invitation to participate in BCA and BSc graduates hiring</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find below email from Infosys regarding Infosys Campus Recruitment Program 2021-22. BCA and BSc students from 2020, 2021 and 2022 batches.</p> <p>Attached is the eligibility criteria for your reference.</p> <p>To apply Interested and eligible students need to fill in their details in the link provided in the below email. Please refer to the email from Infosys reg Online test Pattern and other information Last Date to apply Sunday, September 19, 2021.</p>	<p>15.09.2021</p>
<p>Student to Entrepreneurs "Angadi" - Registrations</p>	<p>Dear Sir/Madam,</p>	<p>14.09.2021</p>

Greetings from TASK - i4TS - Mandi.

i4TS Concept was initiated by TASK under the key mission of Entrepreneurship, and its inception i4TS exploring social entrepreneurial mindset development in the state of Telangana.

We are introducing a unique concept "Angadi" A field marketing event in the state as a tribute to Bharat Ratna Shri Mokshagundam Visvesvaraya's birth anniversary on 15th September 2021, and closing on Mahatma Gandhi birth anniversary.

Why this program?

With a motto to develop an entrepreneurial mind-set, enterprise development among graduating students, and youth of Telangana state.

What will be done POST to the field experiment?

Post to the field experiment, students will be made to reflect on their field experience so as to reconfigure the field learnings. Experience sharing, learning possibilities. Students may be asked to make presentations, videos of their experiences. Learning presentations will be appreciated and provided with certificates or prizes.

How the Program will work out?

TASK Will procure the engineering merchandise in bulk & fixes a price to the profit to the student and distributed it to the CMs/RMs as per their targets and handover to the colleges to sell to their students.

	<p>After completion of the selling, students will be asked to fill a questionnaire based on the learning outcomes.</p> <p>The purchase amount will be collected back from the colleges and handover to the TASK.</p> <p>Based on the learning outcomes, the responses will be evaluated and awarded by TASK.</p> <p>Edibility Criteria:</p> <p>Youth between 18-25 years (Engineering/Degree/Diploma) belonging to Telangana State.</p> <p>Last date to apply: 20th September 2021.</p> <p>Registration link: t.ly/rziDq</p> <p>Please let me know if you have any questions or need additional information.</p>	
<p>i4TS TASK - Mandi Webinar- 3 on 8th September 2021 from 4 PM to 6 PM</p>	<p>Dear Sir/Madam,</p> <p>Telangana Academy for Skill and Knowledge (TASK) is a not-for-profit organization initiated by the government of Telangana in 2014 to build synergy between academia, industry, and government.</p> <p>The organization has three fundamental focus areas:1.</p>	<p>07.09.2021</p>

Education, 2. Employability, & 3. Entrepreneurship.

i4TS (Innovation for Telangana State) is a flagship program under the Entrepreneurships of TASK.

We are glad to inform you that our initiative i4TS (Innovating for Telangana State) - Samajika Aavishkaranalu...Saralamaina Jeevithaniki (సామజిక ఆవిష్కరణలు...సరళమైన జీవితానికీ) is progressing well.

Under the program of i4TS, TASK planned a webinar called i4TS TASK - Mandi on 8th September 2021, 4 PM to 6 PM.

Speaker-1:

Dr. Prasad Teegalapelly, Faculty Adviser, Center for Student Enterprises & Associate Professor of Organizational Behavior, National Institute of Industrial Engineering (NITIE) Mumbai, India.

Over the last 15 years, he has managed numerous competitively funded basic research and Institute-industry collaborative projects. In the latter capacity, he has worked in collaboration with a number of Indian companies and government departments to assist in organizational redesign and improvements, and management development. These organizations include Reliance, BEL, ITI Bangalore, Zensar, Satyam, Kribhco, etc.

About Speaker success story: 1.

<https://www.youtube.com/watch?v=dl8X7QD0mIo>; 2.

<https://youtu.be/sUkLx0sd1h0>; 3.

<https://youtu.be/dl8X7QD0mIo>;

	<p>joining link: https://task.radiusedutech.com</p> <p>Time: 04.00 AM to 6.00 PM.</p> <p>Topic: The art of selling (అమ్మడమనే కళ)</p> <p>Who can attend: Youth between 18 to 25 years.</p> <p>Kindly share with all students.</p>	
<p>i4TS TASK - Mandi Webinar- 2 on 1st September 2021 from 4 PM to 6 PM.</p>	<p>Dear Sir/Madam,</p> <p>Greetings from Telangana Academy for Skill and Knowledge (TASK)!</p> <p>TASK is a not-for-profit organization initiated by the government of Telangana in 2014 to build synergy between academia, industry, and government.</p> <p>The vision and mission of TASK are to empower youth so that they transform into quality assets to the industry.</p> <p>The organization has three fundamental focus areas:1. Education, 2. Employability, & 3. Entrepreneurship.</p> <p>i4TS (Innovation for Telangana State) is a flagship program under the Entrepreneurships of TASK.</p> <p>We are glad to inform you that our initiative i4TS</p>	<p>31.08.2021</p>

(Innovating for Telangana State) - Samajika
Aavishkaranalu...Saralamaina Jeevithaniki is progressing
well.

Under the program of i4TS, TASK planned a webinar called
i4TS TASK - Mandi on 1st September 2021, 4 PM to 6 PM.

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About Speaker success story: 1.

<https://www.youtube.com/watch?v=dl8X7QD0mIo>; 2.

<https://youtu.be/sUkLx0sd1h0>; 3.

<https://youtu.be/dl8X7QD0mIo>;

joining link: <https://task.radiusedutech.com>

Time: 04.00 AM to 6.00 PM.

Topic: Registering a Company (for entrepreneurs)

	Who can attend: Youth between 18 to 25 years.	
<p>Google - Android Development with Kotlin TTT Nomination Form</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>We bring you our new 'Android Development with Kotlin' course which will empower and enable your faculty to teach Android development in Kotlin to their students in a classroom/online lecture format and through hands-on practical labs.</p> <p>We are offering an online 'Train The Trainer' session to faculty.</p> <p>Training Model</p> <p>No. of Days</p> <p>Duration</p> <p>No. of Participants</p> <p>Online ILT Model</p> <p>3</p> <p>7 hours</p> <p>30 (Per Batch)</p> <p>For now, you can share your nominations on the basis of the below-mentioned prerequisites and specifications required for the course.</p>	25.08.2021

	<p>Technical Know-How: Participants taking the course must have Object-oriented programming experience (eg Java, .NET, etc).</p> <p>Machine Hardware Specifications required for this course (If college or university can also provide this specification for faculty in their labs would be appreciated) :</p> <p>Processor: i3 or Higher</p> <p>RAM: 8GB or higher</p> <p>Virtualization Technology - enabled</p> <p>Operating System: Windows 10/ Macintosh/ Linux</p> <p>Internet: Good Internet speed (recommended 10 MBPS at least)</p> <p>Kindly share the below link with all the interested faculty members of your institution for joining the session,</p> <p>Click here for nomination: Google - Android Development with Kotlin TTT Nomination Form</p> <p>We appreciate your involvement and look forward to active participation and hope for more responses from your side. Attached Program PDF for ready reference.</p>	
<p>Batch - 11 TALLY Training from 1st Sept to 6th Sept 21 and Time: 2:00 PM to 4:30 PM</p>	<p>Dear Sir/Madam.</p> <p>Greetings from TASK!</p>	<p>25.08.2021</p>

We are offering the 11th batch of TALLY online training to the TASK registered students of B.com (1st, 2nd, 3rd years), M.com and MBA (1st, 2nd years). It is a five-day program and free of cost for the TASK registered students.

TALLY Training details:

Date: 1st, September-2021 to 6th, September-2021

Time: 2:00 PM to 4:30 PM

Student Registration Link:

<https://forms.gle/ERBkjcDXKgT5mCoc9>

Last date for closing the registrations is 27th, August - 2021 by 4:30 PM

Requesting to share the above link with the students.

Note:

	<p>We are providing 2 certificates based on the following eligibility criteria</p> <p>1). Participation Certificate - Students must attend all 5 days of training</p> <p>2). Assessment Certificate - Students must attend all 5 days of training and also have to complete the assessment with a minimum of 60% marks. Assessment will be on the last day of the training.</p>	
<p>Crux Services - New Job Requirement for 2020 and 2021 graduates.</p>	<p>Dear Sir/Madam,</p> <p>Please find the link of new requirement for 2020 and 2021 graduates.</p> <p>Company name - Crux Services</p> <p>JD Link for 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Crux_services_2020</p> <p>JD Link for 2021 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Crux_services_2021</p>	<p>25.08.2021</p>

	<p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>KIMS Hospitals - New Job Requirement for 2020 and 2021 graduates</p>	<p>Dear Sir/Madam,</p> <p>Please find the link of new requirement for 2020 and 2021 graduates.</p> <p>Company name - KIMS Hospitals</p> <p>JD Link for 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/KIMS_Hospitals_Trainee</p> <p>JD Link for 2021 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/KIMS_Hospitals_Trainee_2021</p>	<p>23.08.2021</p>

	<p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>Deloitte Requirement for BSc- (Mathematics, Statistics, Physics, Electronics) with Computer Science, BCA from 2021 batch</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Deloitte has come up with requirement for Degree students (Non Engineering) from 2021 batch. As a pilot students from Hyderabad, Rangareddy, Medchal and Sangareddy are eligible to apply</p> <p>Profile: Associate Analyst – Deloitte Consulting</p> <ul style="list-style-type: none"> · Eligibility Criteria: BSc- (Mathematics, Statistics, Physics, Electronics) with Computer Science · BCA · 2021 Graduates only · No active backlogs · Aggregate 60% or CGPA of 6.5 <p>Please refer to the attachment for the details of the profile being offered.</p> <p>The compensation set for the requisite role is Rs.3,57,500</p> <p>Please ensure all the students have:</p> <ol style="list-style-type: none"> 1. Laptop/desktop with functional web-cam capability 2. Stable and secure internet connectivity <p>Request you to encourage eligible students to apply using</p>	<p>23.08.2021</p>

	<p>link https://forms.gle/wGEFUKcxBwucifAf7</p> <p>Last date to apply is 11:00 am 28th August 2021.</p> <p>Please Note : All the applied student details would be shared with Deloitte and Deloitte based on their discretion would shortlist the students.</p> <p>All shortlisted students only would receive online test Invite from Deloitte assessment vendor.</p>	
<p>[24]7.ai - New Job Requirement for 2021 graduates.</p>	<p>Dear Sir/Madam,</p> <p>Please find the link of new requirement for 2021 graduates.</p> <p>Company name - [24]7.ai</p> <p>JD Link for 2021 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/24_7ai_dig_adv</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	<p>19.08.2021</p>

<p>TekFriday Processing Solutions Pvt Ltd - Job requirement for 2020 graduates</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find the link of new requirement for 2020 graduates.</p> <p>Company name - TekFriday Processing Solutions Pvt Ltd</p> <p>JD Link for 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/TekFriday_Processing_Solutions_Pvt_Ltd</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	<p>17.08.2021</p>
<p>TASK Unschool - A Series of Free Webinars</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK</p> <p>TASK in association with Unschool is coming up with free webinars for TASK registered Students.</p>	<p>17.08.2021</p>

Please find below the list of webinars that we wish to conduct in the month of August:

Date

Timing

Category

Proposed Topics

18.08.2021

18:00 - 19:00

Personal Development

Preparing yourself for an interview

21.08.2021

18:00 - 19:00

Coding & Development

NLP- Build your own Chabot

22.08.2021

18:00 - 19:00

Software & Technology

Cybersecurity as a Career

28.08.2021

18:00 - 19:00

Software & Technology

Machine Learning using Python

	<p>Registration link to register for above webinars:</p> <p>http://unschool-7019118.hs-sites.com/webx</p> <p>Kindly share it with TASK students to avail this opportunity.</p> <p>Registration is open till 18th August 2021 afternoon for the first webinar " Preparing yourself for an interview".</p>	
<p>Batch - 10 TALLY Training Schedule : 24th, August-2021 to 28th, August- 2021 and Time: 2:00 PM to 4:30 PM</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>We would like to offer the 10th batch of TALLY online training to the TASK registered students of B.com (1st, 2nd, 3rd years), M.com and MBA (1st, 2nd years). It is a five-day program and free of cost for the TASK registered students.</p> <p>TALLY Training details:</p> <p>Date: 24th, August-2021 to 28th, August-2021</p>	<p>17.08.2021</p>

Time: 2:00 PM to 4:30 PM

Student Registration Link:

<https://forms.gle/3Rv7nwUDWTkZFSBDA>

Last date for closing the registrations is 20th, August - 2021
by 2:00 PM

Requesting to share the above link with the students.

For any further clarifications, please feel free to contact me.

Note:

We are providing 2 certificates based on the following
eligibility criteria

1). Participation Certificate - Students must attend all 5

	<p>days of training</p> <p>2). Assessment Certificate - Students must attend all 5 days of training and also have to complete the assessment with a minimum of 60% marks. Assessment will be on the last day of the training.</p>	
<p>First American (India) Pvt Ltd Job Requirement for 2020 graduates.</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find the link of new requirement for 2020 graduates.</p> <p>Company name - First American (India) Pvt Ltd</p> <p>JD Link for 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/First_American_India_Pvt_Ltd_2020</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	16.08.2021
<p>New Job Requirement for</p>	<p>Dear Sir/Madam,</p>	16.08.2021

<p>2020 graduates.</p>	<p>Greetings from TASK!</p> <p>Please find the link of new job requirement for 2020 graduates.</p> <p>Company name - Genpact</p> <p>JD Link for 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Genpact_Apprentice</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>NASSCOM//Cyber security Centre of Excellence//MONTH-LONG PROGRAM on "APP SECURITY CHAMPION"</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find the below mailer about "APP SECURITY CHAMPION"</p> <p>Students being in exams, we did a soft (low-key) kickoff</p>	<p>12.08.2021</p>

	<p>with a few students mainly to record the session which explains how to use the platform, so that the subsequent batches can watch the instruction video. We'll have a grand finale!</p> <p>MONTH-LONG PROGRAM as be extended their students registration dates, Please find the details below</p>	
<p>Deloitte requirement for Engg and MCA from 2019,2020,2021 Graduates</p>	<p>Dear Madam,</p> <p>Greetings from TASK!</p> <p>Deloitte has come up with requirement for students from 2019,2020,2021 batches.</p> <p>Designation : Intern Analyst</p> <p>B.Tech/ B.E. – Any branch and MCA - 2019, 2020, 2021 Graduates only</p> <p>Students should be certified or trained in any of the technologies.</p> <p>No active backlogs</p> <p>Aggregate 60% or CGPA of 6.5</p>	<p>12.08.2021</p>

	<p>Probation Period: 1 year</p> <p>The stipend for the requisite role INR 2.5 L per annum and INR 70,000 joining bonus</p> <p>Please Note: Students from Colleges Where Deloitte has already visited for campus 2021 are not be eligible to apply.</p> <p>Request you to share the link to the colleges encourage TASK registered students to apply using the link https://forms.gle/iDxLh9BFCpjDgsr5A</p> <p>Last Date to apply 11:00 am 17th August 2021</p>	
<p>AIR Worldwide Corporation Job Requirement for 2021 graduates</p>	<p>Dear Sir/Madam,</p> <p>Please find the link of new requirement for 2021 graduates.</p> <p>Company name - AIR Worldwide Corporation (AIR)</p> <p>JD Link for 2021 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/AIR_Worldwide_Corporation_2021</p>	<p>07.08.2021</p>

	Request you to encourage the eligible students to apply for the above job posting.	
<p>Launching of TASK – UNICEF - YuWaah_Young Warrior Movement to Combat COVID-19</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>TASK has served Telangana state in many ways since its inception and you are all the front-line warriors to all its services.</p> <p>Now we are in a position to take up a real challenge of "TASK - Young Warrior" A youth movement to combat COVID-19.</p> <p>The overwhelming of the world about Corona Virus outreach with various variants and waves. Coronavirus is here for the long haul and scientists predict for the next 10 to 20 years the situation remains the same.</p> <p>Keeping this adventure, we have to stay safe and informed by a trusted source and trained volunteers to prevent this situation.</p> <p>We are excited to announce that, a collaborative initiative of Youth-led Movement to Combat COVID-19 between TASK – UNICEF - YuWaah.</p> <p>For launch of this partnership event in the presence of Shri Jayesh Ranjan, Principal Secretary, ITE&C Dept. Telangana, TASK and Officials from Government Departments, Senior</p>	07.08.2021

Officials from UNICEF/YuWaah, TASK Alumni and participants from institutions including faculty and students.

Target Audience:

- Officials from Government Departments
- Faculty, Students and TASK Alumni

Date & Time of Launching the program: Will be informed after successful registration of the participants.

Modalities of launching the program:

- Virtual event and live broadcast on social media

For more details about Young Warrior please go through the link -

https://www.task.telangana.gov.in/Announcements/TASK_-_Young_Warrior_-_Youth-led_Movement_to_Combat_COVID-19

Communicate the same with all the faculty to register for this unique program in below link in a massive way.

Registration link -
<https://forms.gle/p3aLQvaZVYJqe5X37>

<p>Invitation: Inaugural of HYSEA Internship Fair 2021 - Saturday, 7th August 2021 at 3.30pm</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>You are cordially invited to the Inaugural of the first-ever HYSEA Internship Fair 2021 being organized in association with Tech Partner CONDUIRA and outreach partners JNTUH and TASK. Mr. V. Laxmikanth, MD, Broadridge India has kindly consented to be the Chief Guest on the occasion.</p> <p>An important part of the Inaugural event will be a panel discussion by eminent Industry and Academic Leaders on 'Are we bridging the gap right?' in the context of Industry-Academia efforts towards creating Industry ready students. The panel will be moderated by Mr. Sessa M Rao, Board Member, Insideview Technologies & Leader – Industry-Academia Forum – HYSEA and will consist of eminent personalities from the Industry and the Academia.</p> <p>The panel members include:</p> <p>Mr. Vinay Agrawal, Global Head - Business HR, Tech Mahindra</p> <p>Ms. Manisha Saboo, AVP & Delivery Head and Head of Pocharam, Hyd and Indore Campuses, Infosys</p> <p>Dr. A. Govardhan, Professor & Rector, JNTUH</p> <p>Mr. Shrikant Sinha, CEO, TASK</p> <p>Mr. Prakash Yalla Veera, Technology Transfer Officer & Head - Product Labs, IIIT-H</p>	<p>06.08.2021</p>
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	<p>Day & Date: Saturday, 7th August 2021</p> <p>Time: 3.30pm to 5pm</p> <p>Zoom Registration Link: https://us02web.zoom.us/webinar/register/WN_D3f_kaXqQLqND9w4SPGViw</p> <p>Look forward to your participation.</p>	
<p>TASK- Times Jobs (The Times Group) free aptitude test //A gateway for your first job - TimesJobs Pro</p>	<p>Dear Sir/Ma'am,</p> <p>Greetings from TASK!</p> <p>Here is an exclusive opportunity, TASK in association with Times Jobs (Times Group) for your students from Arts & Science Branches. We are conducting a free aptitude test for your students, the hiring companies associated with us will get the pre-assessed data of your students along with their resumes for the recruitment process. We will be sharing the details with the best companies in the market.</p> <p>Aptitude Round:</p> <ol style="list-style-type: none"> 1. 25 - 30 Aptitude Questions. 2. Timing will be around 40-45 Mins. 3. Students will have 2 attempts. 	<p>06.08.2021</p>

	<p>Process:</p> <ul style="list-style-type: none"> o Students are requested to register in the link below. o Once they are registered, we will share the link for Aptitude Assessment. o After the completion of the assessment, we will share the results with you. o We will share the assessment results along with their resumes with the companies as per their requirement. <p>Request you to circulate the link to the candidates once they register, we will share the test link with them</p> <p>https://www.timesjobs.com/candidate/register.html?outSource=Camptask</p>	
<p>Invitation TASK- Oracle Academy Virtual Faculty Day (10th Aug, 2021)</p>	<p>Dear Sir/Mam,</p> <p>TASK in association with Oracle Academy is coming up with a virtual event on 10th Aug, 2021 at 11:00 AM IST to celebrate Oracle Academy Faculty Day. Oracle Academy Institutional members will present how they are using free resources and aligning them with their existing curriculum. They also will share how these resources have impacted their teaching and their students learning.</p> <p>Learn how Oracle Academy Institutional members are using Oracle Academy resources for the benefit of their students.</p> <p>Key highlights of the event are: Event is open for faculty/management of the institutes</p>	<p>29.07.2021</p>

	<p>Certificate of attendance will be provided to attendees of the event who will attend at least 75% of the total duration of live event.</p> <p>Timing for Event: 11 AM IST to 1 PM IST</p> <p>Event is open for registration to Non- OA members as well.</p> <p>Webinar prerequisites:</p> <p>You must have access to a laptop/tablet compatible with Zoom.</p> <p>Contact Oracle Academy for any issues prior to the start of the workshop.</p> <p>Registration Link for Event -</p> <p>https://go.oracle.com/LP=113938?elqCampaignId=298531&src1=:pp:ptr::::TASK</p> <p>Other details regarding the event can be found on the registration page. Faculty members need to register for the event via above mentioned link.</p> <p>Kindly share this information with TASK registered colleges and inform the faculty members to register for the event.</p>	
<p>Principals' and TPOs/TASK Coordinators Meet on 30th July 2021 from 2:30 PM to 4:00 PM</p>	<p>Dear Sir/ Madam,</p> <p>Greetings from Telangana Academy for Skill and knowledge (TASK)!</p> <p>Trust you and your family are healthy and staying safe.</p>	<p>27.07.2021</p>

We are delighted to invite you to join us for the Principals' Meet 2021 (Virtual) scheduled on 30th July 2021 from 02:30 PM to 04:00 PM

The virtual event will be presided over by Sri Navin Mittal, IAS, Commissioner of Collegiate Education

The agenda of the meet includes talks on skilling initiatives, hiring scenario, skilling plans for the next academic year and an interactive session. The objective is to share and understand each other's points of view so that we can work together more cohesively for the benefit of the youth.

Your feedback and review are essential for us to constantly improve our services and make them more relevant to your requirements.

Kindly confirm your participation in advance by filling the below form on or before 28th July 2021 (5:00 PM)

<https://forms.gle/DThUYj4X9QRsvPF56>

After registering, you will receive a confirmation email containing the meeting joining link

We look forward for your participation on the 30th July 2021

TASK-NRSC-
ISRO: Quiz on
75 years of India
and ISRO

Dear Sir/Madam,

25.07.2021

Greetings from TASK!

We are glad to inform you that, TASK in association with NRSC-ISRO is organizing online Quiz competition on "Indian Independence and ISRO" based on pre Independence struggle, post independence development and major development in ISRO over these years.

Please find the attached flyer requesting you to share the information with all students. (It is an open quiz for TASK registered and non TASK registered students)

Following are the details:

Quiz Name: Azadi ka Amrut Mahotsav

Date of the Quiz: 29th July (Thursday)

Time of the Quiz: 5.00 PM

Eligibility: All branches of Engineering, Degree & P.G Colleges(pursuing)

Registration link and Mock test link: <https://bhuvan-app1.nrsc.gov.in/quiz/home/index.php>

Start Date of Registration: 23.07.2021

End date and time of Registration: 28.07.2021,2:00 pm

Attractive prizes and certificates to the winners (conditions apply).

How to register:

- For all details and updates visit <https://bhuvan-app1.nrsc.gov.in/quiz/home/index.php>
- Registration is open till 28th July (2:00 PM).
- Registration can be done using the "REGISTER" link on the home page.
- Note down the unique ID generated after successful registration and use the same for the actual quiz.
- There is no fee for registration.

Quiz Details:

- A mock practice paper will be available on the Quiz home page "MOCK QUIZ"
- No negative marking. Recommended using a desktop browser.
- Quiz language - English

	<ul style="list-style-type: none"> • Click on a question number to go to the question location on the Bhuvan map/image. The question can also be seen by clicking on the location tag on the map. • Click on a location to get the question and options. Choose the correct option. There is only one correct option for each question. The button will remain highlighted. Do not press submit button after each answer. • You can zoom/de-zoom the Bhuvan map/image to know nearby details. • You can view Satellite data by selecting the 'Layer stack' icon on the map and selecting the Satellite option to know more details. • Press “Finish Quiz” after completion of the quiz before the stipulated time ends. • Attempt all the questions but a partial quiz can also be submitted. Only one submission per unique ID is allowed. • Quiz time is from 17:00 Hrs to 17:20 Hrs. to attempt 25 questions. 	
<p>KIA - Job Requirement for 2019 and 2020 graduates.</p>	<p>Dear Sir/Madam,</p> <p>Please find the link of new requirement for 2019 and 2020 graduates.</p> <p>Company name - CAR KIA</p> <p>JD Link for 2019 pass out students:</p>	<p>25.07.2021</p>

	<p>https://www.task.telangana.gov.in/Placements/CAR_KIA_2019</p> <p>JD Link for 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/CAR_KIA_2020</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>TASK - New Job Requirements for 2020 graduates</p>	<p>Dear Sir,</p> <p>Please find the link of new requirements for 2020 graduates.</p> <p>Company name - Matrimony.com Ltd</p> <p>JD Link for 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Matrimony.com_Ltd_2020_tesales_exe</p> <p>Company name - IKEA India Pvt Ltd</p>	<p>22.07.2021</p>

	<p>JD Link for 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Ikea_CSC_Gen</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>Bharti Airtel - New Job Requirement for 2019 and 2020 graduates.</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find the link of new requirement for 2019 and 2020 graduates.</p> <p>Company name - Bharti Airtel</p> <p>JD's Links:</p> <p>For 2019 pass out students</p> <p>https://www.task.telangana.gov.in/Placements/Bharti_Airte1_2019</p>	<p>16.07.2021</p>

	<p>For 2020 pass out students</p> <p>https://www.task.telangana.gov.in/Placements/Bharti_Airte1_2020</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>TASK - Job requirement for 2019,2020 and 2021 graduates at Tutoroot Technologies Pvt. Ltd</p>	<p>Dear Sir,</p> <p>Please find the link of new requirement for 2019,2020 and 2021 graduates.</p> <p>Company name - Tutoroot Technologies Pvt Ltd</p> <p>JD Links:</p> <p>For 2019 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Tutoroot_Technologies_Pvt_Ltd_2019</p> <p>For 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Tutoroot_Technologies_Pvt_Ltd_2020</p> <p>For 2021 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Tutoroot_Technologies_Pvt_Ltd_2021</p> <p>Request you to encourage the eligible students to apply for</p>	<p>12.07.2021</p>

	the above job posting.	
TASK - Job Requirement for 2019,2020 and 2021 graduates at Ninjacart	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find the link of new requirement for 2019 and 2020 graduates.</p> <p>Company name - NINJACART</p> <p>JD Links:</p> <p>For 2019 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/NINJACART_sales_exe_2019</p> <p>For 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/NINJACART_2020</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	12.07.2021
New Jobs - Justdial & RACEWIN Tradelinks for	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p>	09.07.2021

<p>students graduated in 2020</p>	<p>Please find the link of new requirement for 2020 graduates.</p> <p>Company name - Justdial</p> <p>JD Link For 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Justdial_2020</p> <p>Company name - RACEWIN TRADELINKS</p> <p>JD Link For 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/RACEWIN_TRADELINKS</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>TASK - Job Requirement for students graduated 2020 in Intralinks .</p>	<p>Dear Sir/Madam.</p> <p>Greetings from TASK!</p> <p>Please find the below Job requirement for 2020 graduates.</p>	<p>07.07.2021</p>

Company name – Intralinks

Domain: IT

Designation: Associate Backoffice Specialist

CTC Per Annum : 3,00,000 Per Annum

Job Description:

Responsible for completion of projects on Customer Success team.

Complete Projects in a timely manner and with high quality.

Confirm client requirements, manage internal customer expectations, and liaise with other internal teams as needed

Eligibility Criteria:

B.Sc,B.Com, BCA ,BA (any discipline) with minimum 65% aggregate throughout the academics graduated in 2020 and with no backlogs, need to apply.

Bond Period : NA

	<p>Interview Procedure:</p> <p>Excel Test</p> <p>Technical rounds - 2</p> <p>Manager round</p> <p>HR Round</p> <p>Should be willing to join immediately.</p> <p>For more details please visit:</p> <p>https://www.task.telangana.gov.in/Placements/Intralinks_2020</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>FDP on Machine Learning on Cloud from 19th to 24th July 2021</p>	<p>Dear Sir,</p> <p>Greetings from TASK!</p> <p>TASK in collaboration with 360Digi TMG & Innodatatics is conducting a 5 Day FDP on Machine Learning on Cloud(Advanced and trending concept). Below are the complete details of the same.</p>	<p>06.07.2021</p>

Duration : 5 Days

Start Date : 19th July 2021

End Date : 24th July 2021

Time : 2 PM to 3:30 PM

Resource Person : Mr.Bharani Kumar

Director, Innodatatics Inc.

Alumnus of ISB & IIT

Topics covered : Introduction to Auto ML

Overview of Auto ML techniques

Practical Application of opensource Auto
ML Algorithm - TPOT

Cloud based Automated ML

Advanced Concepts of ML on Cloud.

Interested Faculty from any branch can register.

Nomination Start Date : 6th July 2021

Nomination End Date : 14th July 2021

Link for submitting Nominations:

<https://forms.gle/sVKmy5AXXMYYaLv17>

Attached is the flyer of the program.

	<p>A participation certificate will be issued to all the participants who attended all 5 days of the training . Hence request the faculty to submit their certificate names in the nomination form itself. The same names will be considered and corrections in names will not be encouraged.</p> <p>Request you to ensure maximum registrations for the program form your faculty.</p>	
<p>Mentor session on How to build successful career in AI</p>	<p>Dear Sir/Madam,</p> <p>Greetings for the day!</p> <p>TASK in collaboration with Yes mentor is planning to organize a session on Building a successful career in Cyber Security</p> <p>Below are the details of the session:</p> <p>Mentoring Topic Name</p> <p>Target Audience</p> <p>Duration</p> <p>Proposed Date and Time</p> <p>Mentor Name</p> <p>Introduction to Artificial Intelligence and How to build successful career in AI</p>	<p>02.07.2021</p>

	<p>Undergraduate or Master students from Engineering, Science</p> <p>120 mins</p> <p>03rd July, 4:00 PM to 6:00 PM</p> <p>Mr. Surrendra</p> <p>Tipparaju</p> <p>Students can join the session from link below :</p> <p>https://ciscolearning.webex.com/ciscolearning/k2/j.php?MTID=t549adb1bca6d06875a6847f8d873a643</p> <p>Attached is the profile of the Speaker and flyer.</p> <p>Please communicate the same with students and ensure the maximum participation.</p>	
<p>TASK - Crux Management Services Job requirement for 2019 and 2020 graduates</p>	<p>Dear Sir/Madam,</p> <p>Please find the link of new requirement for 2019 and 2020 graduates.</p> <p>Company name - Crux Management Services Pvt Ltd</p> <p>JD Links:</p>	<p>29.06.2021</p>

	<p>For 2019 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Crux_Management_Services_Pvt_Ltd_Exe_data_mgmt_2019</p> <p>For 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Crux_Management_Services_pvt_Ltd_Exe_data_mgmt_2020</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>Medvarsity Job Requirement for 2020 graduates</p>	<p>Dear Sir/Madam,</p> <p>Please find the link of new requirement for 2020 graduates.</p> <p>Company name - Medvarsity Online Ltd</p> <p>JD Links:</p> <p>For 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Medvarsity_Online_Ltd_2020</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	<p>28.06.2021</p>

<p>TASK - TALLY 5day online training - (Date: 29th, June-2021 to 3rd, July-2021) Time: 2:00 PM to 4:30 PM</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>We are offering TALLY online training to the TASK registered students of B.com (2nd, 3rd years), M.com and MBA (1st, 2nd years). It is a five-day program and free of cost for the TASK registered students.</p> <p>We request you to please communicate with the students to attend the training.</p> <p>TALLY Training details:</p> <p>Date: 29th, June-2021 to 3rd, July-2021</p> <p>Time: 2:00 PM to 4:30 PM</p> <p>Students Registration Link:</p> <p>https://forms.gle/LtxMAz1JkAez2y5h7</p>	<p>24.06.2021</p>
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	<p>Last date for closing the registrations is 26th, June-2021 by 3:00 PM</p> <p>Note: Students who attend all 5 days will get a participation certificate (Digital).</p> <p>For any further clarifications, please feel free to contact me.</p>	
<p>NASSCOM//Cyber security Centre of Excellence//MO NTH-LONG PROGRAM on "APP SECURITY CHAMPION"</p>	<p>Dear Sir/Madam,</p> <p>Greetings from Telangana Academy for Skill and Knowledge(TASK)!</p> <p>Hope you are doing well! Our Cybersecurity Centre of Excellence, in partnership with our parent body, NASSCOM, is delighted to bring you this excellent opportunity for your students this year in the booming field of cybersecurity, which is rich with career prospects.</p> <p>This programme, "APP SECURITY CHAMPION", is completely free of cost for the participating students and colleges and has several rewards and certificates waiting to be taken!</p> <p>ABOUT US:</p> <p>The Cybersecurity Centre of Excellence (CCoE) is a joint initiative of Data Security Council of India (DSCI) and the Government of Telangana.</p> <p>It is created to accelerate the cybersecurity and privacy momentum and create a conducive CYBERSECURITY and</p>	<p>23.06.2021</p>

PRIVACY ecosystem which nurtures innovation, entrepreneurship, and capability building. CCoE has played a pivotal role in the Security domain with their SKILL BUILDING INITIATIVES and is bringing you this initiative.

BACKGROUND:

There are over 2 MILLION APPS EACH on Android and iOS.

Yet, 55% do not make it to the platform as they are not security and privacy compliant!

Security is not limited to a few experts! Knowledge in security and privacy is very important for app developers and infrastructure specialists of the future.

The Career Opportunities in Application Security are IMMENSE.

THE EVENT:

This MONTH-LONG PROGRAM called "APP SECURITY CHAMPION" will run from

1-JULY-2021-15-AUGUST-2021. It contains THREE PARTS.

Registration Last Date : 25 JUNE 2021

THE FIRST PART: A Course on "VULNERABILITY ASSESSMENT FOR APP SEC"- with self-paced classes (51.5 hours of learning, including 13.5 hours of theory and 38 hours of hands-on exercises) and assessments.

Live sessions throughout the month with industry experts and veterans from the Industry, Academia and Research.

THE GREAT APPSEC HACKATHON in August-2021.

ELIGIBILITY CRITERIA FOR PARTICIPATION AND

	<p>BENEFITS:</p> <p>All students in Telangana that are currently pursuing a graduation / post-graduation degree [B.Tech/M.Tech/Diploma-All Streams, B.Sc/M.Sc- (Computers, Electronics, Electricals, Computers),BCA/MCA] and are interested in coding.</p> <p>Multiple exciting cash prizes, certificates, and awards to be won at both individual and college levels.</p> <p>HOW TO PARTICIPATE:</p> <p>Students can register themselves by filling the form given in the link below:</p> <p>https://zfrmz.in/4ajmXJdjba6hMjqLuLy4</p> <p>To know more about this event visit- https://ccoe.dsci.in/ccoe-app-security-champion-students/</p>	
<p>TASK - New Job Requirement for 2020 graduates(2 Job Roles)</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find the link of new requirements for 2020 graduates(2 job roles).</p>	<p>21.06.2021</p>

	<p>Company name - MOL Information Processing Services India Pvt. Ltd</p> <p>JD Links:</p> <p>For 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/MOL_Information_Processing_Services_India_Pvt._Ltd_Doc</p> <p>https://www.task.telangana.gov.in/Placements/MOL_Information_Processing_Services_India_Pvt._Ltd_Acct</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>TASK -- New Job Requirement for 2020 graduates.</p>	<p>Dear Sir/Madam,</p> <p>Greetings from TASK!</p> <p>Please find the link of new requirement for 2020 graduates.</p> <p>Company name - Teleperformance</p>	<p>18.06.2021</p>

	<p>JD Links:</p> <p>For 2020 pass out students:</p> <p>https://www.task.telangana.gov.in/Placements/Teleperformance_2020</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>TASK - New Job Requirement for 2019,2020,2021 Graduates</p>	<p>Dear Sir/Madam,</p> <p>Please find the link of new requirement for 2019,2020,2021 Graduates.</p> <p>Company name - Tata Consultancy Services</p> <p>JD Links:</p> <p>For 2021 pass out:</p> <p>https://www.task.telangana.gov.in/Placements/TCS_BPS_2021</p> <p>For 2020 Pass out:</p> <p>https://www.task.telangana.gov.in/Placements/TCS_BPS_2020</p> <p>For 2019 Pass out:</p> <p>https://www.task.telangana.gov.in/Placements/TCS_BPS_2019</p>	<p>04.06.2021</p>

	019 Request you to encourage the eligible students to apply for the above job posting.	
TASK - New Job requirement for 2019 and 2020 graduates.	Greetings from TASK! Please find the link of new requirement for 2019 and 2020 graduates. Company name - Adecco India Private Limited JD Links: For 2020 pass out students: https://www.task.telangana.gov.in/Placements/Adecco_India_Private_Limited_2020 For 2019 pass out students: https://www.task.telangana.gov.in/Placements/Adecco_India_Private_Limited_2019 Request you to encourage the eligible students to apply for the above job posting.	04.06.2021
TASK New Requirement for 2020 Pass out students.	Greetings from TASK! Please find the link of new requirement for 2020 Graduated students. Company name - 4AT Consulting JD Link: For 2020 Pass out: https://www.task.telangana.gov.in/Placements/4AT_Consulting_2021 Request you to encourage the eligible students to apply for the above job posting.	29.05.2021
TASK - New Job Requirement for 2019 and 2020 Graduated	Greetings from TASK! Please find the link of new requirement for 2019,2020 students.	17.05.2021

<p>students</p>	<p>Company name - Gland Pharma</p> <p>JD Links:</p> <p>For 2019 Pass out: https://www.task.telangana.gov.in/Placements/Gland_Pharma_2019</p> <p>For 2020 Pass out: https://www.task.telangana.gov.in/Placements/Gland_Pharma_2020</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	
<p>TASK-Oracle FDP on Database Programming with SQL April 2021</p>	<p>Thank you for attending 5 Day Virtual Faculty Development Program on Database Programming with SQL.</p> <p>As part of your training program you are requested to deliver the Oracle Official Curriculum to your students which you have gained through FDP</p> <p>In order to train the students you need to Register the student in your Member Hub for your training program initially and assign the Curriculum to students</p> <p>In this email I am attaching a file contains How to add students and How to assign Course to students Process.</p> <p>Kindly register Minimum 30 Students and Maximum 90 students using your account and inform the students to go through the course and attempt practice tests on their own.</p> <p>Students are eligible to appear for final Certification Exam Online Upon successful completion of all practice tests available in students accounts (This training process should be completed With in 3 months after attending FDP).</p> <p>Student once completed with final certification exam with a pass percentage of 60% Minimum will be awarded with a</p>	<p>11.05.2021</p>

	<p>Certificate from Oracle & TASK</p> <p>Please find the attachment of student registration process.</p> <p>Please feel free to contact me in case of any assistance.</p>	
TASK - New Job Requirement for 2020 & 2021 Graduates	<p>Please find the link of new requirement for 2020/2021 graduates.</p> <p>Company name - AXIS BANK JD Link: https://www.task.telangana.gov.in/Placements/AXIS_BANK2</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	07.05.2021
Infosys Campus recruitment Program for NEG students from 2019, 2020, 2021 batches	<p>Greetings from TASK!</p> <p>Please find below the requirement from Infosys for NEG students from 2019, 2020, 2021 batches.</p> <p>This a good oppurtunity for students who have missed out to apply / participate for the previous recruitment drive.</p> <p>Eligible and Interested students can click on Infosys Campus Recruitment Program Form to apply on Infosys portal.</p> <p>Last Date to Apply: Sunday, May 2, 2021</p> <p>Domain: Infrastructure Services Designation: Operations Executive</p> <p>Eligibility Criteria:</p> <ul style="list-style-type: none"> • BCA or B.Sc. (Computer Science / Electronics / Mathematics / Physics / Statistics / Information Technology / Information Science only) students from 2019, 2020, 2021 batches <p>⊙ Students who possess aggregate of 60% or 6 CGPA in Class X, XII & Graduation without any active/standing backlogs only need to apply.</p> <p>CTC per Annum: INR 2,22,000</p>	23.04.2021

Additional benefits include a health insurance of INR 4 lakhs per annum and a life cover of INR 30 lakhs per annum

Bond Period: NA

Skills Required:

- ⊙ Candidates should have excellent communication skills.
- ⊙ Must be proficient in working as a team member and as an individual.

Selection Process:

1st round: Online Test

2nd round: Technical and HR interview

Total test duration – 100 minutes

Section	Skill tested	No. of questions	Time allocated
Section I	Reasoning Ability	15	30 minutes
Section II	Technical Ability	10	30 minutes
Section I	Verbal Ability	20	25 minutes
Section IV	Numerical Puzzle Ability	4	15 minutes

Candidates should not have participated in the Infosys Limited and/or Infosys Group Company (such as – Infosys BPM) selection process in the last 6 months.

Candidates should be willing to relocate and work in a 24x7 environment.

Please Note: Post the cutoff date, Infosys at their own discretion will analyze the data of all students who have applied and would shortlist the students based on the criteria specified and shall send out invite letters to the eligible students for the Virtual placement drive.

All the details regarding online test schedule, Interview details (for online test shortlist) would be directly communicate (via email) by Infosys only to the students. Selected students would receive communication from Infosys only regarding further process.

	<p>As the data would be captured by Infosys we would not have the visibility of applied students or selected students.</p> <p>Request you to share the requirement with the eligible students and colleges.</p>	
<p>TASK - UNYCC Conclave on 1st May 2021: 21st Century Workplace Skills & Attitude</p>	<p>Greetings from TASK!</p> <p>TASK and UNYCC would like to invite the students of your prestigious institution to participate in a dialogue on “21st century workplace skills”. The use of technology and innovative business models is transforming hiring criteria of employers across sectors. In addition to academic and technical skills, companies prefer hiring candidates who are trained in essential new age soft skills such as entrepreneurship, creative thinking, critical thinking and problem solving. In-fact institutions such as the World Economic Forum rank these amongst the top 10 must have skills for entry level candidates. Therefore it is essential that students are made aware of what they need to do in order to build sustained career trajectories in this new world of work.</p> <p>Our eminent line up of speakers include Deloitte’s Managing Director Mr Vikas Gupta, Dell India’s Chief of Staff Mr Vijaya Mohan Reddy, Novartis Biome India Head RenikaBodla and other such accomplished CEOs & HR Heads.</p> <p>Mr PallelaGopichand (Chief Coach, Indian National Badminton Team) and Mr JayeshRanjan (Principal Secretary, Industries & Commerce and IT, Telangana Government) will deliver the keynote address.</p> <p>Date: May 1st 2021 Time: 3pm to 5pm Medium: Digital</p> <p>All participants will also receive a certificate which will be of immense value during the placement process.</p> <p>You could either email us a list of participants with Full name, Email ID & Mobile Number or students can directly</p>	<p>22.04.2021</p>

	<p>enroll on this link: UNYCC TASK - EVENT REGISTRATION (google.com) or http://bit.ly/unycc_task.</p> <p>For any further information please feel free to call me.</p> <p>Look forward to a positive response.</p>	
<p>TASK-Oracle FDP on Database Programming with SQL April 2021</p>	<p>Greetings from TASK,</p> <p>Thank you for your interest towards scheduled Faculty Development Program on Database Programming with SQL.</p> <p>Please find the training details below:</p> <p>Course Title: Database Programming with SQL Training Type: Virtual Training Start Date: 26th April 2021 End Date: 30th April 2021 Timings: 10 am to 5 pm(one hour break for lunch) Platform: Zoom Trainer Name: JitendraJha (Oracle Master trainer)</p> <p>Single click URL to join Zoom: https://oracle.zoom.us/j/6757609387?pwd=QTQ3OGNEY2xSWVVnaGs1S3RraTRHQT09.</p> <p>Request you to please attend 5 day session by using above link.</p> <p>Kindly login and check your oracle accounts before joining the session in academy.oracle.com->Sign into member hub.</p> <p>Please reach out to me in case of any login problems or any queries.</p>	22.04.2021
<p>Workshop for the foundation program on UX Design by TASK, Adobe and NASSCOM Future Skills</p>	<p>Greetings from TASK!</p> <p>This is to bring to your kind notice that, TASK, Adobe and NASSCOM Future Skills are providing the UX / UI course for the TASK registered students of Engineerig, Polytechnic, Degree, PG and MBA of all years.</p>	19.04.2021

TASK registered students need to register for this program through the below mentioned google form link.

Link for the Student Registration

: <https://forms.gle/aYL6sweavieCE9sU9>

After the registrations, students receive a confirmation mail from NASCCOM Future Skills.

Students registered for this program can attend all the sessions mentioned below. Course completion certificate will be issued, once the student completes the 40 hours course

You can find the attachment regarding the course brochure.

The Calendar for the Workshop:

Activity	Description
Registration Opening date	
Registration Closing date	
Mail communication from NASCCOM Future Skills to the Student	
Orientation Workshop for Students	Course details step b

Mentoring Session

Live interaction with Industry experts on UI/UX Technology

14th May-2021

3:00 PM to 4:00 PM

Career Orientation for Students

Interaction with Industry experts about the Job prospects in UI/UX domain

28th May-2021

3:00 PM to 4:00 PM

Validatory Function

1st June-2021

3:00 PM to 4:00 PM

	Requesting you to share the registration link to the TASK registered students and ensure maximum participation.	
TASK - TECHGIG (Times Group) CODE GLADIATORS 2021	<p>We are excited to inform you that one of our partner TECHGIG is conducting a competition</p> <div style="background-color: black; color: yellow; padding: 10px; text-align: center;"> <p>CODE GLADIATORS 2021 Calling the world's best coders to the world's biggest coding arena</p> </div> <p>Code Gladiators is an annual coding competition by TechGig presented by Cognizant, that draws the best and the brightest coding talent from all parts of India. With multiple contests in emerging technologies and the coveted title of Code Gladiators up for grabs, the competition sees enthusiastic participation and has grown from strength to strength with each passing year. This is open to the students from all the departments and anyone who wishes to participate can give their solutions to solve healthcare challenges faced in the country.</p> <p>PFB the exclusive link for your students to register & participate:</p> <p>We are excited to share this with you. Kindly share this with all your associated colleges & students, Here is an exclusive link for TASK to register for the world's biggest coding competition - Code Gladiators 2021.</p> <p>Registration Link: https://www.techgig.com/codegladiators?sourcetype=camptask</p> <p style="text-align: center;">If you are unable to view this mailer, please click here</p>	16.04.2021
Registration for Google Faculty Summit - Invitation Circulars for Institutions	<p>Greetings from Telangana Academy for Skill and Knowledge(TASK)!</p> <p>We are excited to share about the Upcoming Event from Google - India Faculty Summit 2021</p>	13.04.2021

Impact by faculties in educating the next generation developers and engineers is unparalleled, and we want to enable them with the best curriculum on Android development and programs, The focus of the summit would help you understand the importance of Android development in [today's](#) age, modern programming paradigms on Android and introduce you to our curriculum and programs which can help you deliver high-quality sessions to your students.

The summit will be attended by educationalists, scholars, influencers from academia, and faculties from universities. This will also be a chance for you to connect with other faculties and experts interested in this domain.

Registrations to the summit are Open: (Click here) [Google Faculty Summit 2021](#)

We have opened up the registrations for the Faculty summit on our [summit website](#). Feel free to check out the agenda and Panelist details. We request you to kindly fill the registrations from your colleges/universities. It is an open event for all the faculties/College Management.

Digital format: Please feel free to share a Digital invitation to all your faculties for registering for the event. Attached with the email.

	Let's make it a Big Show! and I am really hoping we will get maximum participation from colleges.	
TASK - TALLY 5 day online training - (Date: 19th to 24th, April-2021) Time: 2:00 PM to 4:30 PM	<p>Greetings from TASK!</p> <p>We are offering TALLY online training to the TASK registered students of B.com (2nd, 3rd years), M.com and MBA (1st, 2nd years). It is a five day program and free of cost for the TASK registered students.</p> <p>TALLY Training details:</p> <p>Date: 19th to 24th, April-2021 (21st, April-2021 is holiday) Time: 2:00 PM to 4:30 PM</p> <p>Students Registration Link:</p> <p>https://forms.gle/iocsmwwQRHtmdifX8</p> <p>Last date for closing the registrations is 16th, April-2021 by 3:00 PM</p> <p>Request to share the above link to the students.</p> <p>For any further clarifications, please feel free to contact me.</p> <p>Note: Students who attends all 5 days will get participation certificate (Digital).</p>	13.04.2021
TASK-Oracle Academy Virtual Girls in ICT Day April 2021	<p>Greetings from TASK!</p> <p>TASK in association with Oracle Academy is coming up with an event <u>Oracle Academy Virtual Girls in ICT Day 2021, Japan & Asia Pacific</u> on 22nd April, 2021 at 10:00 AM to celebrate Girls in ICT Day.</p> <p>International Girls in ICT Day seeks to inspire young women to study and pursue technology. This day highlights female role models in technology as a way to</p>	09.04.2021

	<p>increase interest in information and communication technology and encourage girls to explore careers in the technology sector.</p> <p>Key highlights of the event are:</p> <ul style="list-style-type: none"> · Event is open for faculty as well as students. · Faculties and students attending the event on 22nd April 2021 will be eligible for free course on Data Visualization from Oracle Academy. · Participants will be given 15-20 days to complete the course on Data Visualization · Attendees completing the course Data Visualization will be awarded with OA Badge and course completion certificate. · Certificate of attendance will be provided to all attendees of the event. <p>Registration Link for the event: https://go.oracle.com/LP=109493?elqCampaignId=287417&src1=:pp:ptr:::::TASK</p> <p>Kindly share this registration link with all students and faculty members to register for the event.</p> <p>Students and Faculty members from Degree / Engineering / Polytechnic and PG colleges(Oracle and Non Oracle registered colleges both can apply)are eligible for the event.</p>	
<p>FDP on Data Analyst by Excel R</p>	<p>Greetings from TASK!</p> <p>TAS would like to mentioned below dates and time for the proposed FDP has been finalised. We have about 300 registrations from social welfare colleges and we request you to register your respective degree and polytechnic college faculty also. The registrations will be closed by 8th April 2021</p> <p>Data Analyst/ Business Analyst</p>	<p>06.04.2021</p>

	<p>No of Days : 15 Days Start Date : 15-04-2021 End Date : 01-05-2021 No. of Hours per Day : 2 Hours/Day Proposed Timings : 1.00PM to 4.00PM Topics Covered: Basic and advanced concepts of Microsoft Excel, Introduction to the tool TABLEAU and My SQL. Registration link : https://forms.gle/PEbjD8yGmKERernW9</p>	
<p>Infosys Headstart - New Digital Learning Initiative : Reg.</p>	<p>Greetings from TASK!</p> <p>TASK – Infosys would like to introduce a new free learning portal, Infosys Headstart https://infosysheadstart.onwingspan.com/. We have enabled bulk registrations from the backend. We have attached a registration template and Data Processing Agreement template with this mailer for the same. Please check the files and submit student information for bulk registration.</p> <p>Reference Links:</p> <ul style="list-style-type: none"> • Link to platform - https://infosysheadstart.onwingspan.com/ • Link to “Headstart initiative video” which can be shown to students – https://youtu.be/3OVQxtjj6dk <p>Next Steps:</p> <ul style="list-style-type: none"> • Share the list of students from 1st year to final year to be registered in the excel format enclosed(Headstart_Student_List.xlsx) <p>Note : If the student in your list is already registered on the platform, the platform will take care not to register them again with the same email id.</p> <p>Please share the required documents with rm6-task@telangana.gov.in latest by 2nd Apr 2021.</p> <p>We are sharing this information with you as part of a beta launch, while the formal launch is expected in the first / second week of April 2021. We request you not to post this on social media.</p>	<p>01.04.2021</p>

<p>TCS requirement for 2020 graduating NEG students</p>	<p>TCS has come up with requirement for 2020 NEG students.</p> <p>Please click on : https://www.task.telangana.gov.in/Placements/TCS to view the JD.</p> <p>Request you to encourage students to apply.</p>	<p>01.04.2021</p>						
<p>Virtual Meeting to brief TASK UI / UX Course for TASK registered Degree and PG Faculty</p>	<p>Greetings from TASK!</p> <p>TASK would like to conduct a virtual meeting with the TASK registered college Principals, HOD's, Faculties for an overview of TASK-Adobe NASCCOM future skills program. Attached Brochure for your reference.</p> <p>Virtual Meeting Date : 1st, April-2021 Time: 12:00 PM to 1:00 PM</p> <p>We request you to please register in Below link to participate in the meeting.</p> <p>https://forms.gle/zSuDPhRwTRsEVavq6</p> <p>Last date to close the registration is 29th, March-2021 by 5:00 PM</p> <p>Details of the program are attached.</p> <p><u>How does UX benefit students of Management stream</u></p> <table border="1"> <thead> <tr> <th>Stream</th> <th>Potential Job roles</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Stream	Potential Job roles	Details				<p>27.03.2021</p>
Stream	Potential Job roles	Details						

			<p>Product research</p> <p>The foundational stage of UX design, centered around understanding customer needs, goals, and behaviors. Depends on understanding customer needs, goals, and behaviors through research, the designer can make informed decisions. Excellent channels for conducting research include interviews with users and stakeholders. Competent channel.</p> <p>Content strategy</p> <p>Content strategy plans for the creation, publication, and management of content. Consequently, a content strategist understands user needs. He/ she then works on planning, developing, and executing content that bridges the gap between business goals and user needs. It focuses on profitability and usability of content via a content strategy, writing, and editing it, followed by distributing it.</p>	
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How does UX benefit students of Arts, Design stream

Stream	Potential Job roles	Details
Arts, Design	<ul style="list-style-type: none"> · Visual designer · UI designer · Digital designer · UI artist 	<p>Visual designing</p> <ul style="list-style-type: none"> · Visual Designers provide visual concepts for approved websites. Their duties include creating visual concepts for approved their graphic designs. The

Salesforce Fundamentals Women in Tech Initiative- Program details

TASK and Salesforce are bringing up a women centric program called Salesforce Fundamentals- Women in Tech Initiative.

Many of Salesforce hiring partners and customers are looking forward to hire talented women to join their organisations as part of their Diversity and Inclusion initiative. They are looking to skill and empower 1K girl

27.03.2021

	<p>students.</p> <p>The enrolled students will go through a series of curated trailmixes and virtual trainings taken by instructors over the weekends.</p> <p>Please find the attachment for the complete details about the program.</p> <p>Kindly note that this program is only for TASK registered girl students.</p> <p>Eligible students for this initiative is as below :</p> <p>Degree Colleges - 2nd year Girl Students of Bcom, BSc, BBA</p> <p>Please see below the key highlights.</p> <p><u>Key Highlights:</u></p> <ul style="list-style-type: none"> ⊙ Launch date - April, 2021 ⊙ Duration: 12 weeks ⊙ Time commitment from students: 4-6 hours a week ⊙ Format: Self paced with guided help from instructors ⊙ Mentorship and Job Connections <p>I request to forward to the colleges and get the Colleges, College SPOCS and faculty nominations by 29th March, 2021:</p> <p>https://forms.gle/8TafFW44f8zUtTe6A</p>	
<p>i4TS online Conference - III on 27th March '2021</p>	<p>We are glad to inform you that our initiative i4TS (Innovating for Telangana State) - SamajikaAavishkaranalu...SaralamainaJeevithaniki is progressing as per schedule. So far, around 200 youth from different parts of Telangana are going through the 3-month Entrepreneurship Development Program.</p> <p>Conferences are an integral part of the i4TS program. The first and second conferences were held on December 19th, 2020 and February 13th, 2021 respectively.</p>	<p>26.03.2021</p>

We are now coming up with i4TS Conference - III, [this Saturday, March 27th \(Saturday\)](#)

Time: 10.00 AM to 1.30 PM

The Agenda:

Time	Session	About the session
1000 – 1015 hrs	I4TS program recap	
1015 – 1115 hrs	Panel – I Investing for Impact	Evolution of impact investing do investors look for? Measurement of impact <ul style="list-style-type: none"> • Ms.Padmaja - Founder, Indian A • Mr.Jayesh - Protein V • Ms.Anshu • Mr. Ravi <p>Session Moderator Member,</p>
1115 - 1215 hrs	Panel - II CEO's Panel Leading the Change	What is the perspective on leading change in and rural entrepreneurship and challenges? about a social change <ul style="list-style-type: none"> • P. Balaji - Officer, V • Mr.Pradeep - Group • Mr.Saurabh • Dr. Ganesh - Honeywell Director - Internati • Dr. Krish - Biotech I <p>Session Moderator</p>

1215 - 1220 hrs
AIM – TASK

	<p>Partnership (TBC)</p> <p>Announcement of AIM partnering with TASK</p> <ul style="list-style-type: none"> • Mr.RamananRamanathan, Mission Director Atal Innovation Mission <p>1220 - 1235 hrs</p> <p>Key Note</p> <ul style="list-style-type: none"> • Sri JayeshRanjan, IAS. Principal Secretary, Industries & Commerce & Information Technology, Electronics & Communications, Government of Telangana <p>1235 – 1315 hrs</p> <p>Fireside chat</p> <ul style="list-style-type: none"> • Dr.KiranKarnik , Director, Central Board of Directors, RBI <p>1315 - 1320 hrs</p> <p>Vote of Thanks</p> <p>Ms.Shruti, Sr.Program Manager, TASK</p> <p>Please find the attached eDM</p> <p>Looking forward to your support and presence,</p>	
<p>TASK-UIPATH Academic Alliance Program</p>	<p>This is an introductory mail to one of our Industry Partner "UIPATH Academic Alliance."</p> <p>About UIPATH Academic Alliance:</p> <p>UIPATH provide individuals with free courses for UIPATH Academy and started teaching RPA(Robotic Process Automation) to over 35,000 now certified developers, propelling our rocket ship growth. UIPATH is the fastest-growing enterprise software company in history. The employee base grew to over 2,900 employees today, across 25+ offices. In 2019 UIPATH was named a leader in the Gartner Magic Quadrant for Robotic Process Automation Software.</p> <ul style="list-style-type: none"> • Institutionalizing RPA (Robotic Process Automation) as a discipline in academia. • Preparing students and educators with in-demand to automation skills. • Creating a differentiation for universities. • Connecting students and educators to a community of practitioners. <p>TASK & UIPATH program has signed for partnership to</p>	<p>23.03.2021</p>

help students & faculty of partner institutes gain insight & expertise in latest industry technologies.

Through this association we will be offering three different courses to all the TASK membership colleges.

- Robotic Process Automation (RPA) Design & Development v1.0- Lecture (40 hours), Hands-On Lab (20 hours).

- Step in to RPA(Robotic Process Automaton) - 4 hours.

- Introduction to RPA (Robotic Process Automaton) -14 hours, can be a 1 credit elective or required course.

At the end of each course, students will earn a participation certificate and Learners earn an UIPATH Junior RPA Developer Certification after successfully passing the certification exam.

As part of UIPATH and TASK collaboration UIPATH would like to open-up academic membership to the colleges under TASK who can get the direct advantage of UIPATH Certification.

The benefits for an engineering college to participate in the UIPATH Academic program include:

1. FDP is organized on Robotic Process Automation (RPA) Design & Development v1.0- Lecture (40 hours), Hands-On Lab (20 hours) to the faculty of the partnered colleges, Instructor logins, course content etc. are given.

2. Industry aligned global certification.

3. Faculty to attend FDP and roll out Courses.

4. Dedicated slots (at least 2 hrs per week) in academic curriculum for students to go through a program.

5. Monthly monitoring of program.

Who can take:

Students of 3.1 & 4.1sem year of Engineering.

Students of 2.1 & 3.1sem year of MCA and Degree.

	<p>Kindly confirm your Interest to be part of this partnership on and before 27-03-2021.</p> <p>Attached PDFs will give all the additional information you might need.</p> <p>For more details regarding this program, please feel free to contact me for any assistance</p>	
<p>TASK-AWS DeepRacer Women's League</p>	<p>Greetings from TASK!</p> <p>Amazon Web Services(AWS) is hosting a DeepRacer League exclusively for female students.</p> <p>Hosting a DeepRacer league is a conscious attempt to foster community learning and mark a headway towards the early adoption of AI, ML technologies for a future, gender diversified workforce.</p> <p>The AWS DeepRacer Women's League will help foster community learning and help with the early adoption of artificial intelligence and machine learning technology for a more diverse workforce of the future. The initiative aims to bring together women students to learn collaboratively and get hands on with machine learning through a cloud-based virtual racing simulator. During the course of the competition, participants get the opportunity to build their ML models and compete on tracks virtually while driving deep into advanced reinforcement learning and upskilling with ML.</p> <p>India has a significant stake in the AI revolution of the world. The Govt. of India, at the helm, is driving AI innovation & adoption with multiple initiatives like #AIForAll, Digital India, Future Skill Prime etc. This is a clear opportunity to build an AI Skilled workforce for the future. AWS DeepRacer Women's League is designed to promote up-skilling in machine learning (ML), as well as inclusion and diversity in the technology sector. This is a women centric league to attract diverse talent in this fiercely competitive talent market place and upskill them on emerging technologies like AWS machine learning.</p>	<p>23.03.2021</p>

	<p>Eligibility : All streams(Any year) - Engineering and Non Engineering</p> <p>Women who are at least 18 years of age currently enrolled with an academic institution.</p> <p>Registration Link : (https://awsdeepracerleague.in/womens-league-2021/)</p> <p>Last Date for Registration - April 4th</p> <p>This event is to mark the occasion of International Women’s day and will begin with regional elimination round comprising of AWS DeepRacer community race across four regions in India (North, East, West, South), followed by a national elimination community race and then the grand finale <u>on 21st April</u>, where participants will upload their models and run on the virtual track which will be streamed live on twitch.tv. <u>The event is open to all women students currently enrolled with higher education academic institutions in India.</u> They would register on AWS Educate, complete the AWS machine learning and AWS DeepRacer course modules as well as attend the enablement sessions planned during the event.</p> <p>You are requested to promote the event amongst your female student audience and ensure maximum participation.</p>	
<p>TASK-NRSC-ISRO : Water Quiz on 23rd March (Tuesday)</p>	<p>Greetings from TASK!</p> <p>We are glad to inform you that on the occasion of world water day 2021 (i.e, 22.03.2021), TASK and NRSC-ISRO are conducting the water quiz for all the students. please, find attached the document.</p> <p>The details are: Date of the Quiz: 23rd March (Tuesday) Time: 5.00 PM</p>	<p>22.03.2021</p>

	<p>Registration link: https://bit.ly/3f8JQml</p> <p>Kindly share the information with all our students.</p>	
<p>TASK - Tableau DataViz Challenge - 2021 by SmartBridge in Collaboration with Tableau</p>	<p>Greetings from TASK!</p> <p>TASK in association with Smart Bridge organizing a boot camp for faculty and student. Below are the details</p> <p>About the Program:</p> <p>SmartBridge in partnership with Tableau is hosting India's Biggest DataViz Challenge, a unique program for both students & educators.</p> <p>This exclusive academic initiative program is to build practical and analytical data skills in students & educators. The DataViz Challenge will provide hands-on exposure to the data analytics powered by Tableau E-Learning and Tableau Software.</p> <p>Event Name: Tableau DataViz Challenge - 2021 Registration Link: https://smartinternz.com/tableau-dataviz-challenge-2021 Event Format: 5 Days Bootcamp + 10 Days DataViz Challenge</p> <p>Participants Eligible: Faculty & Students from Engineering, MBA, BBA, Degree & Diploma</p> <p>Last Date of Registration: 31st March 2021</p> <p>This program is completely FREE of cost for the participants as it is sponsored by Tableau.</p> <p>Program Benefits :</p> <ul style="list-style-type: none"> ⊙ Free Tableau License for Students & Educators ⊙ Access to Tableau's E-Learning ⊙ Technical Bootcamp on Tableau Software ⊙ Mentoring Support from Data Experts ⊙ Exciting prizes for the Top 3 Winners ⊙ Special Jury Awards for Best Vizzes ⊙ Internship Opportunities for the Winners 	<p>19.03.2021</p>

	<p style="text-align: center;">◎ Bootcamp& Challenge Participation Certificates.</p> <p><i>Program Agenda :</i> 5 Days Bootcamp on Data Visualization powered by Tableau Timings : 5:30PM – 8:30PM IST Mode of Training: Instructor-led (Online via Zoom)</p> <table border="1"> <thead> <tr> <th>Description</th> <th>Start Date</th> <th>End Date</th> </tr> </thead> <tbody> <tr> <td>Boot Camp</td> <td>01st April 2021</td> <td>06th April 2021</td> </tr> <tr> <td>Data Viz Challenge</td> <td>07th April 2021</td> <td>17th April 2021</td> </tr> <tr> <td>Winner Announcement</td> <td colspan="2" style="text-align: center;">30th April</td> </tr> </tbody> </table> <p>We request you to circulate the same to your respective colleges Faculty & Students to leverage maximum benefits from this wonderful Initiative.</p> <p>Please let us know if you need any further information.</p>	Description	Start Date	End Date	Boot Camp	01st April 2021	06th April 2021	Data Viz Challenge	07th April 2021	17th April 2021	Winner Announcement	30th April		
Description	Start Date	End Date												
Boot Camp	01st April 2021	06th April 2021												
Data Viz Challenge	07th April 2021	17th April 2021												
Winner Announcement	30th April													
<p>TASK - New Job Requirement updated on TASK portal</p>	<p>Greetings from TASK!</p> <p>Requirement from Focussoft and Teleperformance for 2020 graduates is published on TASK portal.</p> <p>Students can click here https://www.task.telangana.gov.in/Placements/Teleperformance-3 to view JD and apply for Teleperformance.</p> <p>Request you encourage students to apply.</p>	<p>19.03.2021</p>												
<p>TASK-Yes Mentor Partnership</p>	<p>Greetings for the day!</p> <p>This is introductory mail to one of our industry partner 'Yes Mentor'.</p> <p>About Yes Mentor:</p>	<p>17.03.2021</p>												

Yes Mentor is an NGO for providing mentorship session to connect college students and entry-level professionals with industry subject matter experts through focused mentoring session thereby helping with reduced skill-gap and at the same time contributing increased and competent skilled resource pool towards self reliant Telangana.

Mentor talk session will be done on both generalized and specialized topics. Below are the topics and Target Audience details

Category	Topic
Specialized Mentoring	Introduction to information Technology
	Introduction to Cyber Security and Security
	Introduction to Artificial Intelligence, AI and Data Science
	Building a successful career in IT
	Building a successful career in Cyber Security
	Building a successful career in AI and Data Science
Generalized Mentoring	How to build Future Skills
	Developing and exercising Cognitive Analytical Thinking skills, Critical Thinking Skills, and Problem Solving Skills
	Developing and exercising Emotional Intelligence, Advanced communications Skills, Empathy and Active Listening
	Developing and Practising Leadership Skills
	Becoming a Socio-Cultural Entrepreneur

Mentor talk session will be typically on **Friday** from 1:00 pm to 5:00 pm and or on **Saturday** 9:00 am to 5:00 pm IST.

Session request should be given on or before **Tuesday** of that respective week.

Please submit your request in the below link:

	<p>https://forms.gle/UYX8AxJYobTyzpSXA</p> <p>We can deliver the session for individual college or for 2 or 3 colleges together.</p>	
<p>TASK - FDP on Data Analyst by Excel R</p>	<p>Greetings from TASK!</p> <p>TASK in collaboration with ExcelR is planning to conduct a Faculty Development Program on Data Analysis to the faculty of Degree, Govt. Polytechnic and Social Welfare colleges. Below are the details of the same. Attached is the proposal. The faculty registration link is also mentioned below.</p> <p>Data Analyst/ Business Analyst</p> <p>No of Days : 15 Days No. of Hours per Day : 2 Hours/Day Proposed Timings : 11AM - 1PM / 2PM to 4PM / 6PM - 8PM Topics Covered: Basic and advanced concepts of Microsoft Excel, Introduction to the tool TABLEAU and My SQL.</p> <p>Kindly communicate the same to your faculty to register on below link for the program.</p> <p>Registration link : https://forms.gle/PEbjD8yGmKERernW9</p> <p>Please note that the execution date of the training program will be communicated soon.</p>	17.03.2021
<p>TASK - TALLY 5 day online training - (Date: 15th to 19th, March-2021) Time: 2:00 PM to 4:30 PM</p>	<p>Greetings from TASK!</p> <p>We are offering 4th batch of TALLY online training to the TASK registered students of B.com, M.com and MBA . It is a five day program and free of cost for the TASK registered students.</p>	09.03.2021

	<p>TALLY Training details:</p> <p>Date: 15th to 19th, March -2021 Time: 2:00 PM to 4:30 PM</p> <p>Students Registration Link:</p> <p>https://forms.gle/dXxFFszbRwfijUEy7</p> <p>Last date for closing the registrations is 12th, March-2021 by 3:00 PM</p> <p>Request to share the above link to the students.</p> <p>Training is through Octa platform and after the registrations, I will coordinate with the octa team for further process.</p> <p>For any further clarifications, please feel free to contact me.</p>	
<p>TASK - Boot camp and Build-A-Thon on Machine Learning with Java</p>	<p>TASK in association with Oracle Academy is planning to conduct Boot camp and Build-A-Thon on Machine Learning with Java.</p> <p>About the event:</p> <p>TASK in association with Oracle Academy is launching a program exclusively for students to provide Hands-On Experience on building projects. Exposure to live projects will help students to gain technical skills and also gain Hands-On experience on Machine Learning with Java.</p> <p>Eligibility :</p> <ul style="list-style-type: none"> • Students from 3rd & Final year CSE, IT and ECE backgrounds • Students from Final Year Degree which support computers and Information technology. • Students who will complete the course Artificial Intelligence with Machine Learning in Java in Oracle Academy will have an opportunity to attend 3 - Day Boot Camp. 	<p>03.03.2021</p>

- Registration link for the Boot camp will be only sent to students who have certified on Artificial Intelligence with Machine Learning in Java in Oracle Academy.
- Students who will attend 3- Day Boot camp only can participate in Project Build-A-Thon.

Benefits of the Program:

- E Participation Certificate (participant should Build a project to Receive the Participation Certificate)
- Top three projects submitted by students will be presented with awards.
- Mentoring support from trainers.

Program Agenda:

- Event launch-1st [April 2021](#)
- E learning- Artificial Intelligence with Machine Learning in Java in Oracle Academy From 2nd [April 2021](#) to 15th [April 2021](#)
- 3- Day Boot camp is from 23rd April to 25th [April 2021](#)
- Project Build-a-Thon is from 26th April to 8th [May 2021](#)
- Project Reviews & Announcing Top 15 projects - 13th [May 2021](#)
- Final Jury Round & Winner Announcement 14th [May 2021](#) to 16th [May 2021](#)

Students would need faculty assistance to complete E learning on Artificial Intelligence with Machine Learning in Java in Oracle Academy From 2nd [April 2021](#) to 15th [April 2021](#)

So, Request you to kindly take faculty nominations from Oracle registered colleges(attached OA registered list for your reference) in below link by 10th [March 2021](#)(any mail id's will be accepted).

<https://forms.gle/QUfRLsm6CdDKt6PC6>

Onboarding students into Oracle Academy process will be shared with Faculty members once we get enough

	<p>nominations.</p> <p>Please reach out to me in case of any queries.</p>	
<p>TASK - Infosys Soft Skills Webinar from 3rd to 5th March 2021</p>	<p>Greetings!</p> <p>TASK in association with Infosys planned Soft Skills webinar from 3rd to 5th March 2021 for all students.</p> <p><u>Modules:</u></p> <ol style="list-style-type: none"> 1. Body Language for Successful Interviews 2. Elevating your Virtual Presence 3. Interactive Skills 4. Professional Etiquette <p>Kindly share the below link with all Colleges and student groups.</p> <p>Days/Date of Session: 3rd to 5th March 2021(Wednesday to Friday)</p> <p>Time: 3PM to 4:30PM</p> <p>Attached poster for your reference.</p> <p>Kindly click the below link to join the session</p> <p>Link: https://infosys.webex.com/meet/haripriya.chauhan</p> <p>Resource Person: Ms. HariPriya Chauhan(Infosys)</p>	02.03.2021
<p>TASK UI / UX Course for Degree and Other PG Students</p>	<p>Greetings from TASK!</p> <p>We are glad to inform you that TASK is launching UI / UX course in partnership with Adobe and NASSCOM Future Skills.</p> <p>Details of the program are attached.</p> <p><u>How does UX benefit students of Degree and Other PG stream:</u></p>	28.02.2021

Stream	Potential Job roles
Arts, Design	<ul style="list-style-type: none"> ⊙ Visual designe ⊙ UI designer ⊙ Digital designe ⊙ UI artist

Implementation Process

1). Student need to register for the program through the google form link mentioned here:

<https://forms.gle/SPoz5B4xGqXo1EJw6>

Last date to register is 28th, **February 2021** (4:00 PM)

2). Students will receive a mail from NASSCOM Future Skills team 2 to 3 days after the last date of registration regarding platform details, webinar and project submission link etc. A separate community of students who register through TASK for this program will be created for focussed monitoring.

3). The course starts with a 2-hour Virtual Instructor led workshop on 6th March

Batch size: Up to 2000 students

Workshop date: 6th, March - 2021

Time: 4:00 PM to 6:00 PM

Duration: 2 hours

Requirement's: Computer / laptop with Internet facility

Trainer from NASSCOM Future Skills will host 4 live sessions on 6th, 13th, 20th and **27th of March** (all Saturdays of March)

Students registered once can attend all the 4 sessions

	<p>4). After the first workshop, student can access the self-learning modules to practice working with UX. The course contains 38 hours of self-learning content.</p> <p>They can complete the course and submit a relevant project to achieve the certificate by 31st March 2021.</p> <p>5). Projects submitted will be evaluated and a course completion certificate co-branded by TASK, Adobe and NASCCOM Future Skills will be given to students within 20 days of project submission.</p> <p>The program is free of cost.</p>	
<p>Virtual Workshop: Session on Introduction to Oracle Academy Primavera P6 Teaching Resources</p>	<p>This is a reminder mail regarding Virtual workshop on Introduction to Oracle Academy Primavera P6 Teaching Resources, scheduled on 25th February 2021, Thursday at 5.30 p.m.</p> <p>Kindly remind OA members who are teaching project management and civil engineering courses to register for the session in below link:</p> <p>https://go.oracle.com/LP=96468?elqCampaignId=258014&srcl=::pp:ptr:::TASK</p>	<p>23.02.2021</p>
<p>TASK TALLY 5 day online training - (Date: 1st to 5th, March-2021, Time: 2:00 PM to 4:30 PM)</p>	<p>Greetings from TASK!</p> <p>We are offering TALLY - ACE online training to the TASK registered students of B.com (2nd & 3rd yrs), M.com (2nd yrs) and MBA (2nd yrs). It is a five day program and free of cost for the TASK registered students.</p> <p>We request you to please ask the students to register for the Program.</p> <p><u>TALLY Training details:</u></p>	<p>23.02.2021</p>

	<p>Date: 1st to 5th, March -2021 Time: 2:00 PM to 4:30 PM</p> <p>Students Registration Link:</p> <p>https://forms.gle/gUTHw9LtPmSvNWmv7</p> <p>Last date for closing the registrations is 25th, February-2021 by 4:00 PM</p> <p>Request to share the above link to the students</p> <p>Training is through octa platform and after the registrations, I will coordinate with the octa team for further process.</p> <p>For any further clarifications, please feel free to contact me.</p>	
<p>TASK-Unschool Partnership</p>	<p>TASK in association with Unschool is offering free online courses for 2nd, Final year Degree and 2nd Year MBA students.</p> <p>Unschool is an online learning market-place for everyone who has the knowledge to share or a skill to teach, to coach inspired individuals and ensure employability with the right skill set. Unschool believe that teaching is not meant only for conventional teachers or institutions, but in the idea that anyone and everyone can teach and learn.</p> <p>The Courses Unschool offer on,</p> <ol style="list-style-type: none"> 1. Technology 2. Management 3. Humanities <p>Benefits for Students:</p> <ul style="list-style-type: none"> • Courses which are taught by industry experts. • Unschool will provide free access to 10,000 students under the partnership with TASK for a validity duration of 60 days (two months) from the date of enrolment • Unschool provides 24/7 support and doubt clarification 	<p>23.02.2021</p>

	<ul style="list-style-type: none"> • Unschool platform is accessible on all devices with limited internet as well • Learner can learn the way they want to. So, videos, PDFs and voice notes. • Upon completion of the course, if the student requests for a course completion certificate then Unschool shall charge INR 2500/- from the learner. The Students who get a course completion certificate from Unschool would be eligible to apply for the internship opportunities available at Unschool at no extra cost. <p>Kindly share this email with TASK associated Degree and MBA colleges and inform interested colleges to register for the courses in below link:</p> <p>https://forms.gle/56fPk7fHoYZonnDEA</p> <p>Note: Student should complete one course in Unschool platform and Colleges should give commitment that 50% of the students will complete the course.</p> <p>Please let me know in case of any queries.</p> <p>Regards,</p>	
<p>New Job requirements for 2020 & 2021 Graduates</p>	<p>Please find the link of new requirements from the below companies for 2020/2021 graduates.</p> <p>VMax e- Solutions : https://www.task.telangana.gov.in/Placements/Vmax_e-Solutions_India_Pvt_Ltd</p> <p>MRF Tyres 2021: https://www.task.telangana.gov.in/Placements/MRF_Limited-_2021_N</p> <p>Request you to encourage the eligible students to apply for the above job posting.</p>	<p>17.02.2021</p>
<p>Ramky Jobs for</p>	<p>Greetings from TASK!</p>	<p>16.02.2021</p>

<p>2021 graduating students for TASK Registered /Non Enggining MBA/MSc students</p>	<p>We have a requirement for MBA(Marketing)/MSc(Chemistry) for RamkyEnviro Engineers Ltd.</p> <p>We request you to encourage all students to apply for Ramky (Both TASK Registered and Non TASK Registered) can apply Using below link.</p> <p>Eligibility: 2021 Graduating students with minimum 60% aggregate throughout the academics without any backlogs and should be open to work across site locations in India can apply through https://forms.gle/ngDjcXtMsLWyDMTaA</p>	
<p>TASK Infosys Soft Skills FEP from 22nd to 24th Feb 2021</p>	<p>Greetings from TASK!</p> <p>TASK in association with Infosys is planned to conduct a Soft Skills FEP for Faculty of English and H&S department. Request you to please share the email to nominate the faculty in below link.</p> <p>Please note that we can only allow 3 Faculty from each Institution and also on FCFS basis. Please Share the nominations in below link as soon as possible.</p> <p>https://docs.google.com/forms/d/e/1FAIpQLSd3x7iF7cowsVNOOnUDRwq7loZBnrrng7b3shIp9C21CC9jVw/viewform</p>	<p>16.02.2021</p>
<p>TASK - New Job Requirements for 2019/2020 graduates</p>	<p>Greetings from TASK!</p> <p>Please find the link of new requirements from the below companies for 2019/ 2020 graduates.</p> <p>Waterleaf Group: https://www.task.telangana.gov.in/Placements/WATERLEAF_CONSULTANTS_PVT_LTD</p> <p>MOL (Accounting) - https://www.task.telangana.gov.in/Placements/MOL_Information_Processing_Services_India_Pvt._Ltd-_ACC</p>	<p>13.02.2021</p>

	<p>MOL (Documentation) - https://www.task.telangana.gov.in/Placements/MOL_Information_Processing_Services_India_Pvt._Ltd-_Doc_</p>	
<p>TASK-Oracle FDP on Database Programming with SQL April 2021</p>	<p>TASK would like to inform you that we have scheduled Oracle Academy 5 Day FDP program.</p> <p>Please find below updated schedule:</p> <p>Course Title: Database Programming with SQL Training Type: Virtual Training Start Date: 26th April 2021 End Date: 30th April 2021 Timings: 10 am to 5 pm(one hour break for lunch) Batch Size: 32</p> <p>Please forward the updated schedule to all oracle registered colleges and inform the faculty to register for the FDP in below link: https://forms.gle/ExhfxJpMmf637eVQA</p> <p>Kindly let me know in case of any questions.</p>	10.02.2021
<p>TASK - Batch-2 TALLY 5 day online training - (Date: 15th to 19th, Feb 2021</p>	<p>Greetings from TASK!</p> <p>TASK would like to offer the TALLY - ACE online training to the TASK registered students of B.com (2nd & 3rd yrs), M.com (2nd yrs) and MBA (2nd yrs). It is a five day program and free of cost for the TASK registered students. Batch size is minimum 150.</p> <p><u>TALLY Training details:</u></p> <p>Date: 15th to 19th, February -2021 Time: 2:00 PM to 4:30 PM</p>	09.02.2021

	<p>Students Registration Link:</p> <p>https://forms.gle/hqYGXshHYQxoXzjo6</p> <p>Last date for closing the registrations is 11th, February-2021 by 4:00 PM</p> <p>Request to share the above link to the students</p> <p>Training is through octa platform and after the registrations, I will coordinate with the octa team for further process.</p> <p>For any further clarifications, please feel free to contact me.</p>	
<p>TASK - New Job requirements for 2020 Graduates</p>	<p>Greetings from TASK!</p> <p>Please find the link of new requirement from the below companies for 2020 graduates.</p> <p>VITA Technologies: https://www.task.telangana.gov.in/Placements/Vita_technologies_(VITATECH_Solutions_Private_Limited)</p> <p>Request you to encourage the eligible students to apply for the above job postings.</p>	<p>04.02.2021</p>
<p>TASK - New Job Requirements from Urban Tech Company</p>	<p>Please find the link of new requirement from the UrbanTech company for 2019/2020 graduates for different positions.</p> <p>Urban Tech:</p> <p>1. https://www.task.telangana.gov.in/Placements/URBANTECH_SERVICES_PHP</p>	<p>04.02.2021</p>

	<p>2. https://www.task.telangana.gov.in/Placements/URBANTECH_SERVICES_app_dev</p> <p>3. https://www.task.telangana.gov.in/Placements/URBANTECH_SERVICES_Jr._Android_</p> <p>Request you to encourage the eligible students to apply for the above job postings.</p>	
TASK - New Job Requirements for 2021 graduates	<p>Please find the links of new requirement from the below companies for 2021 graduates.</p> <p>MRF Tyres: https://www.task.telangana.gov.in/Placements/MRF_Limited-_2021</p>	30.01.2021
Oracle Academy I-Learning Upgrade details	<p>This is to inform you that Oracle Academy i-Learning is upgraded to Member Hub. Please find the attachments for the new steps included as part of Academy Adding Faculty Account, Create Channel and Adding Students, How to generate Student Reports and Login to Student Account Procedure.</p> <p>Please forward it to all Oracle registered colleges and get them to use Oracle Academy Member Hub effectively and also inform them to reach out to me for any questions or doubts regarding Member Hub.</p> <p>In case of existing faculty accounts, Please inform the faculty to follow below steps:</p> <p>Navigate to academy.oracle.com -> Sign into Member Hub -> Username is email id -> Click on forgot password and reset the password.</p> <p>Please let me know in case of any additional information from my end.</p>	28.01.2021
IBM Open PTECH Platform	<p>This is an introductory mail to one of our Industry Partner "IBM Open PTECH."</p>	23.01.2021

WALK
THROUGH

About "IBM Open PTECH":

IBM Open PTECH is a free online learning platform that has industry courses on emerging technologies and professional development. IBM is bringing learning content that is relevant for students who are getting ready to join the workplaces where more than 90% of the jobs will require relevant understanding of new technologies. Emerging technology learning is relevant to every student whether they are on an IT pathway or not. Employers **today** across industries are looking for well-balanced people with transferable skills like collaboration and critical thinking, in combination with technical skills and workplace readiness. Open PTECH provides self-paced, self-learning courses for students to equip themselves with relevant skills, that are essential for current and future workplaces.

Open PTECH has 80+ hours of learning content from IBM and another 40+ hours from IBM industry partners.

- Data Science, Artificial Intelligence,
- Cloud computing, Cyber security,
- Block chain, Coding and Computational thinking, Quantum Computing, machine learning,
- Professional skills (collaboration and team building, presentation skill, critical thinking, inter-personal skills, work delivery skills and Agile methodologies) and,
- Workplace skills like Design thinking, Project Management and others

IBM and its partners would support the colleges/education institutions associated with TASK, to onboard students through custom links created for the colleges, train and hand-hold colleges SPOCs and faculty members to navigate the Open PTECH platform to learn (and guide students) as well as to track learning of their students through dashboards and (downloadable) reports, and organize webinars/online seminars on topics relevant to technology and careers to be conducted by IBM leaders and industry experts to additionally support students leaning.

In the first phase we are planning to roll out the program in 45 colleges. We are looking for 25 engineering, 15 Degree

	<p>and 10 Polytechnic colleges to take up the course.</p> <p>Please nominate the college details here on or before 27th Jan 2021.</p> <p>Attached PDF will give all the additional information you might need.</p> <p>For more details regarding this program, please feel free to contact me for any assistance</p>	
<p>TASK - RPA Build-A-Thon by SmartBridge in collaboration with Blue Prism University</p>	<p>TASK in association with Smart Bridge organizing an Faculty Development Program on RPA Build-a-thon. Below are the details</p> <p>About the program:</p> <p>Smart Bridge in collaboration with Blue Prism invites all faculty members to participate 3 day Hands on Training on Robotic Process Automation and 3 Day Mentor guided Project Development in RPA Build-A-Thon program. RPA Build-A-Thon is an exclusive skill building initiative by SmartBridge & Blue Prism University to Enable Educator with Robotic Process Automation skills. This program is a learning by doing event packed with Hands-on training, Mentoring sessions and Digital workforce development powered by SmartInternz & Blue Prism University.</p> <p>Benefits for the Participants:</p> <ul style="list-style-type: none"> • Free access to Blue Prism Courses • Free access to Blue Prism Software • Tech Boot camps on Robotic Process Automation • Mentoring support by RPA Experts • Develop RPA applications for Real time user case • Boot camp and Build a thon Participation Certificate (Must submit project to receive certificate) <p>Eligibility - Engineering/MCA/Sciences/Polytechnics</p> <p>Program Agenda:</p> <p>3-Days Hands-on Training; Virtual Program via WebEx</p>	<p>19.01.2021</p>

	<table border="1"> <thead> <tr> <th>Date</th> <th>Content of 3-Day Hand</th> </tr> </thead> <tbody> <tr> <td>01-02-2021 to 03-02-2021</td> <td> Introduction to Robotic Process Au Introduction to Blue Prism Tool What is Process Studio What is Object Studio Difference between Process and Ob Setting-up the Blue Prism Tool Work Queues Exception Management Overview Email Automation Building Web Application Automa </td> </tr> <tr> <td>04-02-2021 to 06-02-2021</td> <td></td> </tr> </tbody> </table> <p>To know more details about the program Click here</p> <p>Click here to register for the program</p> <p>Last date for registration - 30th January 2021</p> <p>Request you to please communicate the same with colleges,so that the faculty can make maximum use of this opportunity.</p>	Date	Content of 3-Day Hand	01-02-2021 to 03-02-2021	Introduction to Robotic Process Au Introduction to Blue Prism Tool What is Process Studio What is Object Studio Difference between Process and Ob Setting-up the Blue Prism Tool Work Queues Exception Management Overview Email Automation Building Web Application Automa	04-02-2021 to 06-02-2021		
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04-02-2021 to 06-02-2021								
<p>Visionary RCM Applied student list- 2021 campus recruitment.</p>	<p>We have received very few application for Visionary RCM campus recruitment for 2021. Applied student details attached for your referance.</p> <p>We will extend the last date to apply till 22nd January.</p> <p>Eligibility criteria:</p> <p>.B.Sc (Life Sciences) ie., Science Graduate in (Microbiology, Biochemistry, Biotechnology, Biology, Bio-Medical, Anatomy, Bioinformatics, Physiology, Zoology, Bioscience, Nano-technology, Food technology, Nutrition and Dietetics, Botany) // B.Pharma /M Pharma 2021 Graduating students with minimum 50% aggregate throughout the academics without any backlogs only need to apply.</p>	<p>19.01.2021</p>						

	<p>CTC per Annum :</p> <p>Post 2 months Training: INR 1,56,000</p> <p>(Selected candidate needs to undergo unpaid training for 2 months, post training and after clearing the assessment, the selected candidate would be offered FTE position with CTC of INR 1,56,000)</p> <p>Please click on https://www.task.telangana.gov.in/Placements/Visionary_RCM- Med code 2021 for the JD.</p> <p>Request you to encourage eligible TASK registered students to apply.</p>	
<p>TASK - Unicorn Technologies Job openings, LLC Requirements - on TASK Portal</p>	<p>Greetings from TASK!</p> <p>Unicorn Technologies LLC requirements are uploaded on Portal.</p> <p>Below are the links :</p> <p>BE/B.Tech,MBA graduates from 2020 batch can click on https://www.task.telangana.gov.in/Placements/Unicorn_Technologies_LLC2 to apply for IT recruiter position.</p> <p>BE/B.Tech,BCom,MBA graduates from 2020 batch can click on https://www.task.telangana.gov.in/Placements/Unicorn_Technologies_LLC to apply for Call Center Representative position.</p> <p>BE/B.Tech,BCom,MBA graduates from 2019 batch can click on https://www.task.telangana.gov.in/Placements/Unicorn_Technologies_LLC1 to apply for Call Center Representative position.</p> <p>BE/B.Tech,MBA graduates from 2019 batch can click on https://www.task.telangana.gov.in/Placements/Unicorn_Technologies_LLC3 to apply for IT Recruiter position.</p>	<p>18.12.2020</p>

<p>NOTIFICATION FOR EXTENSION OF STUDENT REGISTRATION FOR THE ACADEMIC YEAR 2020-21</p>	<p>Greetings from TASK!!</p> <p>TASK would like to inform you that, TASK has decided to extend the dates for Students Registrations till 30th Jan 2021 for the academic year 2020-21.</p> <p>Please note that, this will be the final extension and no further extension request will be entertained. Late fee charges is Rs.100.00 + 18% GST till 13th Feb 2021.</p> <p>Note: ATTACHED NOTIFICATION FOR EXTENSION OF STUDENT REGISTRATION FOR THE ACADEMIC YEAR 2020-21.</p>	<p>16.12.2020</p>
<p>Infosys-TASK Special Sessions for Girl Students 11th Dec 2020</p>	<p>Greetings from TASK!</p> <p>Infosys in conducting a session for Girl students from Degree Colleges, Kindly ask Girl students to attend the session. We have only 250 students for each session.</p> <p>Link: https://infosys.webex.com/meet/hina.azad</p> <p>Date: 11th Dec 2020</p> <p>Time: 9AM to 11AM</p>	<p>10.12.2020</p>
<p>Infosys NEG Campus Recruitment Program 2021 : Guidelines for Infosys Online Test and FAQ's</p>	<p>Greetings from TASK!</p> <p>All Infosys shortlisted students would be given opportunity to participate in the Infosys recruitment drive irrespective whether they have registered in InfyTQ.</p> <p>Students who have registered in InfyTQ would be able to take online test as per their preferred slot.</p> <p>Online test slots would be allocated by Infosys for candidates who have not registered in InfyTQ / could not select their slots.</p> <p>Student would receive series of emails from Infosys regarding the online test details. Pls ask students to check</p>	<p>08.12.2020</p>

	<p>their emails regularly.</p> <p>Shortlisted student should be ready with PC /laptop as per the guidelines from Infosys.Students can also take support for their respective college to take the test.</p> <p>Request you to share this Communication with students and be ready with necessary arrangements, and encourage maximum students to take online test.</p> <p>As you are aware that TASK has scheduled " EXCELLERATE !" A 5 day program for Infosys shortlisted students from 6th - 10th December 2020.</p> <p>These are very useful sessions would help students to prepare for the online test / Interviews, Hence pls encourage students to take leverage.</p> <p>Attached is the list of shortlisted candidates for your reference,</p>	
<p>RE: TASK - Confirmation for Jio Drive -200 nos Home Sales Officers in Jio !!!</p>	<p>Dear Madam,</p> <p>Jio HR has confirmed the date as on 14th Dec 2020.</p> <p>Kindly arrange all necessary requirements as per the date i.e 14th Dec 2020.</p> <p>Thanks,</p> <p>Regards, kumar</p>	<p>05.12.2020</p>
<p>TASK - Confirmation for Jio Drive -200 nos Home Sales Officers in Jio !!!</p>	<p>Greetings from TASK!</p> <p>As discussed, Jio is ready to conduct a drive in Sangareddy, Kindly confirm your willingness to host the drive in your college.</p> <p>Jio is having 200+ positions opened in JioFiber Business and attached the JD and all positions are for Hyd city (enclosed for your reference) -Its an <u>ONROLL OPPORTUNITY IN JIO</u></p>	<p>04.12.2020</p>

So would request necessary logistics like Candidates to have SMART Phone Must and candidates inclined to SALES minimum 6 months -**SPOT OFFERS**
...SPOT OFFERS ...SPOT OFFERS

Infosys NEG
 Campus
 Recruitment
 Program 2021 :
 Guidelines for
 Infosys Online
 Test and FAQ's

04.12.2020

The first stage of the program where the eligible candidates have registered for Infosys Recruitment Process on [InfyTQ](#).

After the student has successfully completed registering on InfyTQ only then will move on to the next stage else not eligible to take the online Test.

The next stage of the program is Infosys online test for which registered candidates need to book a test slot on InfyTQ.

Infosys has sent an email about the process of scheduling Infosys online test to all the registered candidates. The last date for booking a test slot is [Saturday, December 5, 2020](#).

Once the slot has been successfully booked, candidates will receive an email from Talent.Acquisition@infosys.com confirming the date and time of their online test along with a link and login details.

Infosys online test comprises following sections:

Section	Skill tested	Number of questions	Time allocated
Section I	Reasoning Ability	15	30 minutes
Section II	Mathematical Ability	10	30 minutes
Section III	Verbal Ability	20	25 minutes
Section IV	Numerical Puzzle Ability	4	15 minutes

Total duration of the test is 100 minutes.

There are some mandatory system and location requirements for students to take the test. Attached

	<p>are the guidelines for Infosys Online Test</p> <p>For more questions related to Infosys online test that you might have, attached are the FAQs.</p> <p>If any malpractice or violation of instructions is detected during the test, Infosys will not move ahead with the application of that candidate.</p> <p>A sample test will be available on the InfyTQ Infosys Recruitment Process homepage of the candidates who successfully scheduled their online test.</p> <p>Candidates who clear the Infosys online test will qualify for the virtual interview round.</p> <p>Incase if the student doesn't have PC / Laptop the student can take test in their respective colleges with the approval of their colleges as per the system and location requirements provided in the Guidelines.</p> <p>Request you to share this Communication with students.</p>	
<p>New Job Requirement for students Graduated in 2020</p>	<p>Greetings from TASK!</p> <p>Please find the requirement from below companies for 2020 graduates.</p> <p>Broadridge: https://www.task.telangana.gov.in/Placements/Broadridge_Financial_Solutions_(India)_Private_Limited-_n</p> <p>Selectys https://www.task.telangana.gov.in/Placements/Selectsys-_2020</p>	<p>02.12.2020</p>
<p>Register for i4TS</p>	<p>Greetings from TASK!</p>	<p>26.11.2020</p>

<p>entrepreneurship program with TASK</p>	<p>The i4TS program for entrepreneurship development is all set to launch on 2nd December 2020. We request you to circulate the registration link among the student community.</p> <p>Program details:</p> <p>i4TS is a 4 to 5 months complete entrepreneurship training program to promote social innovation and rural entrepreneurship in 5 thematic areas - Rural Healthcare, Rural Education, Rural Logistics and Access, Green Economy, Agriculture. The program involves the following stages:</p> <p>Stage 1: 25-hour Entrepreneurship Mindset Development Program, starting on December 2nd (2.5 hrs live session on all the 5 Wednesdays in December and 10 hours of home assignments) for 3000 to 5000 youth</p> <p>Stage 2: Ideathon, mentoring by experts and Demo Day to present start-up ideas</p> <p>Stage 3: 3-months Entrepreneurship Development Program for the best 300 ideas</p> <p>Stage 4: Best 100 ideas to be provided Incubation support with the best incubators in the state</p> <p>Eligibility: All youth between 18 and 25 years of age Focus: Social Innovation and Rural Entrepreneurship</p> <p>Registration form: https://forms.gle/XmsLdatGWgYgYe5GA</p> <p>Last time and date for registration: 2.00 PM, 30th November 2020</p> <p>The dates on Ideathon and any change, in case, in the Entrepreneurship Development Program will be informed later.</p>	
<p>Infosys Campus Recruitment Program -B.Sc</p>	<p>Greetings from TASK!</p> <p>Infosys has come up with requirement for B.Sc,BCA students graduating in 2021 Please find eligibility as below</p>	<p>20.11.2020</p>

and BCA
students
graduating in
2021

Role: Operations Executive

Compensation Offered: INR 2,22,000 per annum

Eligibility Criteria:

- ⊙ BCA or B.Sc. (Computer Science / Electronics / Mathematics / Physics / Statistics / Information Technology / Information Science only)
- ⊙ Candidates must be graduating from the 2021 batch
- ⊙ Candidates should not have any active/standing backlogs
- ⊙ Simple average aggregate of 60% or CGPA 6 throughout Class X, XII & Graduation
- ⊙ Candidates should not have participated in the Infosys Ltd and/or Infosys Group Company (such as – Infosys BPO) selection process in the last 6 months.
- ⊙ Candidates should have excellent communication skills.
- ⊙ Candidates should be willing to relocate and work in a 24x7 environment.

Important, please read carefully: Please note the minimum academic percentage /GPA specified is only an indicative as provided by Talent Acquisition team of Infosys , meeting minimum academic criteria enables the students only to apply for the job and does not guarantee confirmation to participate or get shortlisted for the placement drive. Post the cutoff date as specified on this page, Infosys at their own discretion will analyze the data of all students who have applied and decide on the final academic percentage /GPA cut-off which may be higher or equivalent to minimum academic criteria specified and shall send out invite letters for the placement drive. The details of all students shortlisted by Infosys will also be put up on this page.

JD is Published on TASK portal and Students can click on <https://forms.gle/yhoLoa5WZGCinU7D7> to apply

	<p>Last Date to Apply: 11:00 am , 23rd November 2020</p> <p>Request you to encourage all TASK registered eligible students to apply</p>	
<p>Job openings - New requirements for 2020 graduates</p>	<p>Greetings from TASK!</p> <p>Please find the links of new Job openings from the below companies for 2020 graduates.</p> <p>Doyen Solutions - https://www.task.telangana.gov.in/Placements/Doyen_Solutions_-_2020</p> <p>AIR Worldwide(Degree) - https://www.task.telangana.gov.in/Placements/AIR_Worldwide_-_2020_DSA</p> <p>AIR Worldwide(Engineering) - https://www.task.telangana.gov.in/Placements/AIR_Worldwide_-_2020_CAT</p> <p>Please note that the last date to apply for AIR worldwide is tomorrow, 14th Oct.</p>	13.10.2020
<p>TASK - Online Training Program for TCS National Qualifier Test</p>	<p>Greetings from TASK!</p> <p>As you aware that TCS has announced Campus Hiring for YoP 2021 students. In this regard TASK is planning to start the training program for TASK registered students to attend for the TCS National Qualifier Test (NQT) is scheduled on 24th/25th/26th October 2020. The NQT Scored secured by a student would be considered for TCS Hiring Process.</p>	09.10.2020

	<p>Details of the Training (TCS NQT Pattern): -</p> <p>6 days @ 3 Hours/day (12th to 16th and 19th October 2020, 2.00 PM to 5.00PM)</p> <p>During the training period the following topics will be covered.</p> <ol style="list-style-type: none"> 1. Verbal Ability 2. Reasoning Ability 3. Numerical Ability 4. Programming Logic 5. Coding <p>I request you to send the following link to TASK registered students and ask them to register for this training program.</p> <p>https://docs.google.com/forms/d/e/1FAIpQLSeGuPsIzau2wOCbBy6ceMNjMUjIQzihdFTnJaUdyX1zIJo_Gw/viewform</p>	
<p>Placement - Job Requirements for 2020 graduates</p>	<p>Greetings from TASK!</p> <p>Please find the links of new requirements from the below companies for 2020 graduates. Kindly ask the students to apply the jobs.</p> <p>Raam Group - https://www.task.telangana.gov.in/Placements/Raam_Group_-_RM_2020_new</p> <p>Copart - https://www.task.telangana.gov.in/Placements/Copart_India_Pvt_Ltd_-_2020</p> <p>Zensar - https://www.task.telangana.gov.in/Placements/Zensar_-_2020</p>	<p>09.10.2020</p>

<p>TASK - Extension of College Registration notification for the academic year 20-21</p>	<p>Greetings from TASK!</p> <p>Attached TASK - Extension of College Registration notification for the academic year 20-21. Kindly complete the renewal process.</p>	<p>10.09.2020</p>
<p>TASK - College Renewal Notification released for the academic Year 2020-21</p>	<p>Greetings from Telangana Academy for Skill and Knowledge (TASK).</p> <p>We hope you and your family are doing well and taking all necessary precautions under this Pandemic Period.</p> <p>Thank you for being with TASK in skilling the youth of Telangana. We have successfully completed the academic year 2019-20. Now college renewal notification released for the year 2020-21.</p> <p>APPLY Online with e-Payment through: https://task.telangana.gov.in/College-Registration</p> <p>Note: Attached College Registration Notification For Academic Year 2020-21 for your reference.</p> <p>For any queries please feel free to contact me.</p>	<p>10.08.2020</p>
<p>TASK - Session on Expectations of the Infrastructure Sector Post COVID19 on 16th July 2020</p>	<p>In the times of COVID19, when employment opportunities are scare and competition is more, how should students prepare themselves to face the job market?</p> <p>To bring clarity on the employment scenario in the Infrastructure Sector, TASK brings you a Webinar by industry experts titled "Expectations of the Infrastructure Sector Post COVID19"</p> <p>Please block your date and time for this enlightening webinar.</p> <p>Date: 16th July 2020 Time: 3.00 PM to 5.00 PM</p> <p>The joining link will be shared shortly.</p>	<p>13.07.2020</p>

<p>TASK - Communication skills - Beginner from 6th to 8th July 2020 for Student Registration</p>	<p>Greetings from TASK!</p> <p>Course: Communication skills - Beginner. This course is open to all the registered students of all years. Date: 6th to 8th July 2020. Duration: 90 minutes Number of students per batch: 300 Timings for Slot : 12.30 PM to 2.00 PM Platform: Octa</p> <p>Here is the google form link for the slot students to apply. Kindly share the link to the students.</p> <p>Please inform the students to check the confirmation email to their inbox one hour before the scheduled time for login credentials.</p> <p>https://forms.gle/j2WWb57cNWT9Z9Gd9</p> <p>The link shall be closed by 3rd July at 4:00 PM</p> <p>Please feel free to contact me if you need any further information.</p>	<p>01.07.2020</p>
<p>Request to fill the Feedback Form</p>	<p>Greetings from Telangana Academy for Skill and Knowledge (TASK)!</p> <p>We hope you and your family are doing well and taking all necessary precautions under this Pandemic Period.</p> <p>TASK would like to know your feedback and suggestions after the post COVID-19. Request you to please fill the below link.</p> <p>https://docs.google.com/forms/d/e/1FAIpQLSd0c6QdRIVMl2NGz9UdUhUnovyn5ZHpFyz5JVosLgbhGqxCzQ/viewform?usp=sf_link</p>	<p>26.06.2020</p>
<p>TASK - Schedule</p>	<p>Greetings from TASK.</p>	<p>19.06.2020</p>

for Essential Skills Training from 22nd to 24th June 2020 for Slot-1 Reg-

TASK would like to conducting online sessions on Essential Skills for our TASK registered students with interactive methodologies. With jobs being scarce, experts say that essential skills will play an important role in the job market.

We have redesigned the entire essential skills content and structure to suit online course delivery. Twelve skill-specific modules have been identified as below:

1. Communication skills
2. Learning to learn
3. Problem-solving and decision making
4. Interpersonal skills
5. Networking skills
6. Self-empowerment
7. Performance management
8. Presentation skills
9. Teamwork
10. Leadership skills
11. Interview skills
12. Effective writing skills

Each of these modules, except Interview Skills, will be offered in 3 levels - Beginner, Intermediate, and Intensive.

In this quarter (July to August) only Beginner level will be offered. From the next semester, Intermediate and Intensive will also be added. Each course will be scheduled multiple times in the year so that the maximum number of students can get a chance to attend each course.

These courses are open to all students of all branches of all years. Students have to complete the levels one after another, starting from the Beginner level.

Interview skills is only for the final year students or III year second-semester students. This is offered in two levels.

Starting from 22nd June, we are going to offer 4 courses every week (each course is for 3 days with 90 minutes session per day). We are starting with the Beginner Level. Courses will be conducted in two time slots each day, as

	<p>mentioned in the calendar.</p> <p>Please see the attached calendar to know the weekly allotment of courses. Students can choose any one of the courses and apply for it through the Google form link given. Right now, we are taking applications only for the courses offered from 22nd to 24th June.</p> <p>Courses will be offered through Octa Work platform. Students can log in through their hall ticket numbers. A standard common password will be shared with all the students for login access. Once they log in, they can change their password and use the same login and password for all future courses.</p> <p>Course-1: Communication skills - Beginner Course-2: Interview skills Level 1</p> <p>Date: 22nd to 24th June 2020 Duration: 90 minutes</p> <p>Slot Timings: 10.30 AM to 12.00 PM</p> <p>Number of students per batch: 300</p> <p>Here is the google form link for the slot-1 students to apply. It asks for basic details of the students including the choice of anyone course.</p> <p>https://forms.gle/j2WWb57cNWT9Z9Gd9</p> <p>For further clarifications please feel to call back.</p>	
<p>Just Dial recruitment for B.E/ B.Tech, B.Com, B.Sc, B.A, MBA (any discipline) graduated in 2019 & 2020</p>	<p>Greetings from TASK!</p> <p>Just dial has recruitment for B.E/ B.Tech, B.Com, B.Sc, B.A, MBA (any discipline) graduated in 2019 & 2020 at Master's Degree College, Sangareddy</p> <p>Website: http://www.justdial.com</p> <p>Domain: Sales & Marketing</p>	<p>10.03.2020</p>

Designation: Business Development Executives

Eligibility Criteria:

- B.E/ B.Tech, B.Com, B.Sc, B.A, MBA (any discipline)
- 2020 graduates with 50% throughout the academics and no back logs only need to apply.
- Only Male Candidates need to apply

CTC per Annum: INR 2,59 ,000 (for Remote cities) - INR 2,90,000 (for Hyderabad) + Incentives + Insurance Coverage (Personal accidental insurance +Medical Insurance) and other benefits.

Only Freshers are eligible for Salary revision Post 6 months by Rs 3000 & an entitlement of Bonus amount after end of 6 and 12 months which is linked to the performance.

Job Description:

- Need to approach Business Establishments of an area and capture all their data.
- Convincing the Customer for listing in Just Dial (Sales)
- Meeting daily/ weekly/ monthly targets.
- Giving presentation to the clients about the company and other services.
- Explaining the concepts and benefits of listing in Just dial and need to get Contracts (Business).
- Following up with the client for Sales closure.
- Meeting daily/ weekly/ monthly targets

Bond Period: NA

Skills Required:

- Excellent communication skills (Written and verbal), ability to communicate correctly and clearly with all customers.
- Basic knowledge of methods involved in promoting and selling products or services.
- Sales strategies and tactics, product demonstration and sales techniques.
- Fluency in English, Telugu, and Hindi.
- Work successfully in a team environment as well as independently, ability to successfully adapt to changes in their environment.

	<ul style="list-style-type: none"> • Computer knowledge/ Skills, Ability to use a desktop computer system. • Demonstrable conflict resolution, negotiating, and de-escalation skills Ability to determine customer needs and provide appropriate solutions • Ability to approach problems logically & rationally, action-oriented, organized and self-disciplined • Qualified candidates will be comfortable in a multi-tasking, high-energy environment. They will be a creative and analytical problem solvers with a passion for excellent customer service. <p>Selection Process: 1st round: Online Test 2nd round: Group Discussion 3rd round: HR interview 4th round: Managerial Intervieww</p> <p>Please carry an updated Resume, 2 Passport size photographs and Government-approved (original & Photocopy) identity proof.</p> <p>For More details:</p> <p>Please click on https://www.task.telangana.gov.in/Placements/Justdial-_Business_Dev_Ex_2020</p>	
<p>Confirmation - Introduction to Python - Tara Govt. Degree College, Sangareddy</p>	<p>The below training schedule is confirmed and the same updated on the training calendar.</p> <p>Introduction to Python Duration : 2 Days</p> <p>Tara Govt. Degree College, Sangareddy Dates : 13th and 14th Feb 2020</p> <p>Instructor : Mr.Jaffer Pasha Contact No : 8886220324</p> <p>Attached are the attendance and feedback forms. Kindly</p>	<p>07.02.2020</p>

	<p>Submit the same.</p> <p>Pre- Requisites : 1.Computer Lab with High Speed Internet facility</p> <p>2.Each student should be allocated one single system.</p>	
<p>Deadline Approaching to apply for 500 Scholarship from Facebook for students</p>	<p>February 12th is the last date for students to apply for the 500 scholarships from Facebook's School of Innovation programme to learn Augmented Reality from industry experts.</p> <p>You may please share this information with students from your institute so that the interested students may apply and benefit from this industry led learning experience.</p> <p>Last date to apply: February 12th 2020.</p> <p>To learn more, visit www.sv.co/fb/apply</p> <p>Thanks,</p>	06.02.2020
<p>Requirement from ELICO for 2020 Graduates</p>	<p>Greetings from TASK!!</p> <p>We would like to inform you that TASK received a requirement from ELICO company for 2020 graduating students. Kindly ask the student ti apply on below links.</p> <p>Please find the below links:</p> <p>https://www.task.telangana.gov.in/Placements/ELICO-_AR_Calling_2020</p> <p>https://www.task.telangana.gov.in/Placements/Elico-_Medical_Coder_2020</p>	08.01.2020

<p>MPC Sessions from 6th Jan 2020</p>	<p>Greetings from TASK!</p> <p>TASK would like to inform you that we have scheduled Mahindra Pride Training Session from 6th Jan 2020 with below trainer, Kindly coordinate the program.</p> <p>Tara Government College - Mr.Thomas</p>	<p>06.01.2020</p>
<p>Bulk Student Registration</p>	<p>Greetings from TASK!!</p> <p>We have successfully updated Students data in TASK website. Please inform to the students to update their profiles within next 6 working days i.e (03-Dec-2019).</p> <p>Student login details are:</p> <p>Username :Hall Ticket Number (without special characters)</p> <p>Password : Task@2019 (common for all students)</p>	<p>27.11.2019</p>
<p>Excel</p>	<p>Dear Ramana,</p> <p>Kindly fill the format.</p>	<p>20.11.2019</p>
<p>Proceedings-List of nominated candidates for Infosys Project Genesis-Faculty Development Program on GBFS between 28th November to 6th December 2019 to be held at Infosys SEZ, Pocharam Campus,</p>	<p>Respected Sir/ Madam,</p> <p>Please find the attachment-Proceedings-List of nominated candidates for Infosys Project Genesis-Faculty Development Program on GBFS between 28th November to 6th December 2019 to be held at Infosys SEZ, Pocharam Campus, Hyderabad.</p>	<p>19.11.2019</p>

Hyderabad.		
Students Registration Notification 2019-2020	<p>Greetings from TASK!!</p> <p>TASK has been striving to enhance the employability quotient of the youth and enabled them choose multiple avenues as they graduate.</p> <p>We have added new services for the academic year 2019-20 to enrich the students in technical skills and Soft Skills.</p> <p>We are glad to inform you that TASK has opened the student registrations across the state for the Academic year 2019-20 from 1st July 2019 to 31st August 2019.</p> <p>(Late fee of Rs.100/- +Tax is applicable from 1st September - 09th September 2019).</p> <p>The services offered through the Telangana Academy for Skill and Knowledge (TASK) has been detailed out in the website (Course Catalogue).</p> <p>For more information, please visit TASK website www.task.telangana.gov.in.</p> <p>Note: Attached Student Registration Notification.</p>	22.08.2019
Proceedings-OD Approval-List of Faculty Faculty from GDCs-To attend FDP - TASK-Infosis from 5th to 13th August, 2019	<p>Respected Madam/Sir,</p> <p>Please find the attachment of Proceedings-OD Approval-List of Faculty Faculty from GDCs-To attend FDP -TASK-Infosis from 5th to 13th August, 2019</p>	03.08.2019

**PROCEEDINGS OF THE COMMISSIONER OF COLLEGIATE EDUCATION
GOVERNMENT OF TELANGANA, HYDERABAD
Present: Sri. Navin Mittal, IAS.**

Sub: Collegiate Education - Government Degree College, Narayankhed, Sangareddy Dist. - Permission granted to certain faculty members from various GDCs to work in GDC Banswada, in view of the NAAC Peer Team visit to GDC Narayankhed - On Duty Orders issued - Reg.

Ref: Letter received from Principal, Government Degree College, Narayankhed. Dated: 07.09.2022.

In pursuance of the circumstances informed in the reference read above, the Commissioner of Collegiate Education, Hyderabad, has accorded permission to the following faculty members to work in GDC Narayankhed from **07.09.2022** to **13.09.2022** in view of the NAAC Peer Team visit to GDC Narayankhed, scheduled on the dates 12.09.2022 to 13.09.2022.

S.No	Name of the Faculty member	Subject	Present working place
1.	A. Rajendhar	Mathematics	GDC Kamareddy
2.	Md. Sharif Miya	English	GDC A Sangareddy
3.	S. Ramulu	Economics	GDC Zaheerabad
4.	Dr. Mithun Kumar Rathod	Zoology	GDC Sangareddy
5.	K. Krishna Priya	History	GDCW Sangareddy
6.	Giridhar Gopal	Librarian	GDC A Sangareddy
7.	P. Supriya	Physical Director	GDC Jogipet

The absence of the above said faculty members in the colleges on the dates mentioned above shall be treated as On Duty and they are not eligible to claim TA/DA from the colleges. Further, in view of the above, the concerned Principals are informed to relieve the above mentioned faculty members to attend the above said duty on the above said dates.

(Orders of the CCE have been obtained in the Note file)

**Signed by D Thiruvengala
Chary**
Date: 08-09-2022 13:45:28
Reason: Approved
For Commissioner of Collegiate Education

To

Principal GDC Narayankhed

Copy To

Principal GDC Kamareddy

Principal GDC A Sangareddy

Principal GDC Zaheerabad

Principal GDC W Sangareddy

Principal GDC Jogipet

File No.GDCNKD-ESTT/75/2022-O/o PRINCIPAL-GDC-NKD-CE

PROCEEDINGS OF THE PRINCIPAL, GOVT. DEGREE COLLEGE, NARAYANKHED

PRESENT: Sri.K.Venkateshwarlu, M.Sc., B.Ed.,

Sub: Collegiate Education – GDC, Narayankhed, District Sangareddy – Certain faculty members to work in GDC, Narayankhed from various GDCs on OD basis in view of the NAAC Peer Team visit scheduled from 12.09.2022 & 13.09.2022 – Relieving Orders – Issued.

Read: CCETS, Hyderabad, Proc. File No.CCE-AC/GEN/53/2021-ACADEMIC CELL, Dated: 08.09.2022.

@ @ @

O R D E R:-

In pursuance of the orders issued by the Commissioner of Collegiate Education, TS, Hyderabad under reference read above, the following faculty members has been attended their duties at Government Degree College, Narayankhed, District Sangareddy **from 07.09.2022 to 13.09.2022** in view of the NAAC Peer Team visit scheduled from 12.09.2022 & 13.09.2022 as **ON DUTY** basis.

Sl. No.	Name of the Employee	Subject	Name of the College
1	Sri. Md. Sharif Miya	English	Tara GDC, Sangareddy
2	Dr. Mithun Kumar Rathod	Zoology	Tara GDC, Sangareddy
3	Sri. Giridher Gopal	Librarian	Tara GDC, Sangareddy
4	Sri. K. Krishna Priya	History	GDCW, Sangareddy
5	Sri. S. Ramulu	Economics	GDC, Zaheerabad
6	Smt. P. Supriya	Physical Director	GDC, Jogipet
7	Sri. A. Rajendhar	Mathematics	GDC, Kamareddy

Therefore, the above faculty members are hereby relieved from their duties on **13.09.2022 A/N.**

**Signed by Venkateshwarlu
Kandukuri
Date: 14.09.2022 09:15:22
Reason: Approved**

To
Principal, Tara GDC (A), Sangareddy
Principal, GDCW, Sangareddy
Principal, GDC, Zaheerabad
Principal, GDC, Jogipet
Principal, GDC, Kamareddy.



BASR Fine Chemicals Private Limited

(An ISO 9001 : 2015 Company)

D-122, Phase-III, IDA., Jeedimetla, Hyderabad - 500 055. Telangana., India

Phone : +91-40-23090147, Fax : +91-40-23091549, e-mail : basrtech@basrtech.com, www.basrtech.com

This is to certify that following students of Tara Govt. College, Sangareddy (A) have successfully completed the One-Week internship at our commercial laboratory facility on "CHEMICAL INDUSTRIAL SAFETY MANAGEMENT".

BATCH-I

S.No.	Name of the Student	Class/Group	Roll Number
1	Aaluri Madappa	B.Sc.BtBC-III	6058-19-572-001
2	Agnikula Kshatriya Vikranth Singh	B.Sc.BtBC-III	6058-19-572-002
3	Bagili Pavan Kumar	B.Sc.BtBC-III	6058-19-572-003
4	Errolla Vivek Teja	B.Sc.BtBC-III	6058-19-572-004
5	Golla Sheshikanth	B.Sc.BtBC-III	6058-19-572-005
6	Kallem Sai Prasanna	B.Sc.BtBC-III	6058-19-572-006
7	Kurma Anil Kumar	B.Sc.BtBC-III	6058-19-572-007
8	Maldoddi Nikitha	B.Sc.BtBC-III	6058-19-572-008
9	Naikoti Sai Teja	B.Sc.BtBC-III	6058-19-572-010
10	Rathod Meenakshi	B.Sc.BtBC-III	6058-19-572-012
11	Sanadhi Laxman	B.Sc.BtBC-III	6058-19-572-013
12	U Navaneetha	B.Sc.BtBC-III	6058-19-572-014
13	Uppari Vamsi	B.Sc.BtBC-III	6058-19-572-015

BATCH-II

S.No.	Name of the Student	Class/Group	Roll Number
1	Solkampally Niharika	B.Sc.MZC-III	1701-6058-457-046
2	Amrin	B.Sc.MZC-III	6058-19-457-001
3	Angoth Sangeetha	B.Sc.MZC-III	6058-19-457-002

4	Chakali Yathish Chandra	B.Sc.MZC-III	6058-19-457-004
5	Dhannaram Sudhakar	B.Sc.MZC-III	6058-19-457-006
6	Erigipally Shivaleela	B.Sc.MZC-III	6058-19-457-007
7	Kunadoddi Shalini	B.Sc.MZC-III	6058-19-457-009
8	M Pragna	B.Sc.MZC-III	6058-19-457-011
9	Mudgula Ruchitha	B.Sc.MZC-III	6058-19-457-012
10	Nallolla Ranjitha	B.Sc.MZC-III	6058-19-457-013
11	Neeradi Anitha	B.Sc.MZC-III	6058-19-457-014
12	Nelapati Vijaya	B.Sc.MZC-III	6058-19-457-016
13	Pathri Kiran Kumar	B.Sc.MZC-III	6058-19-457-017
14	Patnam Prashanth Kumar	B.Sc.MZC-III	6058-19-457-018
15	Peddasayeb Praveen Kumar	B.Sc.MZC-III	6058-19-457-019
16	Perka Sai Charan	B.Sc.MZC-III	6058-19-457-020
17	Ponna Srija	B.Sc.MZC-III	6058-19-457-021
18	Puramola Madhavi	B.Sc.MZC-III	6058-19-457-022
19	Ravula Abhishekasumalatha	B.Sc.MZC-III	6058-19-457-023
20	Regoti Vamshi Priya	B.Sc.MZC-III	6058-19-457-024
21	Sangeetham Vyshnavi	B.Sc.MZC-III	6058-19-457-025
22	Shaik Arshad	B.Sc.MZC-III	6058-19-457-026
23	Thammali Eshwar	B.Sc.MZC-III	6058-19-457-027
24	Upthalla Kavya Sri	B.Sc.MZC-III	6058-19-457-028
25	Uroojunnisa	B.Sc.MZC-III	6058-19-457-029
26	Vadla Keerthana	B.Sc.MZC-III	6058-19-457-030

BATCH-III

S.No.	Name of the Student	Class/Group	Roll Number
1	Aarpula Jeremiah	B.Sc.MCCs-III	6058-19-578-001
2	Aluri Lavanya	B.Sc.MCCs-III	6058-19-578-002
3	Begari Mahesh Kumar	B.Sc.MCCs-III	6058-19-578-004

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**ADSORPTION STUDIES OF Fe[III] ON CELITE
IN THE PRESENCE OF D-RIBOSE AS
CHELATING AGENT**

*Dissertation submitted in Partial fulfillment for the requirements for the award of
degree of*

*Bachelor of Science
in
CHEMISTRY*

By

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CERTIFICATE

*This is to certify that the project work entitled “**ADSORPTION STUDIES OF Fe[III] ON CELITE IN THE PRESENCE OF D-RIBOSE AS CHELATING AGENT**” is presented by B.Sc (CHEMISTRY) students in partial fulfillment of the requirements for the degree of Bachelor of Science in Chemistry by the Tara Govt. College, Sangareddy(A) (Affiliated to Osmania University, Hyderabad) during the academic year 2021-2022.*

The results embodied in this report have not been to any other University or Institution for the award of any degree.

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ACKNOWLEDGEMENTS

We express my deep gratitude to my research supervisor **Dr.K.Abhijit**, Head, Department of Chemistry, Tara Govt. College, Sangareddy(A)-502001, INDIA for his inspiring guidance during the course of the Project work. The continuous encouragement extended by him propelled me to update my research skills and pedigree to engage in fruitful research.

We wish to express my gratitude to **Smt. M.Praveena**, Principal, Tara Govt. College, Sangareddy(A)-502001, INDIA for her constant support, cooperation and suggestions during the research work. We wish to express my sincere thanks to **K.Sreedhar**, Asst. Professor, Department of Chemistry for providing me facilities, help and support for the entire research work.

We express our special thanks to **MART Specialities Lab, Hyderabad** for providing technical assistance in Atomic absorption spectrometric analysis.

Finally, we take this opportunity to thank one and all that has directly or indirectly helped me in completing the task.

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DECLARATION

We hereby declare that the project report entitled “*ADSORPTION STUDIES OF Fe[III] ON CELITE IN THE PRESENCE OF D-RIBOSE AS CHELATING AGENT*” is the work done by us in the campus at *Department of Chemistry, Tara Government College, Sangareddy(A)* during the academic year 2021-2022 and is submitted in partial fulfillment of the requirements for the degree of *Bachelor of Science* by *Tara Govt. College, Sangareddy(A)* (Affiliated to *Osmania University, Hyderabad*) during the academic year 2021-2022.

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Chapter-I

INTRODUCTION

Adsorption

Adsorption is a process in which solids come into contact with liquids or gases, and the mass transfer occurs from liquids to solids. Desorption is the reversal of this action. Adsorption operations take advantage of a solid's capacity to concentrate certain chemicals from a fluid on to its surface. Adsorbate refers to the adsorbed substance, while adsorbent refers to the solid substance. The following are some examples of solid-liquid and solid-gas applications:

- Removing dissolved moisture from gasoline.
- Decolorization of sugar solutions and petroleum products.
- Removing noxious odors and tastes from water. Dehumidification of air and gases is one of the solid-gas activities.
- To fractionate mixtures of hydrocarbon gases such as methane, ethane, and propane.
- To remove undesirable odors and contaminants from gases.
- To recover valuable solvent vapors from dilute gas mixtures.

Nature of adsorbents

Adsorbents are typically granular in nature, ranging in size from 0.5 mm to 12 mm. They can't have a lot of pressure decrease or get swept away by a fast-moving stream. During handling, they must maintain their shape and size. They'll need a lot of pores and a lot of surface area per unit mass.

Some of the commonly used adsorbents, their sources and applications are given below:

Sl. No.	Adsorbent	Source	Application
1.	Fuller's earth	Naturally occurring clay is heated and dried to get a porous structure.	De-colorizing, drying of lubricating oils, kerosene and engine oils.
2.	Activated charcoal	Bentonite or other activated clay which are activated by treatment with sulfuric acid and further washing, drying and crushing.	Used for de-colorizing petroleum products.
3.	Bauxite	A naturally occurring hydrated alumina, activated by heating at 230-815	Used for de-colorizing petroleum products and for drying gases.

4.	Alumina	A hard hydrated aluminium oxide, which is activated by heating to drive off the moisture and then crushed to desired size.	Used as desiccant.
5.	Bone-char	Obtained by destructive distillation of crushed bones at 600-900	Used for refining sugar and can be reused after washing and burning.
6.	Silica gel	A hard granular and porous product obtained from sodium silicate solution after treatment with acid. Normally has 4 to 7% water in the product.	Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.

7.	Activated carbon	<p>(1) Vegetable matter is mixed with calcium chloride, carbonized and finally the inorganic compounds are leached away.</p> <p>(2) Organic matter is mixed with porous pumice stones and then heated and carbonized to deposit the carbonaceous matter throughout the porous particle.</p> <p>(3) Carbonizing substances like wood, sawdust, coconut shells, fruit pits, coal, lignite and subsequent activation with hot air steam. It is available in granular or pelleted form.</p>	<p>De-colorizing of sugar solutions, chemicals, drugs, water purification, refining of vegetable and animal oils, recovery of gold and silver from cyanide ore-leach solution, recovery of solvent vapour from gas-mixtures, collection of gasoline hydrocarbons from natural gas, fractionation of hydrocarbon gases.</p>
8.	Molecular sieves	<p>These are porous synthetic zeolite crystals, metal alumino-silicates.</p>	<p>Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.</p>

Significance of Research problem

Adsorption of heavy metals is an important strategy to develop newer remediation technologies for the sustainable environmental protection. But the efficacy of adsorption of heavy metals under the normal conditions using suitable adsorbent depends on several factors which need to be finely tuned to get efficient adsorption process. In the presence of proper facilitating agents, the adsorption of heavy metals enhanced which will certainly improves the existing heavy metal techniques.

Objective of the Project

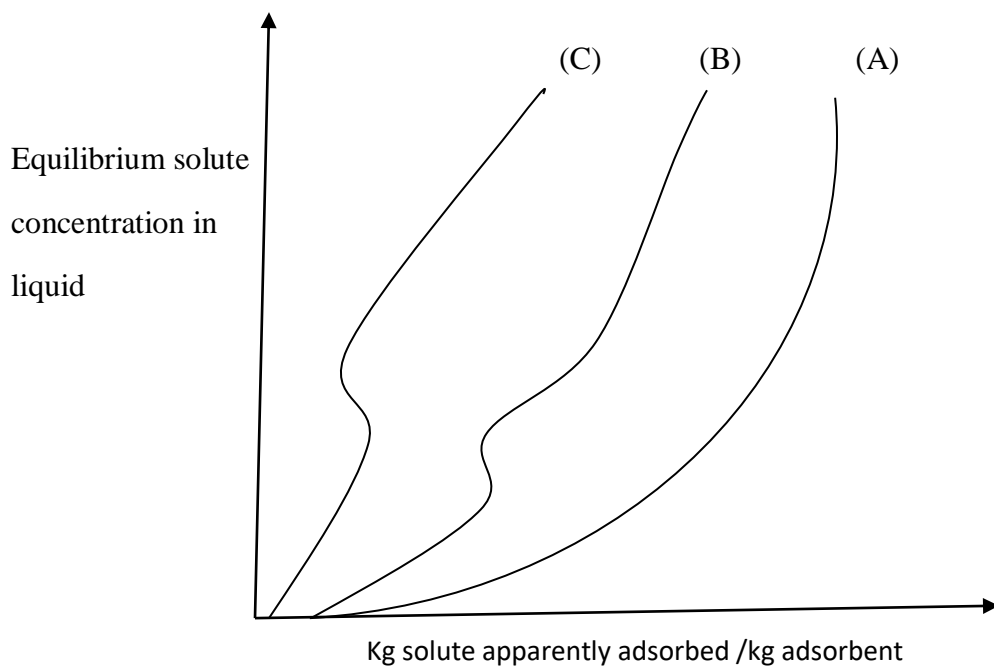
To evaluate the impact of D-Ribose as chelating agent in the adsorption of Fe (III) from aqueous solution by Celite as an adsorbent to develop efficient remediation technology using concept of Coordination chemistry.

Chapter-II

ADSORPTION OF SOLUTE FROM DILUTE SOLUTIONS

Both the solvent and the solute are adsorbed whenever a mixture of solute and solvent is adsorbed using an adsorbent. As a result, only relative or apparent solute adsorption can be determined. As a result, treating a known volume of solution of original concentration C with a known weight of adsorbent is standard procedure. Let C^* be the solution's final equilibrium solute concentration. If v is the volume of solution per unit mass of adsorbent (cc/g), and C and C^* are the starting and equilibrium concentrations (g/cc) of the solute, then the apparent adsorption of the solute per unit mass of adsorbent is $v(C - C^*)$, (g/g), neglecting any volume change. This statement is most useful in the case of dilute solutions. The C^* value is determined by the temperature, nature, and properties of the adsorbent when the proportion of the original solvent that can be adsorbed is tiny. The Freundlich adsorption isotherm, $C^* = K[v(C - C^*)]^n$, represents the adsorption phenomena in dilute fluids across a small concentration range. The Freundlich adsorption equation is especially useful in situations where the identification of the solute is unknown, such as the removal of colouring substances from sugar solutions, oils, and other liquids. A spectrophotometer or colorimeter can quickly determine the colour composition of the solute. In worked example 2, the interpretation of this data is demonstrated. Adsorption is good if the value of n is high, say 2 to 10. If it's between 1 and 2, it's relatively challenging, and if it's less than 1, it's easy and it indicates poor adsorption characteristics. Freundlich adsorption equation is also useful in such a case where the actual identification of solute is not known, e.g. removal of colouring substance from sugar solutions, oils etc. A typical adsorption isothermal for

the adsorption of various adsorbents A, B and C in dilute solution at the same temperature for the same adsorbent is represented in a graph.



Adsorption isotherms for various adsorbents

Metal Complexation of A D- Ribose- Based Ligand

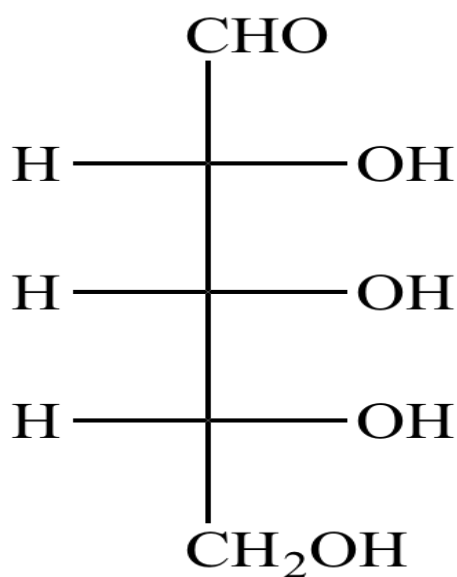
The complexation characteristics of methyl 2,3,4-tri-O-(2-picolyl)—D-ribose, a novel sugar-derived hexadentate ligand, were investigated using a combination of experimental and theoretical approaches. In the complexes with Mn^{II} , Co^{II} , Ni^{II} , and Zn^{II} , the coordination bond lengths reveal significant departures from perfect octahedral, with deformation towards trigonal-prismatic geometries, indicating a conformationally constrained ligand. The metal-ligand interactions for D-Ribose and its acyclic analogue ligand [1, 2, 3-tri-O-(2-picolyl)-1,2,3-propanetriol] were investigated using spectroscopic techniques and isothermal calorimetric

titrations for the series Mn^{II} , Co^{II} , Ni^{II} , Zn^{II} , and Cu^{II} . Depending on the nature of the metal, the results show that the complexes produced with D-Ribose are more stable than those obtained with According to molecular modelling studies; the presence of the sugar moiety greatly favours conformations that are compatible with metal binding. In many ways, a close comparison can be sketched between metal complexation and other host-guest interactions. To describe them both, several molecular variables have to be taken into consideration. One of the most complex variables is the relation between the conformational flexibility of the ligand and the binding strength of the metal cation. For ligands with a reduced number of low-energy conformations, relatively straightforward estimations of the binding same wavelength of metal cations as well as a direct interaction between structural and thermodynamic data are available. However, for ligands with a huge number of degrees of freedom, the correct orientation of the chelating groups becomes one of the most important issues in metal-ion identification processes. For coordination chemists, the prediction and understanding about coordination properties of new ligands is one the most challenging tasks. We decided to investigate how entropic and enthalpic variables can impact on metal binding and selectivity for systems with a substantial number of degrees of freedom.

Ferric complexes of sugar-type ligand

$Fe(III)$ complexes formed with sugar-type ligands such as aldoses, ketoses, polyalcohols, sugar acids, di and trisaccharides was prepared. These complexes composition was determined by standard analytical methods. Deprotonated alcoholic hydroxy groups participate in the complex formation which results in the formation of polynuclear species. Mossbauer spectra reflected the presence of high spin iron(III) central atoms. EPR spectra showed antiferromagnetic

interactions between the iron(III) centres in the complexes indicating dimeric or oligomeric complex structures. Depending upon the nature of a ligand as well as on the preparation mode of the complexes the ratio of interacting and isolated iron(III) is calculated. Formation of polynuclear iron(III) complexes of D-fructose, sorbose, lactobionic acid, glucose, galactose, mannose, and lactose were shown by the analysis and structural study by the sugar type ligand with ferric system. Ferric complexes of reducing sugars also contained ferrous species in some cases. The combination of Mossbauer spectroscopic measurements with ERP or magnetic susceptibility studies has led valuable information concerning the intramolecular and electronic structure on which the system has been developed.



Structure of D-Ribose

Celite

Celite is a naturally occurring, soft, siliceous sedimentary rock that can be crumbled into a fine white to off-white powder. It has a particle size ranging from more than 3 μm to less than 1 mm, but typically 10 to 200 μm . Depending on the granularity, this powder can have an abrasive feel, similar to pumice powder, and has a low density as a result of its high porosity. The typical chemical composition of oven-dried celite is 80–90% silica, with 2–4% alumina (attributed mostly to clay minerals), and 0.5–2% iron oxide.

Celite consists of fossilized remains of diatoms, a type of hard-shelled protist. It is used as a filtration aid, mild abrasive in products including metal polishes and toothpaste, mechanical insecticide, absorbent for liquids, matting agent for coatings, reinforcing filler in plastics and rubber, anti-block in plastic films, porous support for chemical catalysts, litter boxes, activator in coagulation studies, a stabilizing component of dynamite, a thermal insulator, and a soil for potted plants and trees like bonsai.

Usages

Filtration: The Celle engineer, Wilhelm Berkefeld, recognized the ability of the celite to filter and developed tubular filters (known as filter candles) fired from celite. During the cholera epidemic in Hamburg in 1892, these Berkefeld filters were used successfully. One form of celite is used as a filter medium, especially for swimming pools. It has a high porosity because it is composed of microscopically small, hollow particles. Celite is used in chemistry as a filtration aid, to increase flow rate, and filter very fine particles that would otherwise pass through or clog filter paper. It is also used to filter water, particularly in the drinking water

treatment process and in fish tanks, and other liquids, such as beer and wine. It can also filter syrups, sugar, and honey without removing or altering their color, taste, or nutritional properties.

Catalyst support: Celite also finds some use as a support for catalysts, generally serving to maximize a catalyst's surface area and activity. For example, nickel can be supported on the material—the combination is called Ni-Kieselguhr—to improve its activity as a hydrogenation catalyst.

Adsorbent: Celite is also used as an adsorbent in the process of adsorption.



Powdered Celite

Chapter-III

ATOMIC ABSORPTION SPECTROMETRY

Atomic absorption spectrometry (AAS) is an analytical technique that measures the concentrations of elements. Atomic absorption is so sensitive that it can measure down parts per billion of a gram ($\mu\text{g dm}^{-3}$) in a sample. The technique makes use of the wavelengths of light specifically absorbed by an element. They correspond to the energies needed to promote electrons from one energy level to another, higher, energy level.

Atomic absorption spectrometry has many uses in different areas of chemistry.

Clinical analysis: Analysing metals in biological fluids such as blood and urine.

Environmental analysis: Monitoring our environment- eg finding out the levels of various elements in rivers, seawater, drinking water, air, petrol and drinks such as wine, beer and fruit drinks.

Pharmaceuticals: In some pharmaceutical manufacturing processes, minute quantities of a catalyst used in the process (usually a metal) are sometimes present in the final product. By using AAS the amount of catalyst present can be determined.

Industry: Many raw materials are examined and AAS is widely used to check that the major elements are present and that toxic impurities are lower than specified- eg in concrete, where calcium is a major constituent, the lead level should be low because it is toxic.

Mining: By using AAS the amount of metals such as gold in rocks can be determined to see whether it is worth mining the rocks to extract the gold.

How it works

Atoms of different elements absorb characteristic wavelengths of light. Analysing a sample to see if it contains a particular element means using light from that element. For example with lead, a lamp containing lead emits light from excited lead atoms that produce the right mix of wavelengths to be absorbed by any lead atoms from the sample. In AAS, the sample is atomized- i.e. converted into ground state free atoms in the vapour state- and a beam of electromagnetic radiation emitted from excited lead atoms is passed through the vaporized sample. Some of the radiation is absorbed by the lead atoms in the sample. The greater the number of atoms there is in the vapour, the more radiation is absorbed. The amount of light absorbed is proportional to the number of lead atoms. A calibration curve is constructed by running several samples of known lead concentration under the same conditions as the unknown. The amount the standard absorbs is compared with the calibration curve and this enables the calculation of the lead concentration in the unknown sample.

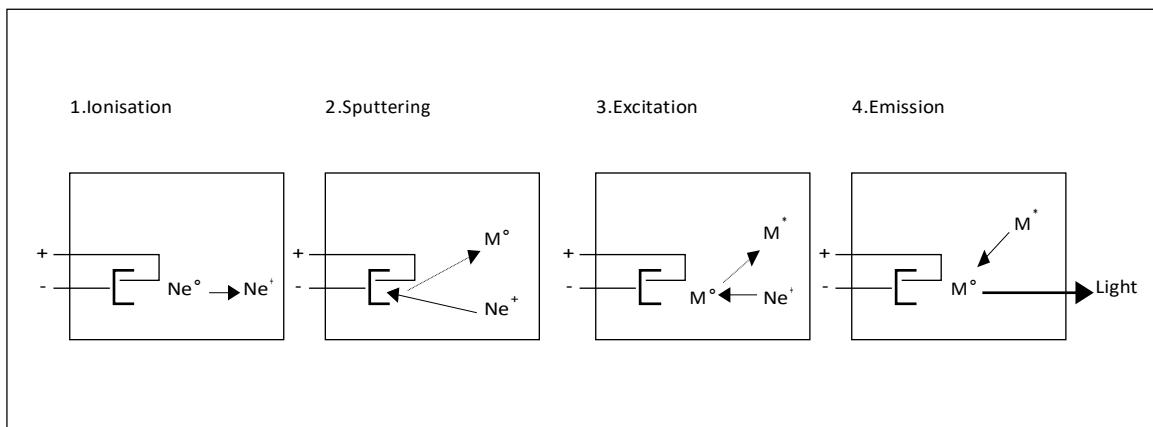
Consequently an atomic absorption spectrometer needs the following three components: a light source; a sample cell to produce gaseous atoms; and a means of measuring the specific light absorbed.

The light source

The common source of light is a 'hollow cathode lamp'. This contains a tungsten anode and a cylindrical hollow cathode made of the element to be determined. These are sealed in a glass tube filled with an inert gas- e.g neon or argon- at a pressure of between 1 Nm^{-2} and 5 Nm^{-2} .

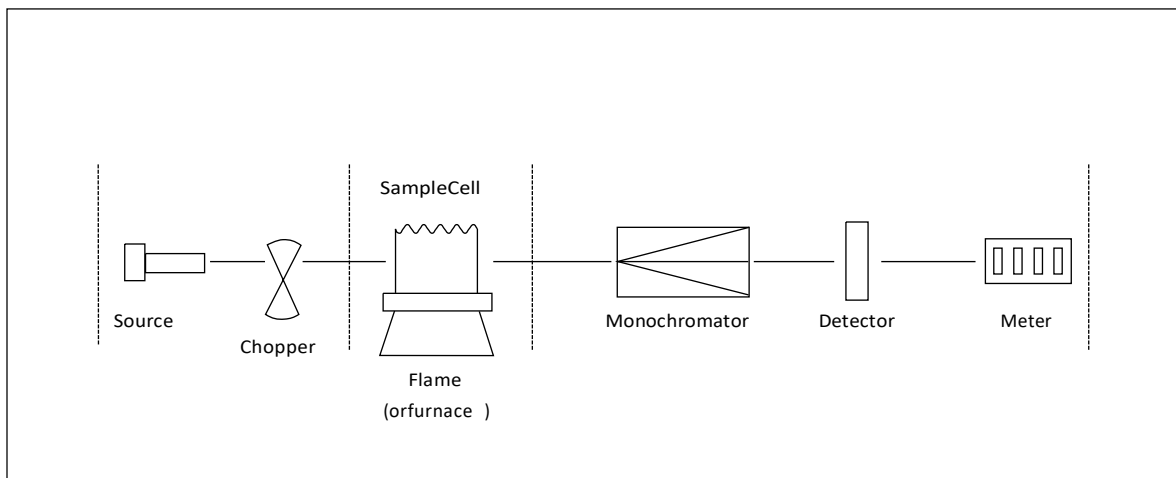


The ionization of some gas atoms occurs by applying a potential difference of about 300-400V between the anode and the cathode. These gaseous ions bombard the cathode and eject metal atoms from the cathode in a process called sputtering. Some sputtered atoms are in excited states and emit radiation characteristic of the metal as they fall back to the ground state – $eg Pb^* \rightarrow Pb + h\nu$. The shape of the cathode concentrates the radiation into a beam which passes through a quartz window, and the shape of the lamp is such that most of the sputtered atoms are redeposited on the cathode. A typical atomic absorption instrument holds several lamps each for a different element. The lamps are housed in a rotating turret so that the correct lamp can be quickly selected.



The optical system and detector

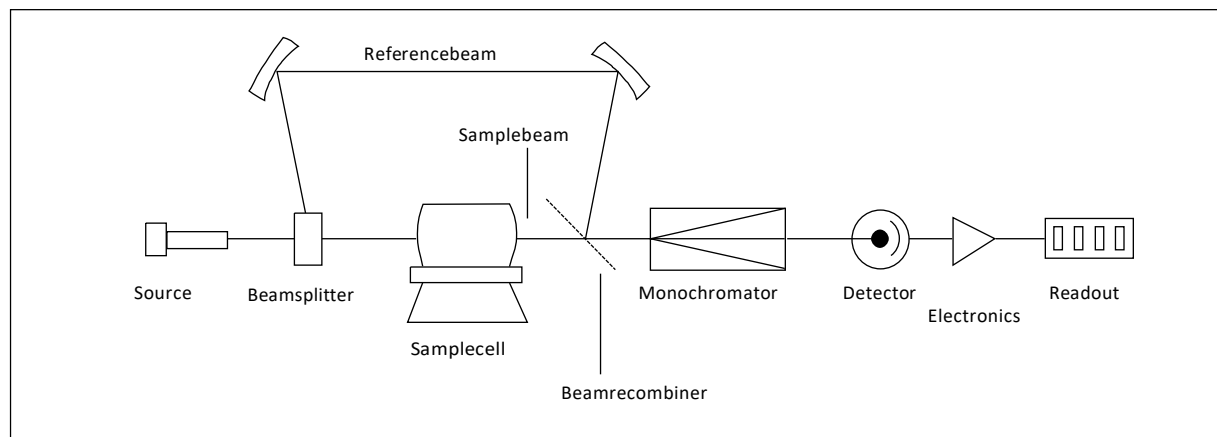
A monochromator is used to select the specific wavelength of light –ie spectral line – which is absorbed by the sample, and to exclude other wavelengths. The selection of the specific light allows the determination of the selected element in the presence of others. The light selected by the monochromator is directed onto a detector that is typically a photomultiplier tube. This produces an electrical signal proportional to the light intensity



Double beam spectrometers

Modern spectrometers incorporate a beam splitter so that one part of the beam passes through the sample cell and the other is the reference . The intensity of the light source may not stay constant during an analysis. If only a single beam is used to pass through the atom cell, a blank reading containing no analyte (substance to be analysed) would have to be taken first, setting the absorbance at zero. If the intensity of the source changes by the time the sample is put in place, the measurement will be inaccurate. In the double beam instrument there is a constant monitoring between the reference beam and the light source. To ensure that the spectrum does

not suffer from loss of sensitivity, the beam splitter is designed so that as high a proportion as possible of the energy of the lamp beam passes through the sample.



Atomisation of the sample

Two systems are commonly used to produce atoms from the sample. Aspiration involves sucking a solution of the sample into a flame; and electrothermal atomisation is where a drop of sample is placed into a graphite tube that is then heated electrically.

Some instruments have both atomisation systems but share one set of lamps. Once the appropriate lamp has been selected, it is pointed towards one or other atomisation system.

Flame aspiration

Ethyne/air (giving a flame with a temperature of 2200–2400°C) or ethyne/dinitrogen oxide (2600–2800°C) are often used. A flexible capillary tube connects the solution to the nebuliser. At the tip of the capillary, the solution is ‘nebulised’ –ie broken into small drops. The larger drops fall out and drain off while smaller ones vaporise in the flame. Only ca 1% of the sample is nebulised.

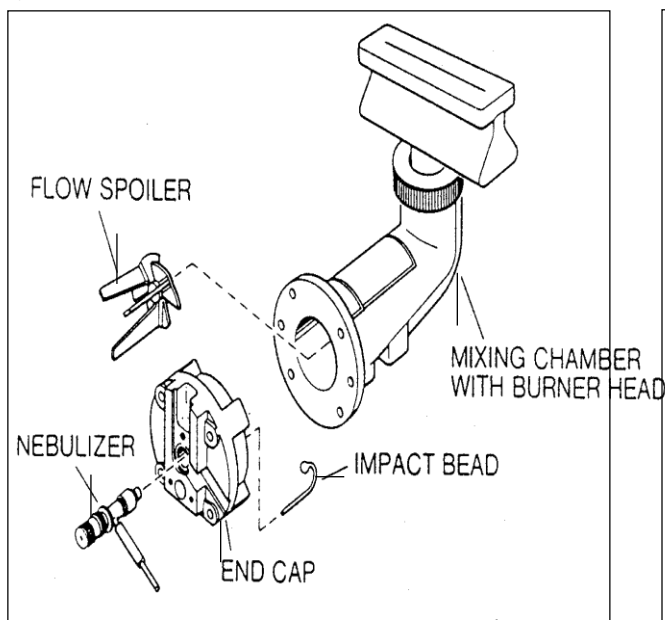


Figure 1

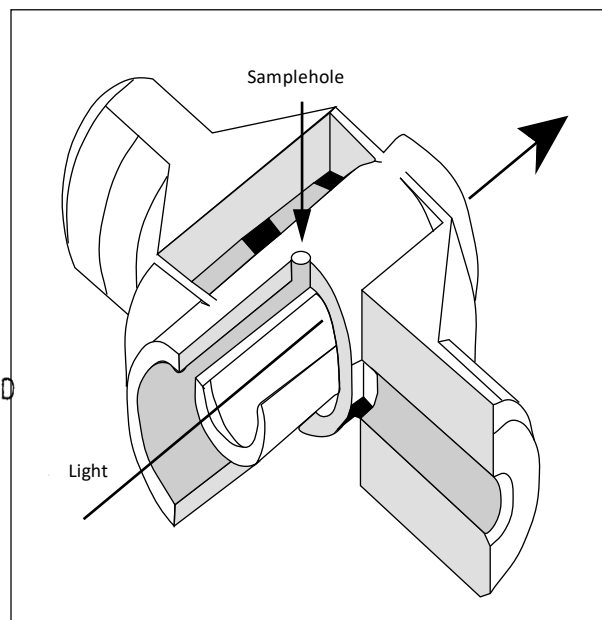


Figure 2

Electro-thermal atomization

25 μl of sample (ca 1/100th of a raindrop) is placed through the sample hole and onto the platform from an automated micropipette and sample changer. The tube is heated electrically by passing a current through it in a pre-programmed series of steps. The details will vary with the sample but typically they might be 30–40 seconds at 150°C to evaporate the solvent, 30 seconds at 600°C to drive off any volatile organic material and char the sample to ash, and with a very fast heating rate (ca 1500 °C s⁻¹) to 2000-2500°C for 5–10 seconds to vaporise and atomise elements (including the element being analysed). Finally heating the tube to a still higher temperature –ca 2700°C – cleans it ready for the next sample. During this heating cycle the graphite tube is flushed with argon gas to prevent the tube burning away. In electrothermal atomisation almost 100% of the sample is atomised. This makes the technique much more sensitive than flame AAS.

Sample preparation

Sample preparation is often simple, and the chemical form of the element is usually unimportant. This is because atomisation converts the sample into free atoms irrespective of its initial state. The sample is weighed and made into a solution by suitable dilution. Elements in biological fluids such as urine and blood are often measured simply after a dilution of the original sample.



When making reference solutions of the element under analysis, for calibration, the chemical environment of the sample should be matched as closely as possible –i.e. the analyte should be in the same compound and the same solvent. Teflon containers may be used when analyzing very dilute solutions because elements such as lead are sometimes leached out of glass vessels and can affect the results

Background absorption

It is possible that other atoms or molecules apart from those of the element being determined will absorb or scatter some radiation from the light source. These species could

include unvaporised solvent droplets, or compounds of the matrix (chemical species, such as anions, that tend to accompany the metals being analysed) that are not removed completely. This means that there is a background absorption as well as that of the sample.

One way of measuring and correcting this background absorption is to use two light sources, one of which is the hollow cathode lamp appropriate to the element being measured. The second light source is a deuterium lamp.

The deuterium lamp produces broad band radiation, not specific spectral lines as with a hollow cathode lamp. By alternating the measurements of the two light sources – generally at 50 –100 Hz – the total absorption (absorption due to analyte atoms plus background) is measured with the specific light from the hollow cathode lamp and the background absorption is measured with the light from the deuterium lamp. Subtracting the background from the total absorption gives the absorption arising from only analyte atoms.

Calibration

A calibration curve is used to determine the unknown concentration of an element –*eg* lead – in a solution. The instrument is calibrated using several solutions of known concentrations. A calibration curve is produced which is continually rescaled as more concentrated solutions are used – the more concentrated solutions absorb more radiation up to a certain absorbance. The calibration curve shows the concentration against the amount of radiation absorbed in the given figure. (a) The sample solution is fed into the instrument and the unknown concentration of the element –*e.g.* lead – is then displayed on the calibration curve given in the below figure. (b)

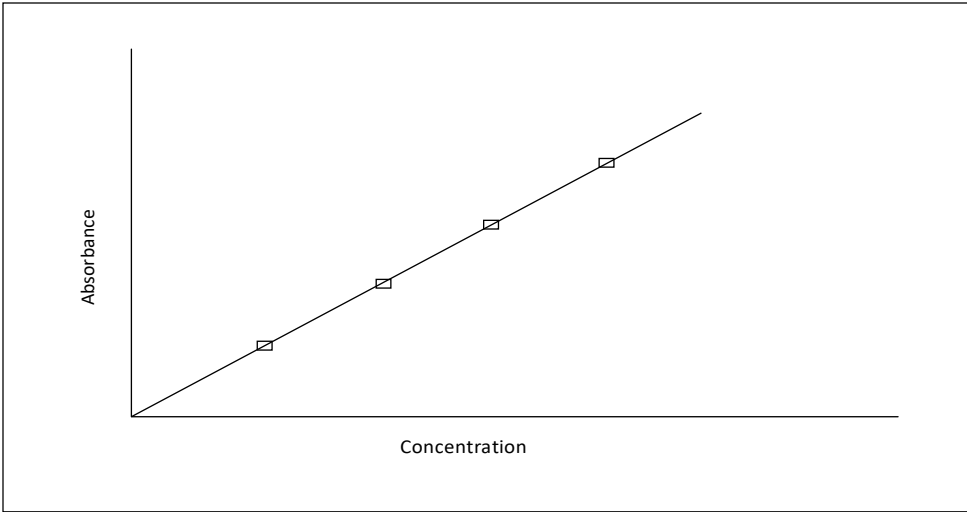


Figure (a)

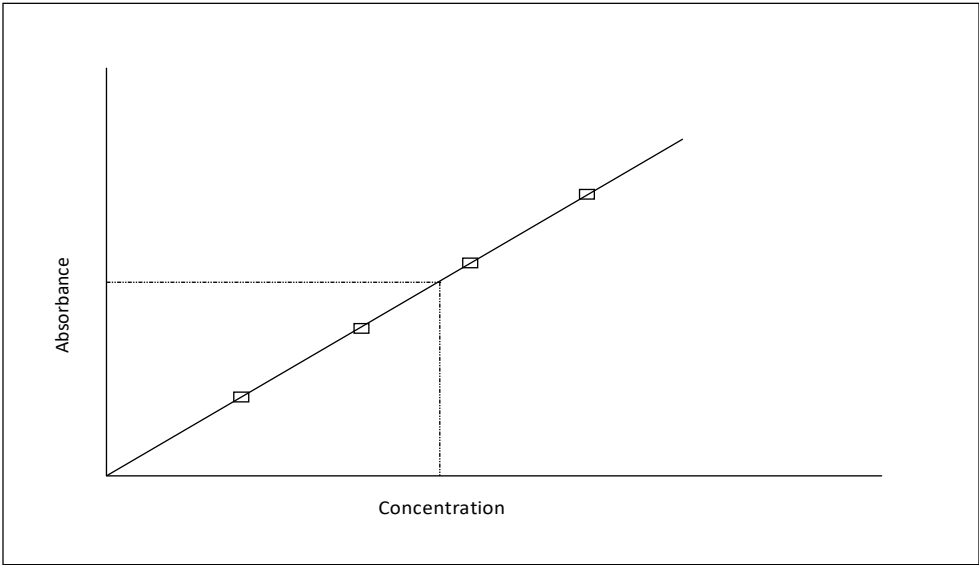


Figure (b)

Interferences and matrix modification

Other chemicals that are present in the sample may affect the atomisation process. For example, in flame atomic absorption, phosphate ions may react with calcium ions to form calcium pyrophosphate. This does not dissociate in the flame and therefore results in a low reading for calcium. This problem is avoided by adding different reagents to the sample that may react with the phosphate to give a more volatile compound that is dissociated easily. Lanthanum nitrate solution is added to samples containing calcium to tie up the phosphate and to allow the calcium to be atomised, making the calcium absorbance independent of the amount of phosphate. With electrothermal atomisation, chemical modifiers can be added which react with an interfering substance in the sample to make it more volatile than the analyte compound. This volatile component vaporises at a relatively low temperature and is removed during the low and medium temperature stages of electrothermal atomisation.

Chapter-IV

METHODOLOGY

MATERIALS REQUIRED

- Ferric chloride Hexahydrate
- D- Ribose
- Celite
- Volumetric flask
- Digital Weighing Machine
- Watch glasses
- Hot air oven
- Ultra pure water (Demineralized)
- 2% of Nitric acid

PROCEDURE

1. Using a 250ml Volumetric flask prepare a metal ligand solution by adding 100ppm of Ferric chloride Hexahydrate (MOLYCHEM MCR-11580) and 200ppm of D-Ribose (Avra N2200133). Prepare 250ml solution by adding Ultra pure water and then keep this system aside for a few hours.
2. Weigh 5 grams of Celite(Avra N2001901) using a Digital weighing machine (Citizen Scales(I) PVT LTD CTG302-300) and take this into a beaker.

3. Now add 100ml of the above prepared metal ligand solution into the beaker and stir the mixture well for 10 minutes using a glass rod.
4. Keep this mixture aside for 48 hours without disturbing it as at this step Ferric is going to be adsorbed on Celite in the presence of D-Ribose which acts as a chelating agent.
5. After completion of 48 hours take the mixture and filter it off using Whatman Grade 1 filter paper and a funnel.
6. After filtration of the mixture again add Ultra pure water for 3 times and then filtrate it to obtain pure concentration of Ferric which is get adsorbed on Celite.
7. Collect the filtered Celite powder and place it on a watch glass and keep this in a Hot air oven at 60 °C for 10 hours to get rid off moisture present in it.
8. Now weigh each 1 gm of Celite in glass vials.
9. Now take a beaker and rinse it with ultra pure water then followed by Nitric acid.
10. Take 0.5 grams of Celite sample in the beaker and add 2% of Nitric acid and stir the mixture well for 10-15 minutes.
11. Filter the mixture using Whatman Grade 1 filter paper and again 3 times by using Ultra pure water to obtain pure concentration of Ferric present in the mixture prepared using the sample.
12. Take this collected sample solution and keep this system under AAS (Thermo Scientific iCE 3300)
13. Calculate the concentration of Ferric adsorbed on Celite at different ppm levels. Observe the graph obtained and note down the readings of the result we obtained.
14. Same Experiment carried out without the interference/addition of Ligand i.e. D-Ribose for Control Experiment.



Ferric chloride Hexahydrate, D-Ribose, Celite



Preparing 250 ml of metal ligand solution using volumetric flask



Samples with metal ligand solution





Addition of Celite to Metal-Ligand Solution





Measuring Flask



Watch glass



Spatula

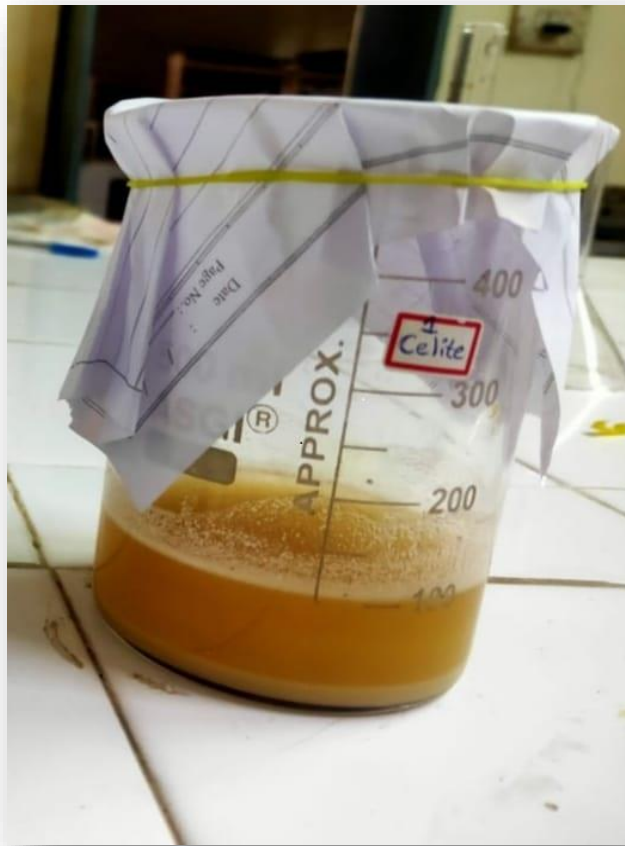


Digital Weighing Machine



Hot air Oven





Celite added to Metal Ligand solution is prepared



Glass Vials



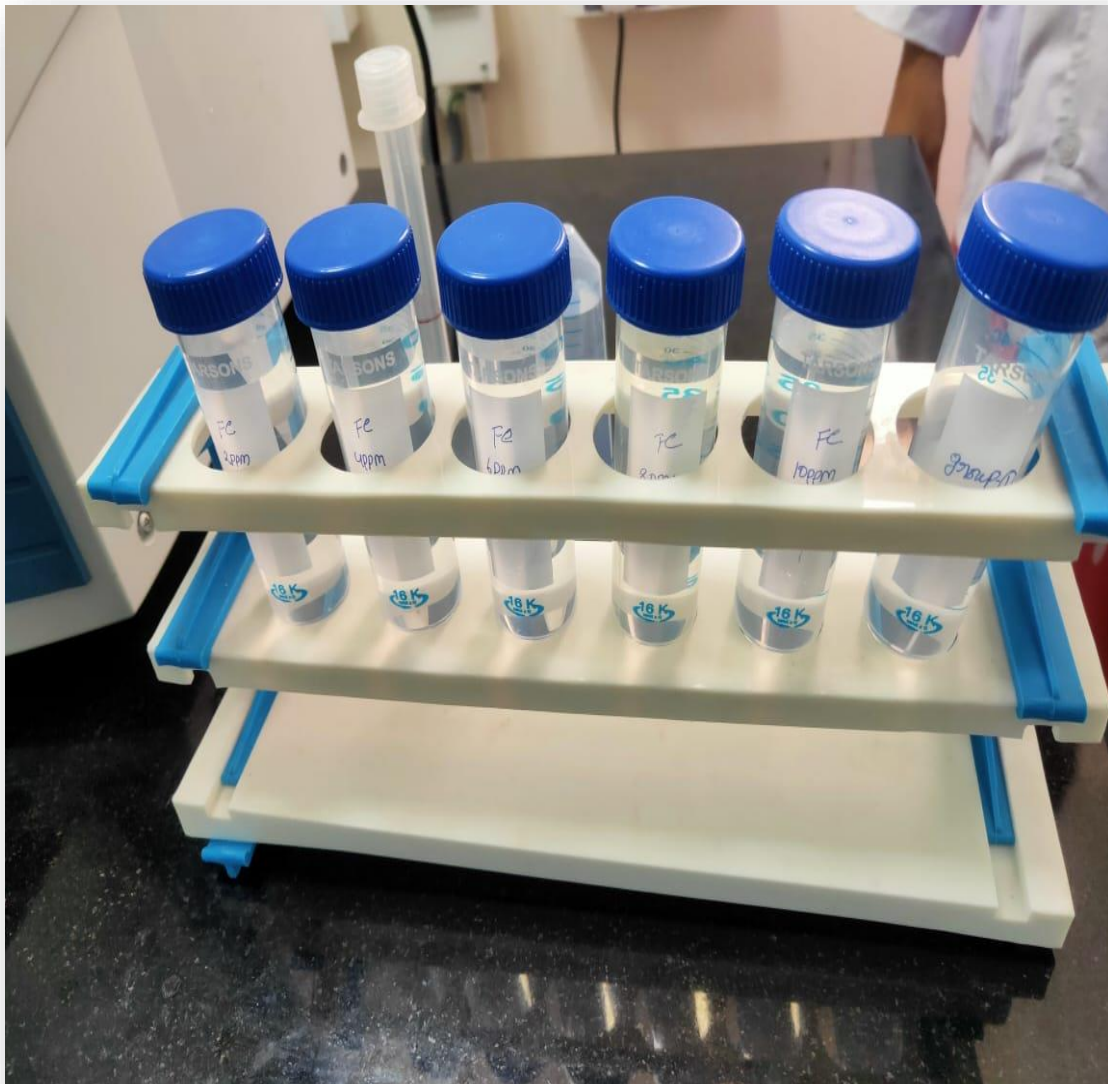
Collecting Celite sample into glass vials



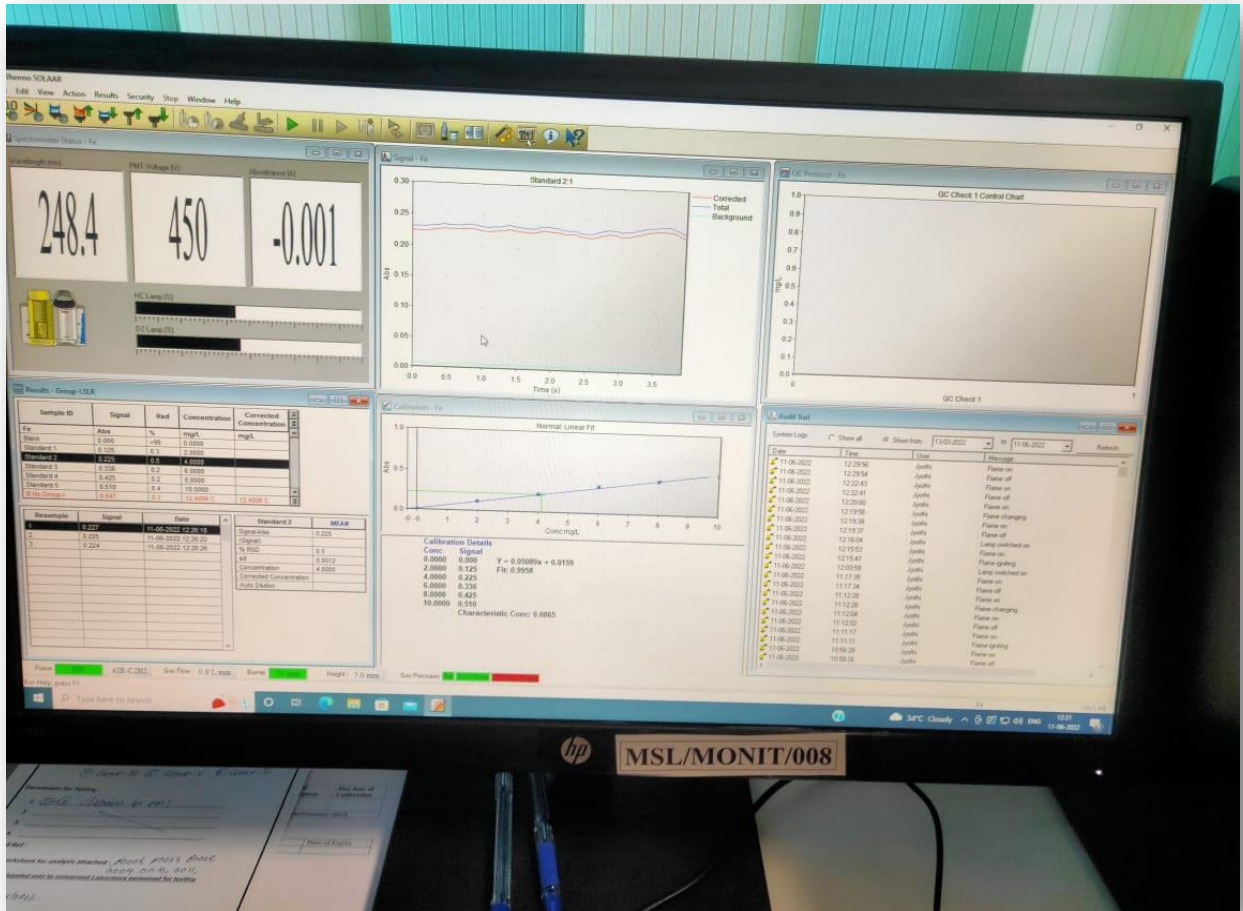
Collected Samples



Atomic absorption spectrometer



Sample added to 2% of Nitric acid

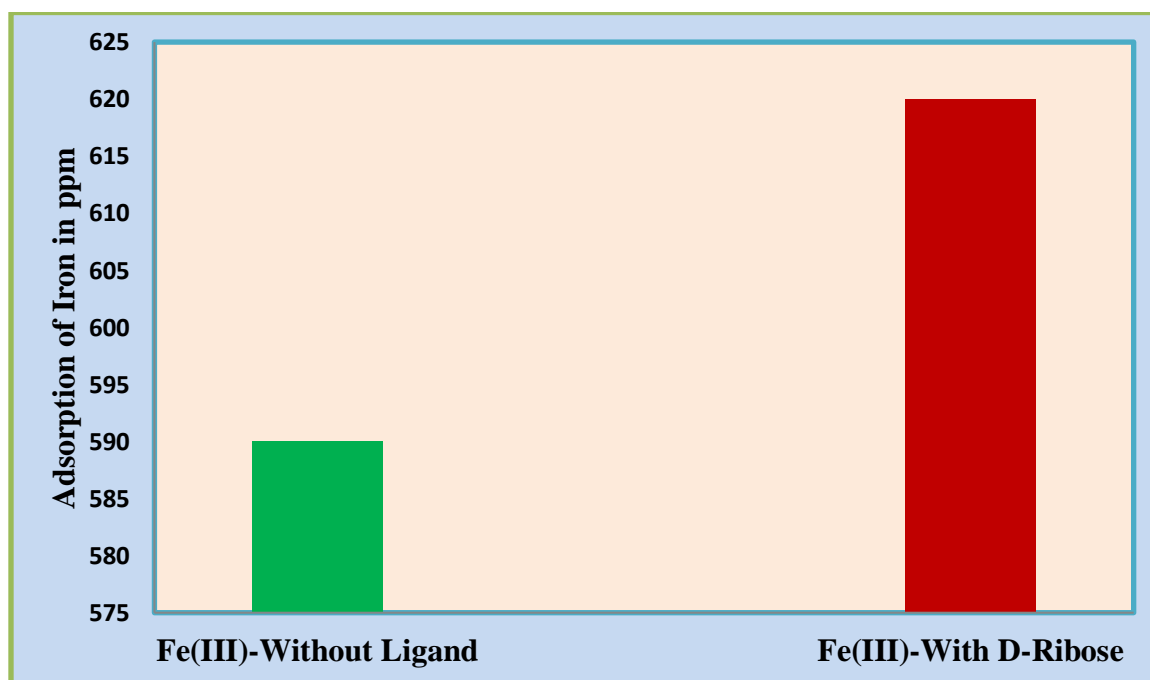


Results obtained on the Computer System under AAS Method

Chapter-V

RESULTS AND DISCUSSION

Celite adsorbs **620** ppm of Iron metal from aqueous solution of Fe(III)-D-Ribose metal ligand solution. Whereas, Celite adsorbs only **590** ppm when D-Ribose is absent. It is evident from the AAS results, ligand involvement enhanced the metal adsorption by initiating potential chemical interactions between adsorbate and adsorbent. D-Ribose firmly interacts with Fe(III) to form a stable complex in aqueous condition. The complex coordination sphere in the resulted complex facilitates strong interactions with the polar points of the adsorbent, Celite. From the AAS results, it is conclusive that **5.08** % of adsorption increased in the presence of D-Ribose as chelating agent.



Impact of D-Ribose on Adsorption of Fe (III) ions from aqueous solution by Celite

Spectrometer Parameters-Fe

Element: Fe Wavelength: 248.3nm Background Correction: D2 Signal Type: Continuous Measurement Time: 4.0secs Use RSD Test : No	Measurement Mode: Absorbance Bandpass:0.2nm High Resolution: Off Resamples: Fast Flier Mode: No	Lamp Current: 75% Optimise Spectrometer Parameters: No Number Of Resamples: 3
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Flame Parameters-Fe

Flame Type: Air-C2H2 Nebuliser Uptake: 4secs Burner Height: 7.0mm	Fuel Flow: 0.9 L/min Burner Stabilisation :0mins Optimise Burner Height: No	Auxiliary Oxidant: Off Optimise Fuel Flow: No
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Calibration Parameters -Fe

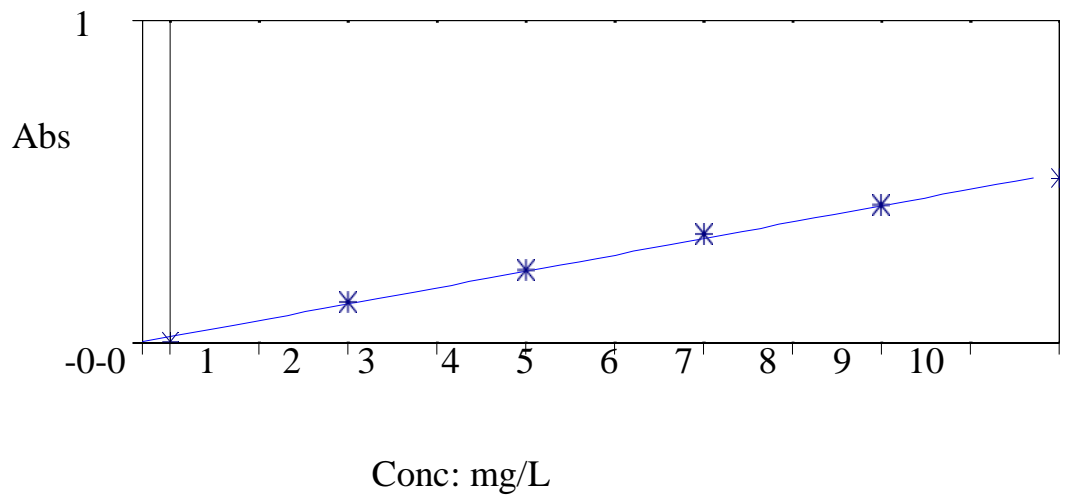
Calibration Mode: Normal	Line Fit: Linear	Use Stored Calibration: No
Concentration Units: mg/L	Scaled Units: mg/L	Scaling Factor: 1.0000
Acceptable Fit: 0.990	Rescale Limit : 10.0%	Failure Action: Flag and Continue
Standard 1 2.0000		Standard 4 8.0000
Standard 2 4.0000		Standard 5 10.0000
Standard 3 6.0000		

Solution Results – Fe

$$Y=0.05089x+ 0.0159$$

Fit:0.9958

CharacteristicConc:0.0865Normal: Linear Fit



Sample ID	Signal	Rsd	Conc
	Abs	%	mg/L
Fe Blank	0.000	>99	0.0000
1	0.000	Background:	0.000
2	-0.000	Background:	0.000
3	-0.000	Background	0.000
Fe Standard 1	0.125	0.3	2.0000
1	0.125	Background:	0.006
2	0.125	Background:	0.006
3	0.126	Background:	0.006
Fe Standard 2	0.225	0.5	4.0000
1	0.227	Background:	0.007
2	0.225	Background:	0.007
3	0.224	Background:	0.007
Fe Standard 3	0.336	0.2	6.0000
1	0.336	Background :	0.008
2	0.336	Background :	0.008
3	0.335	Background:	0.008
Fe Standard 4	0.425	0.2	8.0000
1	0.426	Background :	0.009
2	0.425	Background:	0.008

3	0.425	Background :	0.009
Fe Standard 5	0.510	0.4	10.0000
1	0.510	Background:	0.009
2	0.509	Background:	0.009
3	0.513	Background:	0.009
Fe B.No.Group-I	0.647	0.3	12.4006C
1	0.647	Background:	0.006
2	0.649	Background:	0.006
3	0.645	Background:	0.006
Celite-Control	0.647	0.3	11.8005C
1	0.614	Background:	0.008
2	0.615	Background:	0.008
3	0.615	Background:	0.008

TEST RESULTS

S.No.	Test Parameter	Sample	Result
01.	Iron by AAS Analysis: (ppm)	Fe(III)-D-Ribose- Celite Sample	620ppm
01.	Iron by AAS Analysis: (ppm)	Fe(III)- Celite Sample (Control)	590ppm

CONCLUSION

From the current project it is clear that D-Ribose as a Chelating agent has played a vital role in adsorption of Fe (III) ions from aqueous solution and increases the adsorption up to **5.08%**. This aspect will be useful in designing the newer strategies of Heavy metal Remediation techniques using Natural Chelating Ligands as Facilitating agents in Metal Adsorption processes.

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Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

General Parameters

Method : Iron (Fe)

Operator : Jyothi

Instrument Mode: Flame

Autosampler : None

Dilution: None

Use SFI: No

Valid Method Signatures

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Method Audit Trail

11-06-2022 17:22:18 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Details

Analysis Name: Iron (Fe) 11-06-2022

Spectrometer: ICE 3000 AA01204906 v1.30

Operator Name: Jyothi

Lamp Information

Element(s)	Serial Number	mA Hours
Fe	n/a	n/a

Deuterium Lamp Hours: 68.34

Sequence Table

Shared Standards: Yes

Action	Fe
Calibration	✓
B.No.Group-II	✓
B.No.Group-III	✓
B.No.Group-IV	✓
B.No.Group-V	✓
B.No.Group-VI	✓

Sample Details

No.	Sample Id	Nominal Mass: 1.0000 Sample Mass	Dilution Ratio
1	B.No.Group-II	1.0000	1.0000
2	B.No.Group-III	1.0000	1.0000
3	B.No.Group-IV	1.0000	1.0000
4	B.No.Group-V	1.0000	1.0000
5	B.No.Group-VI	1.0000	1.0000

Valid Analysis Signatures

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Audit Trail

11-06-2022 17:30:16 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:38:27 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Error MD147 - Activity manually aborted by user.

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Spectrometer Parameters - Fe

Element: Fe

Measurement Mode: Absorbance

Wavelength: 248.3nm

Bandpass: 0.2nm

Lamp Current: 75%

Background Correction: D2

High Resolution: Off

Optimise Spectrometer Parameters: No

Signal Type: Continuous

Resamples: Fast

Number Of Resamples: 3

Measurement Time: 4.0secs

Flier Mode: No

Use RSD Test: No

Flame Parameters - Fe

Flame Type: Air-C2H2

Fuel Flow: 0.9L/min

Auxiliary Oxidant: Off

Nebuliser Uptake: 4secs

Burner Stabilisation: 0mins

Optimise Fuel Flow: No

Burner Height: 7.0mm

Optimise Burner Height: No

Sampling Parameters - Fe

Sampling: None

Calibration Parameters - Fe

Calibration Mode: Normal

Line Fit: Linear

Use Stored Calibration: No

Concentration Units: mg/L

Scaled Units: mg/L

Scaling Factor: 1.0000

Acceptable Fit: 0.990

Rescale Limit: 10.0%

Failure Action: Flag and Continue

Standard 1	2.0000
Standard 2	4.0000
Standard 3	6.0000

Standard 4	8.0000
Standard 5	10.0000

Element Audit Trail - Fe

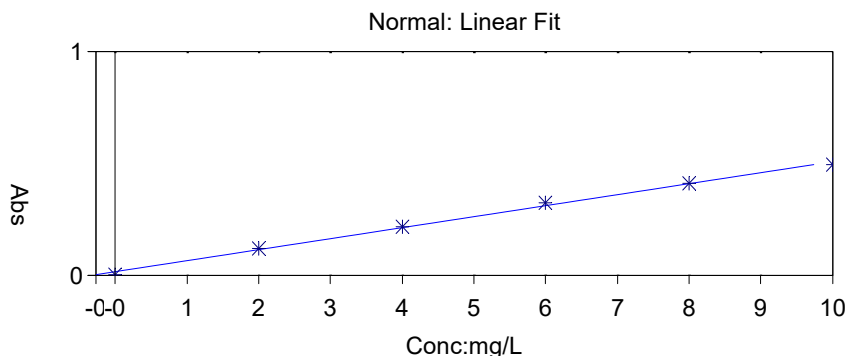
No changes are recorded for this element

Solution Results - Fe

$$Y = 0.04924x + 0.0141$$

Fit: 0.9965

Characteristic Conc: 0.0894



Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Blank	0.001	35.6	0.0000	
1	0.001	Background: -0.003		11-06-2022 17:31:26
2	0.001	Background: -0.003		11-06-2022 17:31:30
3	0.000	Background: -0.003		11-06-2022 17:31:35
Fe Standard 1	0.120	0.3	2.0000	
1	0.120	Background: 0.003		11-06-2022 17:32:05
2	0.119	Background: 0.003		11-06-2022 17:32:09
3	0.120	Background: 0.003		11-06-2022 17:32:13
Fe Standard 2	0.215	0.3	4.0000	
1	0.215	Background: 0.004		11-06-2022 17:32:40
2	0.215	Background: 0.004		11-06-2022 17:32:45
3	0.216	Background: 0.004		11-06-2022 17:32:49
Fe Standard 3	0.322	0.2	6.0000	
1	0.323	Background: 0.005		11-06-2022 17:33:19
2	0.322	Background: 0.005		11-06-2022 17:33:23
3	0.322	Background: 0.005		11-06-2022 17:33:27
Fe Standard 4	0.411	0.3	8.0000	
1	0.410	Background: 0.005		11-06-2022 17:33:59
2	0.412	Background: 0.005		11-06-2022 17:34:03
3	0.412	Background: 0.005		11-06-2022 17:34:07

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Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Solution Results - Fe

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Standard 5	0.493	0.1	10.0000	
1	0.494	Background: 0.005		11-06-2022 17:34:38
2	0.494	Background: 0.005		11-06-2022 17:34:42
3	0.493	Background: 0.006		11-06-2022 17:34:46
Fe B.No.Group-II	0.834	0.1	16.6490 C	16.6490 C
1	0.834	Background: 0.005		11-06-2022 17:35:14
2	0.833	Background: 0.005		11-06-2022 17:35:19
3	0.834	Background: 0.005		11-06-2022 17:35:23
Fe B.No.Group-III	0.759	0.1	15.1286 C	15.1286 C
1	0.758	Background: 0.003		11-06-2022 17:35:52
2	0.760	Background: 0.003		11-06-2022 17:35:56
3	0.758	Background: 0.004		11-06-2022 17:36:00
Fe B.No.Group-IV	0.645	0.3	12.8189 C	12.8189 C
1	0.647	Background: 0.003		11-06-2022 17:36:31
2	0.644	Background: 0.003		11-06-2022 17:36:35
3	0.645	Background: 0.003		11-06-2022 17:36:40
Fe B.No.Group-V	0.809	0.2	16.1488 C	16.1488 C
1	0.808	Background: 0.005		11-06-2022 17:37:11
2	0.809	Background: 0.005		11-06-2022 17:37:15
3	0.811	Background: 0.005		11-06-2022 17:37:20
Fe B.No.Group-VI	0.711	0.3	14.1597 C	14.1597 C
1	0.709	Background: 0.005		11-06-2022 17:37:55
2	0.713	Background: 0.005		11-06-2022 17:37:59
3	0.712	Background: 0.004		11-06-2022 17:38:03

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DCA Approval No: 05/ML/TS/2020/G

CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-1 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	--

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-I Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Temperature : 25°C±3°C Batch : NA
Room Temperature : 25°C±3°C size
Quantity Received : 4gm
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	620ppm

Authorized Signatory

(Dr.R.Marayya)

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CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer:

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Prashanth Nagar Colony, Balajinagar
Sangareddy Telangana. 502000
Contact Person: Dr. Abhijeet
Contact Number :9502344392

Reference / Report No. : MSL/2022/JUNE/TARA/0064-2
Sample Received Date : 11/06/2022
Report Date : 13/06/2022

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-II Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Room Temperature : 25°C±3°C Temperature Batch : NA
Quantity Received : 4gm size
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	832.5ppm

Authorized Signatory

(Dr.R.Marayya)

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---	---

DETAILS OF THE SAMPLE

Sample Name	: NA	Mfg.	: NA	Exp.	: NA
Name of the Manufacturer	: NA	date		date	
Batch no	: Group-III	Batch		Batch	: NA
Storage condition	: To be stored at room	size		size	
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	756.5ppm

Authorized Signatory

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-4 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	--

DETAILS OF THE SAMPLE

Sample Name	: NA				
Name of the Manufacturer	: NA				
Batch no	: Group-IV	Mfg. date	: NA	Exp. date	: NA
Storage condition	: To be stored at room Temperature			Batch size	: NA
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	641ppm

Authorized Signatory

(Dr.R.Marayya)

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-5 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
DETAILS OF THE SAMPLE	
Sample Name : NA	
Name of the Manufacturer : NA	
Batch no : Group-V	Mfg. : NA Exp. : NA
Storage condition : To be stored at room	date : NA
Room Temperature : 25°C±3°C	Batch : NA
Quantity Received : 4gm	size
Tests Required : Iron by AAS Analysis.	
Method : NA	
Analysis Starting Date : 11/06/2022	
Analysis Completion Date : 11/06/2022	
Mfg. License No. : Not provided	
A.R.NO : NA	
Remark : Sample analyzed as received	

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	807.5ppm

Authorized Signatory

(Dr.R.Marayya)

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---	---

DETAILS OF THE SAMPLE

Sample Name	: NA	Mfg.	: NA	Exp.	: NA
Name of the Manufacturer	: NA	date		date	
Batch no	: Group-VI	Batch		Batch	: NA
Storage condition	: To be stored at room	size		size	
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	708ppm

Authorized Signatory

(Dr.R.Marayya)

**ADSORPTION STUDIES OF Fe[III] ON
ACTIVATED CHARCOAL IN THE PRESENCE
OF LACTIC ACID AS CHELATING AGENT**

*Dissertation submitted in Partial fulfillment for the requirements for the award of
degree of*

*Bachelor of Science
in
CHEMISTRY*

By

1. MukthiKanth Rout, B.Sc (Chemistry) , III Year
2. S.Raja Ramesh, B.Sc (Chemistry) , III Year
3. P.Sujil Kumar, B.Sc (Chemistry) , III Year
4. Ch.srinivas, B.Sc (Chemistry) , III Year
5. B.Mahesh Kumar, B.Sc (Chemistry) , III Year
6. B.NikhileshBabu, B.Sc (Chemistry) , III Year

Under the Guidance:

**Dr. K.ABHIJIT
HEAD
DEPARTMENT OF CHEMISTRY**



**TARA GOVERNMENT COLLEGE, SANGAREDDY (A)
2021-22**

CERTIFICATE

*This is to certify that the project work entitled “**ADSORPTION STUDIES OF Fe[III] ON ACTIVATED CHARCOAL IN THE PRESENCE OF LACTIC ACID AS CHELATING AGENT**” is presented by B.Sc (CHEMISTRY) students in partial fulfillment of the requirements for the degree of Bachelor of Science in Chemistry by the Tara Govt. College, Sangareddy(A) (Affiliated to Osmania University, Hyderabad) during the academic year 2021-2022.*

The results embodied in this report have not been to any other University or Institution for the award of any degree.

(Dr. K. ABHIJIT)

**Project Supervisor & Head, Department of Chemistry
Tara Government College, Sangareddy(A)**

EXTERNAL EVALUATOR

ACKNOWLEDGEMENTS

*We express my deep gratitude to my research supervisor **Dr.K.Abhijit**, Head, Department of Chemistry, Tara Govt. College, Sangareddy(A)-502001, INDIA for his inspiring guidance during the course of the Project work. The continuous encouragement extended by him propelled me to update my research skills and pedigree to engage in fruitful research.*

*We wish to express my gratitude to **Smt. M.Praveena**, Principal, Tara Govt. College, Sangareddy(A)-502001, INDIA for her constant support, cooperation and suggestions during the research work. We wish to express my sincere thanks to **K.Sreedhar**, Asst. Professor, and Department of Chemistry for providing me facilities, help and support for the entire research work.*

*We express our special thanks to **MART Specialities Lab, Hyderabad** for providing technical assistance in Atomic absorption spectrometric analysis.*

Finally, we take this opportunity to thank one and all that has directly or indirectly helped me in completing the task.

- 1. MukthiKanth Rout, B.Sc (Chemistry) , III Year**
- 2. S.Raja Ramesh, B.Sc (Chemistry) , III Year**
- 3. P.Sujil Kumar, B.Sc (Chemistry) , III Year**
- 4. Ch.srinivas, B.Sc (Chemistry) , III Year**
- 5. B.Mahesh Kumar, B.Sc (Chemistry) , III Year**
- 6. B.NikhileshBabu, B.Sc (Chemistry) , III Year**

DECLARATION

We hereby declare that the project report entitled “ADSORPTION STUDIES OF Fe[III] ON ACTIVATED CHARCOAL IN THE PRESENCE OF LACTIC ACID AS CHELATING AGENT” is the work done by us in the campus at Department of Chemistry, Tara Government College, Sangareddy(A) during the academic year 2021-2022 and is submitted in partial fulfillment of the requirements for the degree of Bachelor of Science by Tara Govt. College, Sangareddy(A) (Affiliated to Osmania University, Hyderabad) during the academic year 2021-2022.

S.No.	Name of the Student	Roll Number	Group	Year	Signature
1	<i>MukthiKanth Rout</i>	6058-19-578-022	<i>B.sc - MCCS</i>	<i>III</i>	
2	<i>S. Raja Ramesh</i>	6058-19-578-030	<i>B.sc - MCCS</i>	<i>III</i>	
3	<i>P. Sujil Kumar</i>	6058-19-578-027	<i>B.sc - MCCS</i>	<i>III</i>	
4	<i>Ch. Srinivas</i>	6058-19-578-008	<i>B.sc - MCCS</i>	<i>III</i>	
5	<i>B. Mahesh Kumar</i>	6058-19-578-004	<i>B.sc - MCCS</i>	<i>III</i>	
6	<i>B. NikhileshBabu</i>	6058-19-578-005	<i>B.sc - MCCS</i>	<i>III</i>	

TARA GOVERNMENT COLLEGE, SANGAREDDY – 502 001
(AUTONOMOUS)

BONAFIDE CERTIFICATE

Certified that the project report “ADSORPTION STUDIES OF Fe[III] ON

ACTIVATED CHARCOAL IN THE PRESENCE OF LACTIC ACID AS CHELATING AGENT” IS

the bonafide work of

1. MukthiKanth Rout, B.Sc (Chemistry) , III Year
2. S.Raja Ramesh, B.Sc (Chemistry) , III Year
3. P.Sujil Kumar, B.Sc (Chemistry) , III Year
4. Ch.srinivas, B.Sc (Chemistry) , III Year
5. B.Mahesh Kumar, B.Sc (Chemistry) , III Year
6. B.NikhileshBabu, B.Sc (Chemistry) , III Year

*who carried out the project work under my
supervision.*

Dr.K.ABHIJIT
PROJECT SUPERVISOR

Smt. M.PRAVEENA
PRINCIPAL

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Chapter-I

INTRODUCTION

Adsorption

Adsorption operation involves the touch of solids with both liquids and gases in which the mass switch is towards solids. The reverse of this operation is known as "desorption." Adsorption operations exploit the potential of positive solids to concentrate precise materials from fluid on to their surfaces. The adsorbed substance is known as an adsorbate, and the solid substance is known as an adsorbent. Typical packages of this stable-liquid operation are as follows:

- Gas: Elimination of moisture dissolved in gas
- de-colorization of petroleum merchandize and sugar answers
- water for the removal of objectionable flavours and odours.

The stable-gasoline operations consist of:

- Dehumidification of air and gases
- Gas purification is the process of removing noxious odours and impurities from gases.
- The recovery of precious solvent vapours from dilute gasoline combinations
- fractionate combinations of hydrocarbon gases, inclusive of methane, ethane, and propane.

NATURE OF ADSORBENTS

Adsorbents are commonly in granular form, with their size starting from zero to five to twelve millimetres. They must neither provide a high strain drop nor get overly excited by the flowing stream. They should now not lose their shape and size at the same time as managing. They must have a large surface area per unit mass and a lot of pores.

S.NO	Adsorbent	Source	Application
1.	Fuller's earth	Naturally occurring clay is heated and dried to get a porous structure.	De-colorizing, drying of lubricating oils, kerosene and engine oils.
2.	Activated clay	Bentonite or other activated clay which are activated by treatment with sulfuric acid and further washing, drying and crushing..	Used for de-colorizing petroleum products.
3.	Bauxite	A naturally occurring hydrated alumina, activated by heating at 230-815 ⁰ C	Used for de-colorizing petroleum products and for

			drying gases.
4.	Alumina	Hard hydrated aluminum oxide is activated by heating to drive off the moisture and then crushed to the desired size.	Used as a desiccant.
5.	Bone – Char	Obtained by destructive distillation of crushed bones at 600-9000C.	Used for refining sugar and can be reused after washing and burning.
6.	Activated Carbon	(i) Vegetable matter is mixed with calcium chloride, carbonized and finally, the inorganic compounds are leached away. (ii) Organic matter is mixed with	De-colorizing of sugar solutions, chemicals, drugs, water purification, refining of vegetable and animal oils, recovery of gold and silver from cyanide ore-leach

		<p>porous pumice stones and then heated and carbonized to deposit the carbonaceous matter throughout the porous particle.</p> <p>(iii) Carbonizing substances like wood, sawdust, coconut shells, fruits pits, lignite, and subsequent activation with the hot air steam. it is available in granular or pelleted form.</p>	<p>solution, recovery of solvent vapour from gas-mixtures, collection of gasoline hydrocarbons from natural gas, fractionation of hydrocarbon gases.</p>
7.	Silica gel	A hard granular and porous product obtained from sodium silicate solution after treatment with acid.	Used for dehydration of air and other gases, fractionation of

		Normally has 4 to 7% water in the product.	hydrocarbons.
8.	Molecular sieves	These are porous synthetic zeolite crystals, metal aluminosilicates.	Dehydration of gases and liquids, and separation of gas—liquid hydrocarbon mixture.

Heat of adsorption

The differential heat of adsorption ($-H$) is described as the heat liberated at a regular temperature whilst a unit quantity of vapour is adsorbed on a large quantity of stable already containing adsorbate. The solid so used is in such a huge quantity that the adsorbate concentration stays unchanged.

The indispensable warmth of adsorption (AH) at any concentration X is described as the enthalpy of the adsorbate—adsorbent mixture minus the sum of the enthalpies of unit weight of natural stable adsorbent and sufficient pure adsorbed substance (before adsorption) to offer the specified concentration X at an equal temperature.

The differential warmth of adsorption and the necessary heat of adsorption are capabilities of temperature and adsorbate concentration.

Effect of temperature

An increase in temperature at steady stress decreases the quantity of solute adsorbed from a combination. However, the generalisation of the end result isn't smooth.

Effect of pressure

Generally, reducing stress reduces the quantity of adsorbate adsorbed upon the adsorbent. However, the relative adsorption of paraffin hydrocarbons on carbon decreases at high pressures.

Liquids

The pollutants are available both at low and high fixations in fluids. These are typically eliminated by an adsorption procedure. The attributes of adsorption of low and high fixation debasements are unique.

Adsorption of solute from Dilute solutions

Whenever a combination of solute and dissolvable is adsorbed, utilising an adsorbent, both the dissolvable and the solute are adsorbed. Because of this, the main family member or evident adsorption of solute cannot be entirely set in stone.

Thus, it is a typical practice to treat a known volume of an arrangement of unique focus (C_0) with a known load of adsorbent. Allow C^* to be the last harmony grouping of solfege in the arrangement.

Assuming that v is the volume of arrangement per unit mass of adsorbent (cc/g) and C_0 and C^* are the underlying and balance focuses (g/cc) of the solute, then the evident adsorption of solute per unit mass of adsorbent, dismissing any adjustment of volume, is $v(C_0 - C^*)$, (g/g).

This articulation is, for the most part, pertinent to weakening arrangements. At the point when the negligible part of the first dissolvable which can be adsorbed is small, the C^* esteem relies upon the temperature, nature, and properties of the adsorbent.

On account of weakening arrangements and over a small focus range, the Freundlich adsorption isotherm portrays the adsorption peculiarities.

The Freundlich adsorption condition is additionally very helpful in situations where the real character of the solute isn't known, for example, the expulsion of shading substances from sugar arrangements, oils, and so on. The arrangement's variety content can be easily estimated by utilising a spectrophotometer or colorimeter. The translation of this information is shown in working model 2. Assuming the value of n is high, i.e., 2 to 10, adsorption is great. Assuming it lies between 1 and 2, tolerably troublesome and short of what I demonstrate, I demonstrate unfortunate adsorption attributes. A normal adsorption isothermal for the adsorption of different adsorbates A, B, and C in a weakened arrangement at a similar temperature for a similar adsorbent is displayed in Fig.

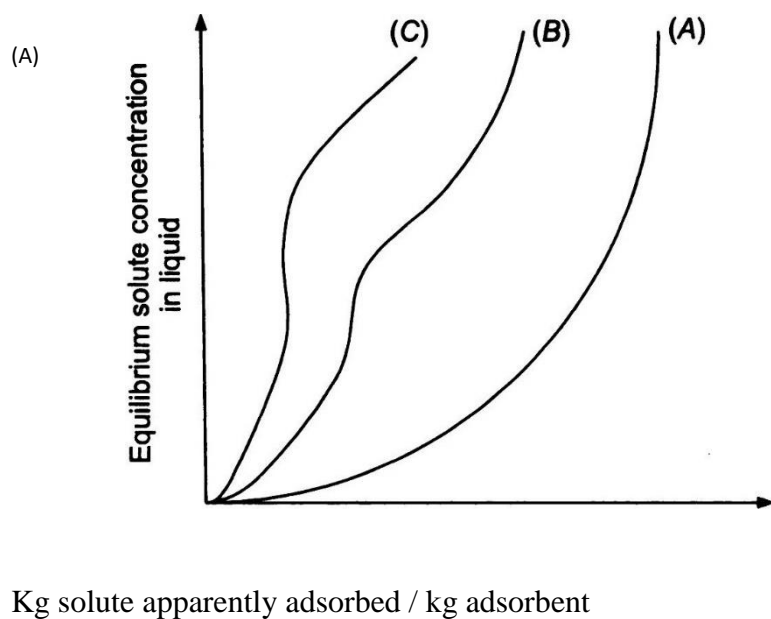


Fig. Adsorption isotherms for various adsorbents.

Significance of Research problem

Adsorption of heavy metals is a key development approach for more advanced remediation technologies for the preservation of the environment. However, the effectiveness of heavy metal adsorption under typical conditions using a good adsorbent depends on a number of variables that must be precisely adjusted to get an effective adsorption process. The adsorption of heavy metals was boosted in the presence of suitable facilitating agents, which undoubtedly improved the heavy metal procedures already in use.

Objective of the Project

To evaluate the impact of Lactic acid as chelating agent in the adsorption of Fe (III) from aqueous solution by activated charcoal as an adsorbent to develop efficient remediation technology using Metal-ligand interactions.

Chapter-II

ADSORPTION OF HEAVY METALS USING ACTIVATED CHARCOAL

Nowadays, various heavy metals have been released into the waters, causing serious pollution of water resources and endangering human health. Therefore, it is very important to study the removal of heavy metals from water. In this work, the adsorption of heavy metal ions including Pb(II), Cu(II), Zn(II), Cd(II) and Cr(VI) onto activated carbon (AC) from aqueous solutions was investigated in both single and mixed systems. The batch adsorption experiment for heavy metal ions on AC in single system was studied at different conditions including contact time, initial concentration, initial pH and adsorbent dosage. The results indicated that the adsorption kinetics and isotherms followed the pseudo-first order model and the Langmuir isotherm model, respectively. The final removal efficiencies and maximum adsorption capacity followed the order of Pb(II) > Cr(VI) > Cd(II) > Cu(II) > Zn(II) at the pH 5.0 and 25°C in single system. The adsorption of heavy metals was mainly determined by the pH of the solution and the surface properties of the adsorbent, and it was found that the initial pH of 3 was optimal for the removal of Cr(VI), which was different from the optimum initial pH of 7.0 for Pb(II), Cu(II), Zn(II) and Cd(II). The results demonstrated that the electrostatic interaction between the surface of AC and heavy metal ions played an important role in the adsorption of heavy metal ions. In addition, compared with the results in single system, the results in multi-component mixed system showed that the adsorption of Cu(II) and Cr(VI) was promoted, but the adsorption of Zn(II) and Cd(II) was inhibited. The factors affecting the adsorption impetuses are interactive involving electrostatic interaction, promotion or inhibition between heavy metal ions, chemical reaction and so on.

Adsorption of Iron complex using Activated Charcoal

Among pollutants, iron have attracted our attention because; they are the most released by industries. To curb this kind of pollution, a local alternative must be developed by these countries to ensure the health of their inhabitants.

There are several methods of treatment geared towards removing these pollutants from water, such as: filtration, ozonation, clarification, photocatalysis, adsorption, membrane processes, electro coagulation, and chemical processes. Although, the above-mentioned methods are efficient in treating high concentration of heavy metal ions, nevertheless these techniques also have disadvantages including incomplete metal removal, high consumption of reagent and very high cost incurred in the process. For the lower concentration of heavy metal ions, adsorption is a much preferable technique and activated carbon has been widely applied for treating industrial wastewater.

Activated carbons as adsorbents from plant origin have been developed from agricultural by-products, called biosorbent. Crude olive stone was used for adsorption of iron present in industrial wastewater. Adsorption on activated carbon remains one of the mainly used methods for these countries.

The aim of this work is to investigate the removal of iron from synthetic solution and industrial wastewater with commercial activated carbon from local wood. The adsorption of metal showed two important parameters: initial concentration and pH of solution. These parameters allows for maximizing the amount of adsorbed metals. However, the problems associated with these adsorbents are the regeneration and recovery of the useful materials, which makes them unattractive for wider commercial applications.

The carboxyl group as a part of many compounds (pharmaceuticals, supplements) is a "universal" O-donor ligand which can form complexes of different coordination, and can act as a monodentate or a bidentate ligand.

α -Hydroxycarboxylic acids are constitutive components of many biochemical processes in the living world. They are often used in pharmaceutical preparations. Lactic acid, 2-hydroxypropanoic acid, (LA) is formed by fermentation of sugars and other carbohydrates under the action of anaerobic bacteria and it can be ingested with food into the body. In medicine it is used as a component of the Ringer's and Hartman's solutions. Lactic acid is a suitable molecule for model systems for the study of interaction of biometals with O-donor ligands in biosystems. With M(II) metal ions from solutions of molar concentrations, depending on the conditions of complexation, properties and synergistic effect of the metal ions, LA can form different types of complex associates. With M(II) metal ions LA can form complexes of the type $[M(LA)_2R]$, where it behaves as a bidentate ligand, and R is molecule of solvent. Cu(II) ion can form mononuclear and binuclear complexes with aliphatic α -hydroxycarboxylic acids at pH values.

Previous studies have shown that there is a mobility of metal ions from biological hard mineral tissue of teeth that had been exposed to the impact of various media (lactic acid, acetic acid, etc.) as a result of the interaction of metal ions with the test media. In the literature there are not enough data about interactions of d-metals and LA under approximately physiological conditions, and at the level of micro-molar concentration at which they are present in human body.

Iron - Lactic acid complex in aqueous solutions

The photochemistry of a 1:1 Fe(III)—lactic acid complex $[Fe(Lact)]^+$, in aqueous solutions was studied by stationary photolysis, nanosecond laser flash photolysis (355 nm, 6 ns), and

femtosecond pump—probe spectroscopy (400 nm, 200 fs). The quantum yield of photolysis of $\text{Fe}(\text{Lact})]^{+}$, upon excitation at 355 nm is 0.4 and 0.22 in the deoxygenated and air-saturated solutions, respectively. Weak transient absorption in the range of 500—750 nm was observed in the nanosecond experiments. It was assigned to a $\text{Fe}^{\text{II}} \dots \text{O}-\text{CH}(\text{Me})-\text{COO}^{\bullet}]^{+}$ radical complex. The spectral properties of the ligand-to-metal charge transfer excited state and the characteristic time of formation of the radical complex (1.5 ps) were determined in the femtosecond spectroscopy experiments. A reaction mechanism was proposed, which involves innersphere electron transfer in the excited complex with the formation of a radical complex $\text{Fe}^{\text{II}} \dots \text{O}-\text{CH}(\text{Me})-\text{COO}^{\bullet}]^{+}$ and its subsequent transformation to the end product of the photochemical reaction.

The photochemistry of Fe [III] carboxylate complexes with natural carboxylic acids (tartaric, pyruvic, lactic, succinic, as well as humic and fulvic acids) is of considerable interest from the standpoint of environmental photochemistry and photocatalysis because photolysis of these compounds is accompanied by the formation of reactive H_2O_2 ¹⁻⁵ oxygen species ($\bullet\text{OH}$, H_2O_2), which leads to mineralization of organic matter and to CO and CO₂ generation in natural water.

A traditional mechanism of photolysis of Fe [III] carboxylate complexes implies that the primary photochemical event involves inner-sphere electron transfer accompanied by reduction of Fe [III] to Fe [II] and escape of a free radical into the solvent bulk, followed by fast decarboxylation of the radical. A secondary radical generated as a result of decarboxylation reacts with Fe [III] complexes and dissolved oxygen to give reactive oxygen species.

This mechanism is based on the analysis of photochemical reaction end products, and the generation of organic radicals in the primary photochemical process was frequently not

confirmed experimentally. Simultaneously, studies on the photochemistry of iron(II) complexes with oxalic acid 13 and ethylene diamine tetra acetic acid 12'14 using pulsed methods enabled the formulation of an alternative photolysis mechanism based on the production of a long-lived radical complex $[\text{Fe}^{\text{II}} \cdot \text{OOC—R}]^{2+}$ in the primary photochemical event.

In this work, we studied primary photochemical processes, taking a Fe^{II} complex with lactic acid as an example. The emphasis is placed on the detection of corresponding radical complex and its precursor, i.e., the excited state, and on the determination of their spectral and kinetic properties.

Chapter-III

ATOMIC ABSORPTION SPECTROMETRY

Atomic absorption spectrometry (AAS) is an analytical technique that measures the concentrations of elements. Atomic absorption is so sensitive that it can measure down to parts per billion of a gram ($\mu\text{g dm}^{-3}$) in a sample. The technique makes use of the wavelengths of light specifically absorbed by an element. They correspond to the energies needed to promote electrons from one energy level to another, higher, energy level.

Atomic absorption spectrometry has many uses in different areas of chemistry.

Clinical analysis, analysing metals in biological fluids such as blood and urine.

Environmental analysis monitoring our environment –*eg* finding out the levels of various elements in rivers, seawater, drinking water, air, petrol and drinks such as wine, beer and fruit drinks.

Pharmaceuticals. In some pharmaceutical manufacturing processes, minute quantities of a catalyst used in the process (usually a metal) are sometimes present in the final product. By using AAS the amount of catalyst present can be determined.

Industry. Many raw materials are examined and AAS is widely used to check that the major elements are present and that toxic impurities are lower than specified – *eg* in concrete, where calcium is a major constituent, the lead level should be low because it is toxic.

Mining. By using AAS the amount of metals such as gold in rocks can be determined to see whether it is worth mining the rocks to extract the gold.

How it works

Atoms of different elements absorb characteristic wavelengths of light. Analysing a sample to see if it contains a particular element means using light from that element. For example with lead, a lamp containing lead emits light from excited lead atoms that produce the right mix of wavelengths to be absorbed by any lead atoms from the sample. In AAS, the sample

is atomised –ie converted into ground state free atoms in the vapour state – and a beam of electromagnetic radiation emitted from excited lead atoms is passed through the vaporised sample. Some of the radiation is absorbed by the lead atoms in the sample. The greater the number of atoms there is in the vapour, the more radiation is absorbed. The amount of light absorbed is proportional to the number of lead atoms. A calibration curve is constructed by running several samples of known lead concentration under the same conditions as the unknown. The amount the standard absorbs is compared with the calibration curve and this enables the calculation of the lead concentration in the unknown sample.

Consequently an atomic absorption spectrometer needs the following three components: a light source; a sample cell to produce gaseous atoms; and a means of measuring the specific light absorbed.

The light source

The common source of light is a ‘hollow cathode lamp’ (*Fig. 1*).



Figure1

This contains a tungsten anode and a cylindrical hollow cathode made of the element to be determined. These are sealed in a glass tube filled with an inert gas –eg neon or argon – at a pressure of between 1 Nm^{-2} and 5 Nm^{-2} . The ionisation of some gas atoms occurs by applying a potential difference of about 300–400 V between the anode and the cathode. These gaseous ions bombard the cathode and eject metal atoms from the cathode in a process

called sputtering. Some sputtered atoms are in excited states and emit radiation characteristic of the metal as they fall back to the ground state – $eg Pb^* \rightarrow Pb + h \nu$ (Fig. 2).

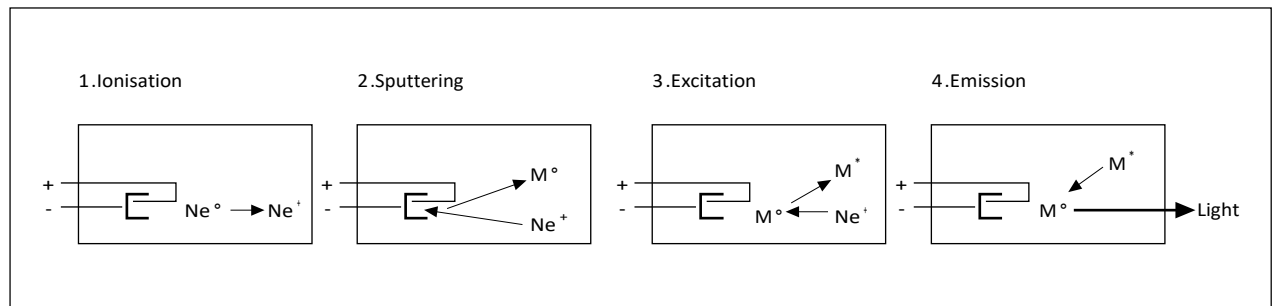


Figure. 2

The shape of the cathode concentrates the radiation into a beam which passes through a quartz window, and the shape of the lamp is such that most of the sputtered atoms are redeposited on the cathode.

A typical atomic absorption instrument holds several lamps each for a different element. The lamps are housed in a rotating turret so that the correct lamp can be quickly selected.

The optical system and detector A mono chromator is used to select the specific wavelength of light – ie spectral line – which is absorbed by the sample, and to exclude other wavelengths. The selection of the specific light allows the determination of the selected element in the presence of others. The light selected by the monochromator is directed onto a detector that is typically a photomultiplier tube. This produces an electrical signal proportional to the light intensity (Fig. 3)

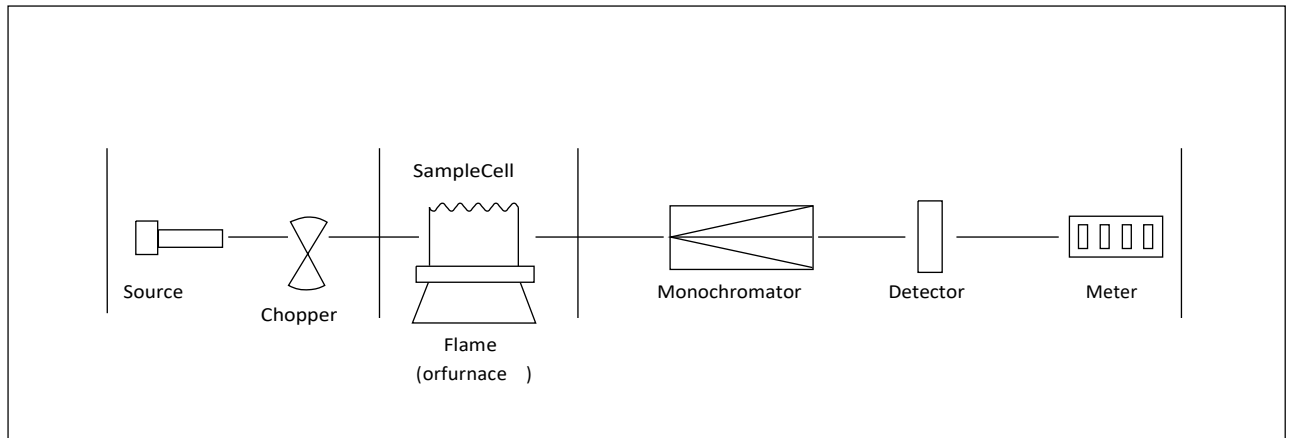


Figure 3

Double beam spectrometers

Modern spectrometers incorporate a beam splitter so that one part of the beam passes through the sample cell and the other is the reference (Fig. 4). The intensity of the light source may not stay constant during an analysis. If only a single beam is used to pass through the atom cell, a blank reading containing no analyte (substance to be analysed) would have to be taken first, setting the absorbance at zero. If the intensity of the source changes by the time the sample is put in place, the measurement will be inaccurate. In the double beam instrument there is a constant monitoring between the reference beam and the light source. To ensure that the spectrum does not suffer from loss of sensitivity, the beam splitter is designed so that as high a proportion as possible of the energy of the lamp beam passes through the sample.

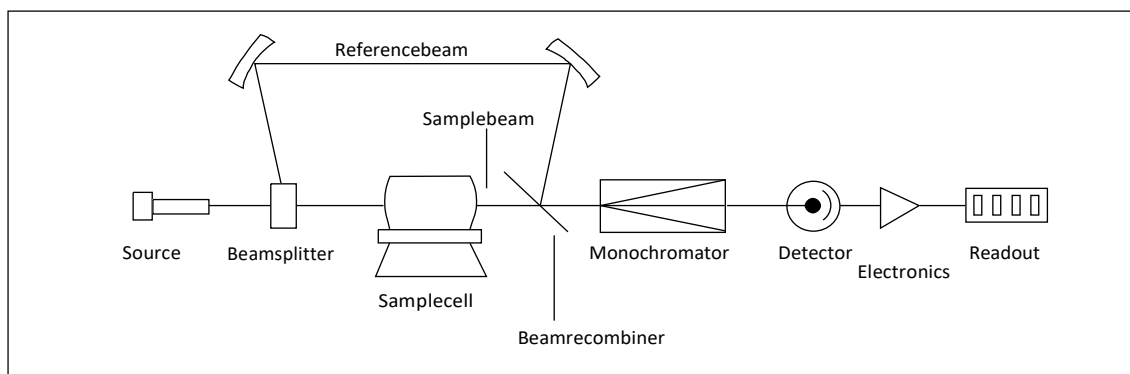


Figure 4

Atomisation of the sample Two systems are commonly used to produce atoms from the sample. Aspiration involves sucking a solution of the sample into a flame; and electrothermal atomisation is where a drop of sample is placed into a graphite tube that is then heated electrically.

Some instruments have both atomisation systems but share one set of lamps. Once the

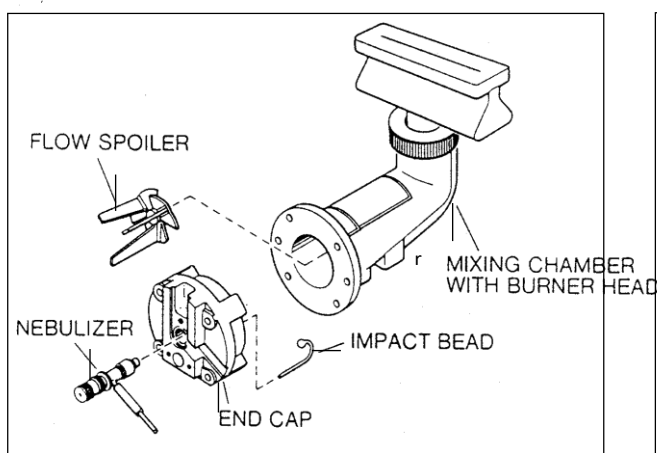


Figure5

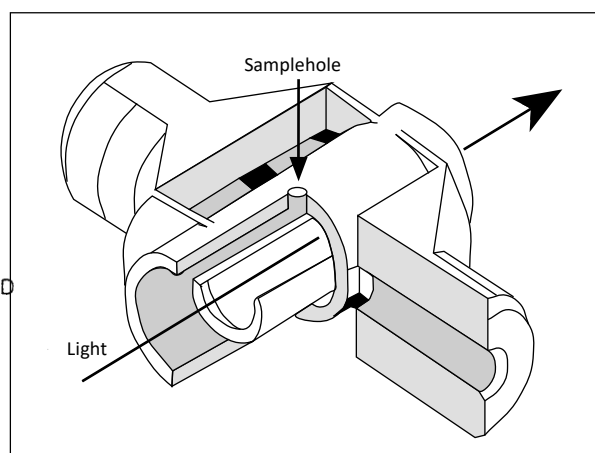


Figure6

appropriate lamp has been selected, it is pointed towards one or other atomisation system.

Flame aspiration

Figure 5 shows a typical burner and spray chamber. Ethyne/air (giving a flame with a temperature of 2200–2400°C) or ethyne/dinitrogen oxide (2600– 2800°C) is often used. A flexible capillary tube connects the solution to the nebuliser. At the tip of the capillary, the solution is ‘nebulised’ –*i.e.* broken into small drops. The larger drops fall out and drain off while smaller ones vaporise in the flame. Only *ca* 1% of the sample is nebulised.

Electro thermal atomisation of the original sample Figure 7 shows a flame atomic Figure 6 shows a hollow graphite tube with a platform. Absorption spectrometer with an auto sampler and 25 µl of sample (*ca* 1/100th of a raindrop) is placed through the sample hole and onto the platform from an automated micropipette and sample changer. The tube is heated electrically

by passing a current through it in a pre-programmed series of steps. The details will vary with the sample but typically they might be 30–40 seconds at 150°C to evaporate the solvent, 30 seconds at 600°C to drive off any volatile organic material and char the sample to ash, and with a very fast heating rate (*ca* 1500 °C s⁻¹) to 2000– 2500°C for 5–10 seconds to vaporise and atomise elements (including the element being analysed). Finally heating the tube to a still higher temperature –*ca* 2700°C – cleans it ready for the next sample. During this heating cycle the graphite tube is flushed with argon gas to prevent the tube burning away. In electro thermal atomisation almost 100% of the sample is atomised. This makes the technique much more sensitive than flame AAS.

Sample preparation

Sample preparation is often simple, and the chemical form of the element is usually unimportant. This is because atomisation converts the sample into free atoms irrespective of its initial state. The sample is weighed and made into a solution by suitable dilution. Elements in biological fluids such as urine and blood are often measured simply after a dilution flow injection accessory.

When making reference solutions of the element under analysis, for calibration, the chemical environment of the sample should be matched as closely as possible – *i.e.* the analyte should be in the same compound and the same solvent. Teflon containers may be used when analysing very dilute solutions because elements such as lead are sometimes leached out of glass vessels and can affect the results

Background absorption

It is possible that other atoms or molecules apart from those of the element being determined will absorb or scatter some radiation from the light source. These species could include un vaporised solvent droplets, or compounds of the matrix (chemical species, such as anions,

that tend to accompany the metals being analysed) that are not removed completely. This means that there is background absorption as well as that of the sample.

One way of measuring and correcting this background absorption is to use two light sources, one of which is the hollow cathode lamp appropriate to the element being measured. The second light source is a deuterium lamp.

The deuterium lamp produces broad band radiation, not specific spectral lines as with a hollow cathode lamp. By alternating the measurements of the two light sources – generally at 50 –100 Hz – the total absorption (absorption due to analyte atoms plus background) is measured with the specific light from the hollow cathode lamp and the background absorption is measured with the light from the deuterium lamp. Subtracting the background from the total absorption gives the absorption arising from only analyte atoms.

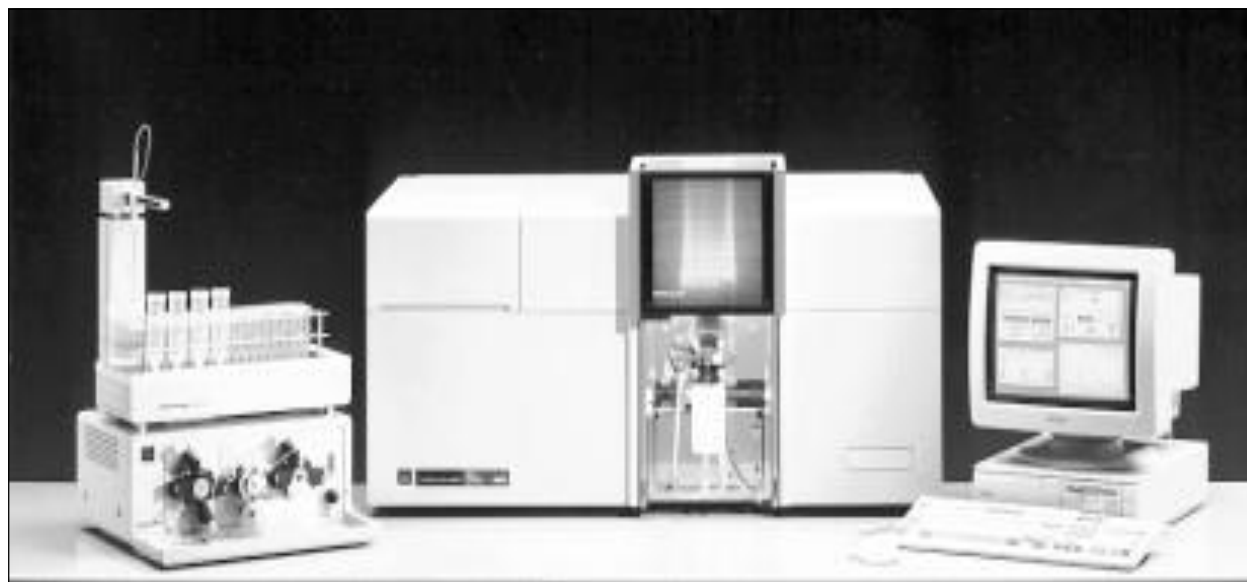


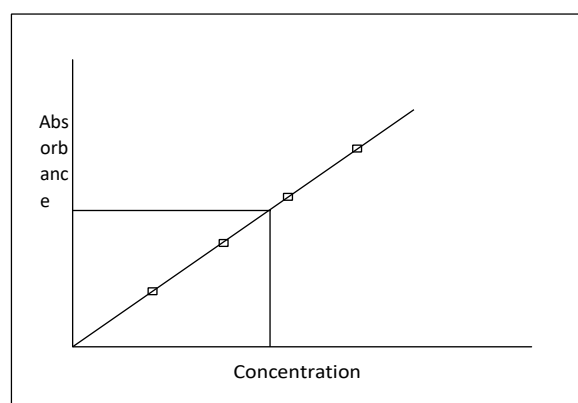
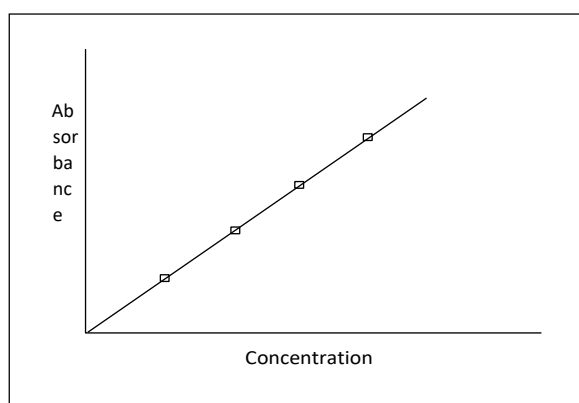
Figure 7

Calibration

A calibration curve is used to determine the unknown concentration of an element –eg lead – in a solution.

The instrument is calibrated using several solutions of known concentrations. A calibration curve is produced which is continually rescaled as more concentrated solutions are used – the more concentrated solutions absorb more radiation up to a certain absorbance. The calibration curve shows the concentration against the amount of radiation absorbed (*Fig. 8(a)*).

The sample solution is fed into the instrument and the unknown concentration of the



element – *e.g.* lead – is then displayed on the calibration curve (*Fig. 8(b)*).

Figure 8(a) and Figure 8(b)

Interferences and matrix modification other chemicals that are present in the sample may affect the atomisation process. For example, in flame atomic absorption, phosphate ions may react with calcium ions to form calcium pyrophosphate. This does not dissociate in the flame and therefore results in a low reading for calcium. This problem is avoided by adding different reagents to the sample that may react with the phosphate to give a more volatile compound that is dissociated easily. Lanthanum nitrate solution is added to samples containing calcium to tie up the phosphate and to allow the calcium to be atomised, making

the calcium absorbance independent of the amount of phosphate. With electrothermal atomisation, chemical modifiers can be added which react with an interfering substance in the sample to make it more volatile than the analyte compound. This volatile component vaporises at a relatively low temperature and is removed during the low and medium temperature stages of electrothermal atomisation.

Chapter-IV

METHODOLOGY

Required materials:

- FeCl₃.6H₂O (MOLYCHEM)
- Lactic acid (AVRA)
- Activated charcoal (SDFCL)
- Ultra-pure water (demineralized)
- Distilled water
- 2% nitric acid
- Volumetric flask – 250 mL (Borosilicate glass)
- Watch glass
- Hot air oven (BIO-TECHNICS INDIA)
- Digital weighing machine (CITIZEN)
- AAS (ICE 3300)

Procedure:

- Using a 250ml volumetric flask, prepare 100 ppm of Ferric chloride hexahydrate metal solution.
- For the preparation of 100 ppm of Ferric chloride hexahydrate metal solution we have to calculate the amount of Ferric chloride hexahydrate required for the solution.
- Now add 3 drops of lactic acid in the Ferric chloride hexahydrate metal solution using a dropper, then we obtain the metal ligand solution which will be in 1:2 ratio.
- Keep the solution for 24 hrs. for better results.
- Now take 100ml of metal ligand solution in a 500ml beaker and add 5 grams of Activated Charcoal to it.
- Keep this solution aside for 48 hours. To obtain a metal ligand solution absorbed charcoal, filter the solution using a filter paper and rinse it 3 times using distilled water.
- Take the metals adsorbed activated Charcoal on a watch glass and keep it in the oven

at 60°C for 10 hours to get rid of moisture.

- After getting rid of moisture, we get fine powder of metal adsorbed activated Charcoal.
- Later shift the compound to a glass vial.
- Now send the adsorbent sample to the AAS for further tests.
- Here in AAS an Atomic Absorption Spectrometer is used for the tests, which consists of different bulbs that have wavelengths of different elements.
- The spectrometer cannot intake the solid particles, it can only intake the liquid.
- So the given adsorbent sample is mixed with the nitric acid solution.
- Now the adsorbent sample that is mixed with nitric acid is heated in the fume hood at 100°C for 15 minutes.
- The test sample is reduced to slurry liquid.
- Not all of the adsorbent samples given at the AAS are mixed, but 0.5 gm. of the adsorbent sample is diluted in 25mL of nitric acid solution (in which the nitric acid is present 2% in the ultra-pure water).
- Now filter the slurry liquid in thick filter paper. The ultra-pure water is used in rinsing of the adsorbent sample to 25mL, as the sample that should be used in the spectrometer has reduced because of the heating.
- Rinsing the slurry liquid with the ultra-pure water also helps the metal ions present in the adsorbent sample, flow with the nitric acid present in the water for the test purpose.
- Now 5 test standards are prepared using 1ppm, 2ppm, 3ppm, 4ppm and 5ppm “Fe” in it.
- Firstly the spectrometer is checked using only ultra-pure water with 2% nitric acid

present in it.

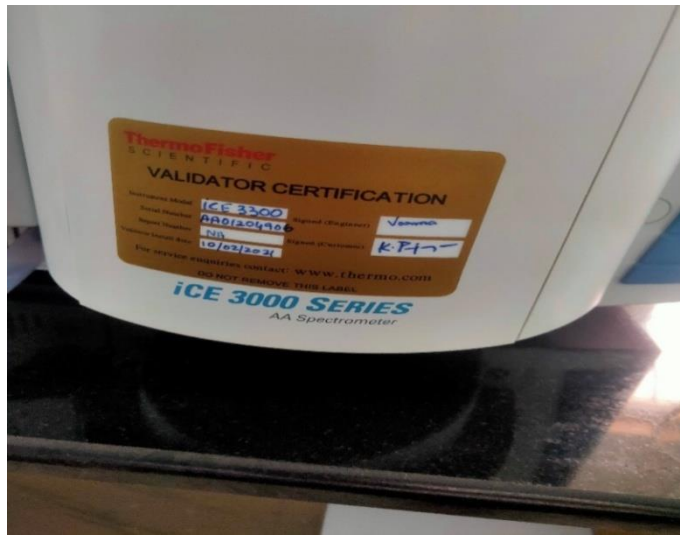
- After that it is tested with the 5 different prepared Fe standards.
- Now our test sample is tested after the 5 Fe standards are tested.
- The bulb present in the spectrometer is set at the same wavelengths as of the “Fe”.
- When the test sample is being tested the bulb that consists of the “Fe” wavelength automatically transmits the same wavelengths through the sample.
- When the test sample is being tested in the spectrometer the Fe ions present with nitric acid are burned with the burner present in the spectrometer.
- As the concentration of the Fe increases the temperature also increases and the color gradually turns from orange to red and red to crimson and so on... The average temperature is around 1500°C.
- The waste present in the test sample other than Fe and nitric acid after the completion of tests are collected in the waste collector present below.
- The signal from the spectrometer can be seen in the monitor, which is already connected to the spectrometer.
- The signal from the spectrometer can be recorded and calculated from the graphs formed and numeric values shown in the monitor.
- Same Experiment carried out without the interference/addition of Ligand i.e. Lactic acid for Control Experiment.



AA spectrometer (a)



AA spectrometer (b)



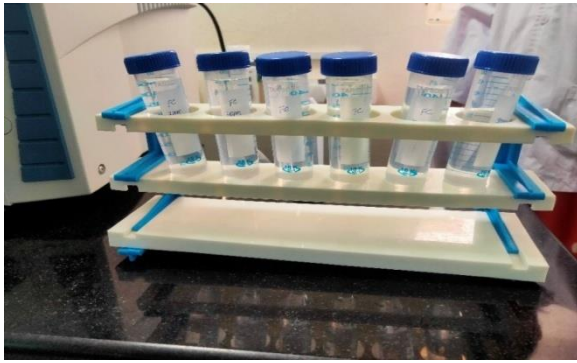
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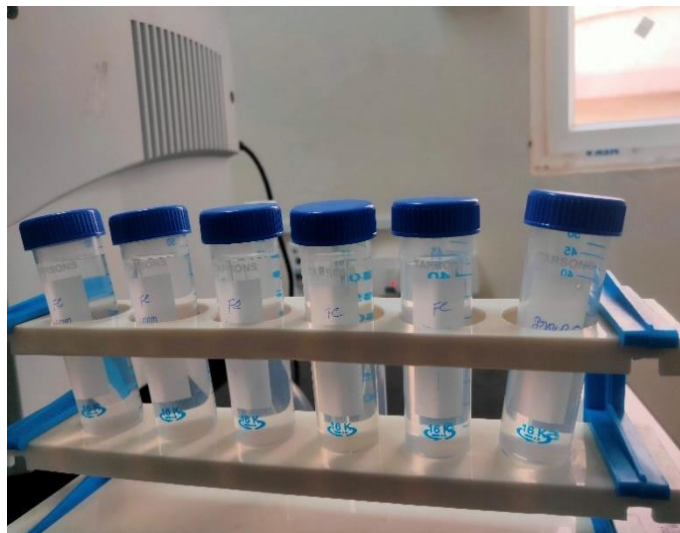
Fumehood (a)



Fume hood (b)



Fe standards with test sample



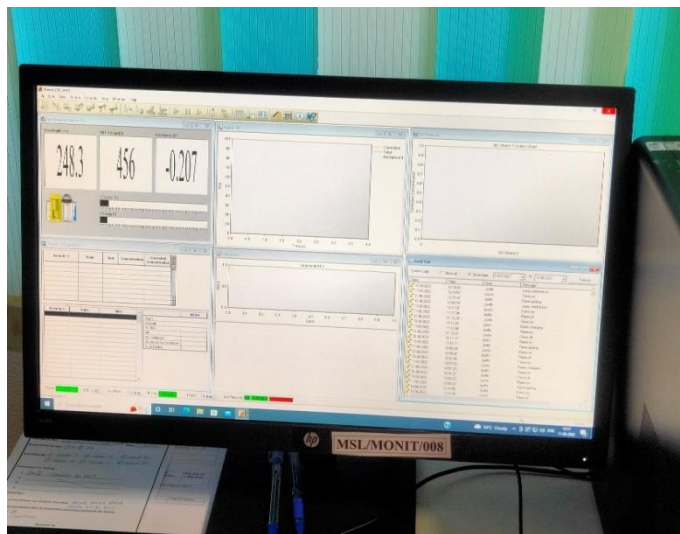
Fe standards with test sample



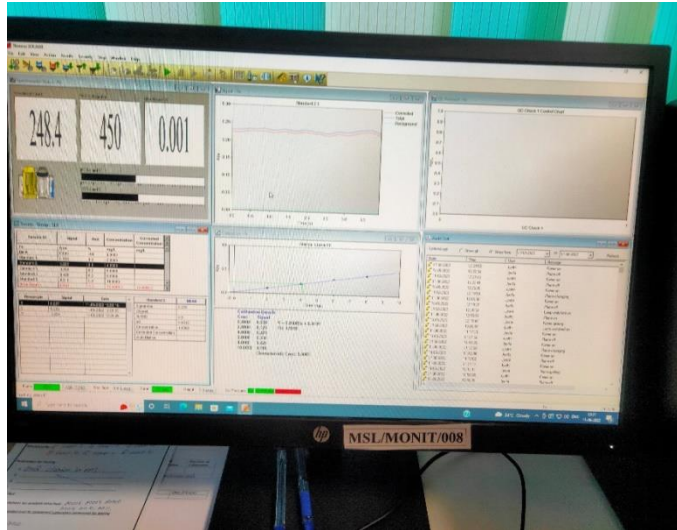
Burning of Nitric acid solution in AA Spectrometer



Burning of Test sample in AA Spectrometer



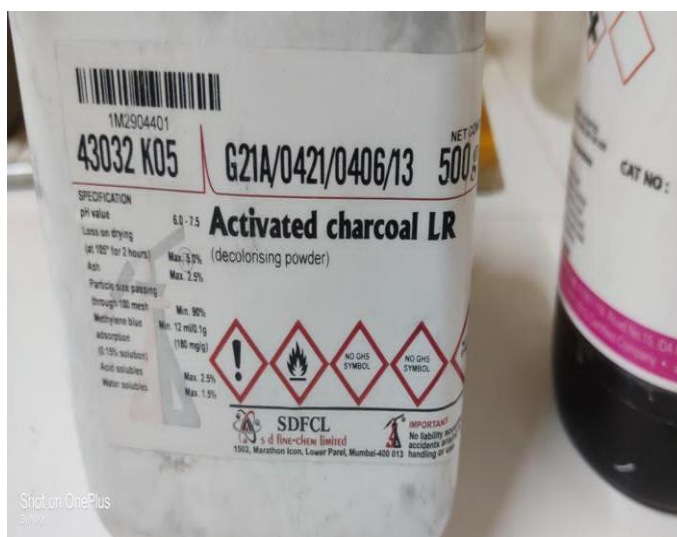
Values before intake of test samples



Values after intake of test samples



Lactic acid



Activated charcoal



Metal ligand solution (a)



Glass plate



Spatula



Measuring Tube



Hot air Oven



5gm of Activated charcoal in metal ligand solution



Metal adsorbed charcoal



Test Samples







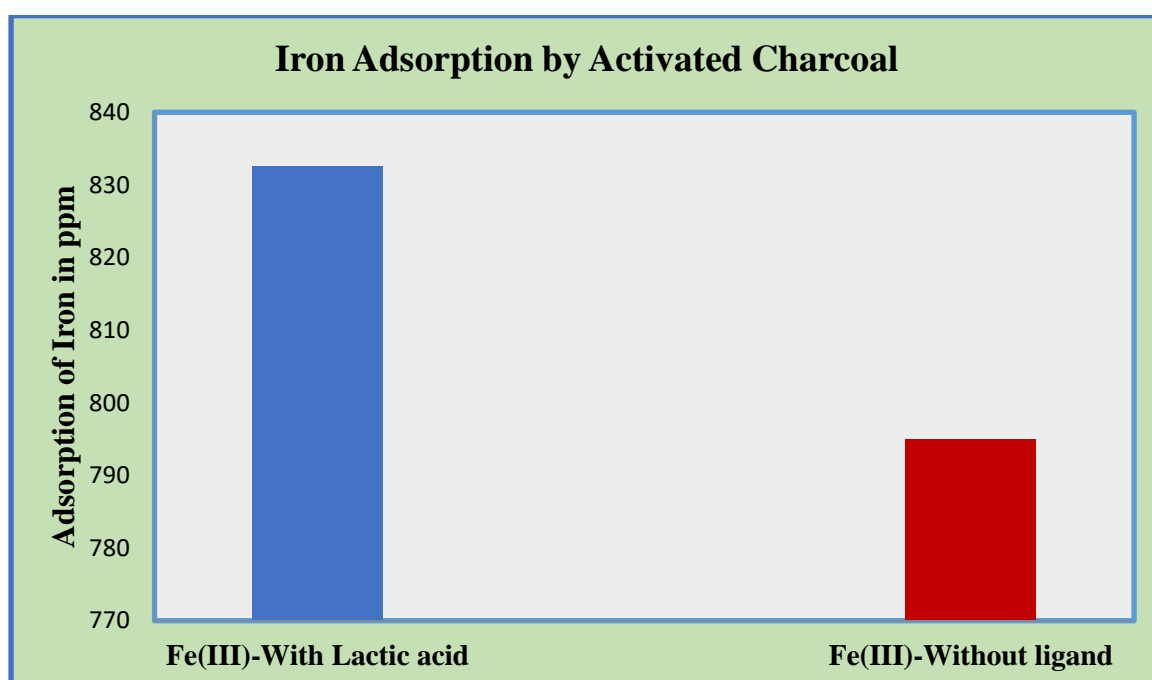




Chapter-V

RESULTS AND DISCUSSION

Activated charcoal adsorbed **832.5** ppm of Iron metal from aqueous solution of Fe(III)-Lactic acid metal ligand solution. Whereas, Activated charcoal adsorbed only **795.0** ppm when Lactic acid is absent. It is evident from the AAS results, ligand involvement enhanced the metal adsorption by initiating potential chemical interactions between adsorbate and adsorbent. Lactic acid strongly form coordination bonding with Fe(III) to form a soluble complex in aqueous solution. The ligand capped Fe(III) complex strongly adsorbed to Activated charcoal by establishing chemical bonding. From the AAS results, it is conclusive that **4.71** % of adsorption increased in the presence of Lactic acid as chelating agent.



Impact of Lactic acid on Adsorption of Fe (III) ions from aqueous solution by Activated Charcoal

Spectrometer Parameters – Fe:

Element : Fe	Measurement mode : Absorbance	
Wavelength : 248.3nm	Band pass : 0.2nm	Lamp current : 75%
Background correction : D2	High Resolution : Off	Optimise Spectrometer Parameters : No
Signal type : continuous	Resamples : Fast	Number of resamples : 3
Measurement time : 4.0secs	Flier mode : No	
Use RSD Test : No		

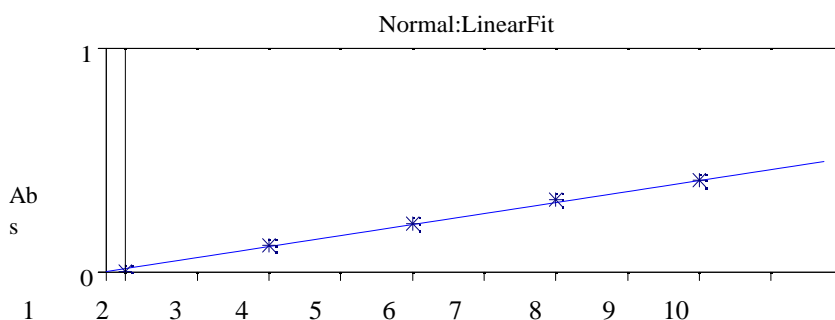
Flame Parameters – Fe:

Flame type : Air – C2H2	Fuel Flow : 0.9L/min	Auxiliary Oxidant : Off
Nebuliser Uptake : 4secs	Bunsen Stabilisation : 0mins	Optimise Fuel Flow : No
Burner Height : 7.0mm	Optimise Burner fuel : No	

Calibration Parameters–Fe:

Calibration mode : Normal	Line fit : Linear	Use stored calibration : No
Concentration units : mg/L	Scales units : mg/L	Scaling factor : 1.0000
Acceptable fit : 0.990	Rescale Limits : 10.0%	Failure Action : Flag and Continue
Standard 1 - 2.0000	Standard 4 - 8.0000	
Standard 2 - 4.0000	Standard 5 - 10.0000	
Standard 3 - 6.0000		

Solutions Results–Fe:



$$Y = 0.04924x + 0.0141$$

Fit: 0.9965

Characteristic Conc.: 0.0894

Sample ID	Signal	RSD	Conc.
	Abs	%	Mg/L
Fe Blank	0.001	35.6	0.0000
1	0.001	Background: -0.003	
2	0.001	Background: -0.003	
3	0.000	Background: -0.003	
Fe Standard 1	0.120	0.3	2.0000
1	0.120	Background: 0.003	
2	0.119	Background: 0.003	
3	0.120	Background: 0.003	
Fe Standard 2	0.215	0.3	4.0000
1	0.215	Background: 0.004	
2	0.215	Background: 0.004	
3	0.216	Background: 0.004	
Fe Standard 3	0.322	0.2	6.0000
1	0.323	Background: 0.005	
2	0.322	Background: 0.005	
3	0.322	Background: 0.005	
Fe Standard 4	0.411	0.3	8.0000
1	0.410	Background: 0.005	
2	0.412	Background: 0.005	
3	0.412	Background: 0.005	
Fe Standard 5	0.493	0.1	10.0000
1	0.494	Background: 0.005	
2	0.494	Background: 0.005	
3	0.494	Background: 0.006	
Fe(III)-Lactic acid-Activated Charcoal	0.834	0.1	16.6490 C
1	0.834	Background: 0.005	
2	0.833	Background: 0.005	
3	0.834	Background: 0.005	

Fe(III)-Activated Charcoal (Without Ligand)	0.796	0.1	15.8990 C
1	0.795	Background: 0.005	
2	0.797	Background: 0.005	
3	0.796	Background: 0.005	

Test Results:

S.no	Test Parameters	Sample	Results
01.	Iron by AAS Analysis: (ppm)	Fe(III)-Lactic acid – Activated charcoal Sample	832.5ppm
02.	Iron by AAS Analysis: (ppm)	Fe(III)–Activated charcoal (control)	795.0 PPM

CONCLUSION:

From the current project it is clear that Lactic acid as a Chelating agent has played a vital role in adsorption of Fe (III) ions from aqueous solution by Activated charcoal and increases the adsorption up to **4.716%**. This aspect will be useful in designing the newer strategies of Heavy metal Remediation techniques using Natural Chelating Ligands as Facilitating agents in Metal Adsorption processes.

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MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

General Parameters

Method : Iron (Fe)

Operator : Jyothi

Instrument Mode: Flame

Autosampler : None

Dilution: None

Use SFI: No

Valid Method Signatures

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Method Audit Trail

11-06-2022 17:22:18 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Details

Analysis Name: Iron (Fe) 11-06-2022

Spectrometer: ICE 3000 AA01204906 v1.30

Operator Name: Jyothi

Lamp Information

Element(s)	Serial Number	mA Hours
Fe	n/a	n/a

Deuterium Lamp Hours: 68.34

Sequence Table

Shared Standards: Yes

Action	Fe
Calibration	✓
B.No.Group-II	✓
B.No.Group-III	✓
B.No.Group-IV	✓
B.No.Group-V	✓
B.No.Group-VI	✓

Sample Details

No.	Sample Id	Nominal Mass: 1.0000 Sample Mass	Dilution Ratio
1	B.No.Group-II	1.0000	1.0000
2	B.No.Group-III	1.0000	1.0000
3	B.No.Group-IV	1.0000	1.0000
4	B.No.Group-V	1.0000	1.0000
5	B.No.Group-VI	1.0000	1.0000

Valid Analysis Signatures

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Audit Trail

11-06-2022 17:30:16 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:38:27 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Error MD147 - Activity manually aborted by user.

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Spectrometer Parameters - Fe

Element: Fe
 Wavelength: 248.3nm
 Background Correction: D2
 Signal Type: Continuous
 Measurement Time: 4.0secs
 Use RSD Test: No

Measurement Mode: Absorbance
 Bandpass: 0.2nm
 High Resolution: Off
 Resamples: Fast
 Flier Mode: No

Lamp Current: 75%
 Optimise Spectrometer Parameters: No
 Number Of Resamples: 3

Flame Parameters - Fe

Flame Type: Air-C2H2
 Nebuliser Uptake: 4secs
 Burner Height: 7.0mm

Fuel Flow: 0.9L/min
 Burner Stabilisation: 0mins
 Optimise Burner Height: No

Auxiliary Oxidant: Off
 Optimise Fuel Flow: No

Sampling Parameters - Fe

Sampling: None

Calibration Parameters - Fe

Calibration Mode: Normal
 Concentration Units: mg/L
 Acceptable Fit: 0.990

Line Fit: Linear
 Scaled Units: mg/L
 Rescale Limit: 10.0%

Use Stored Calibration: No
 Scaling Factor: 1.0000
 Failure Action: Flag and Continue

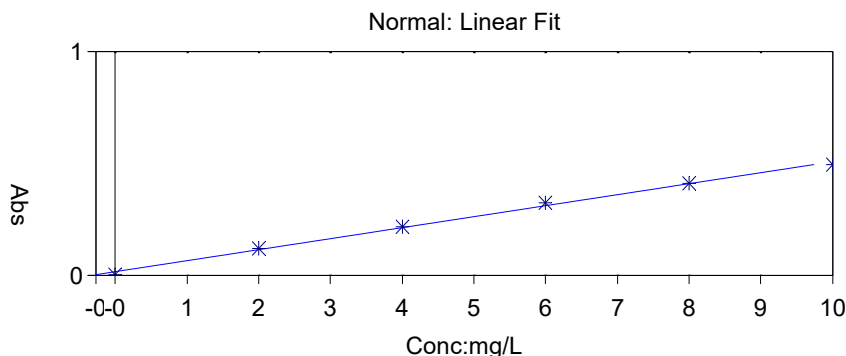
Standard 1	2.0000	Standard 4	8.0000
Standard 2	4.0000	Standard 5	10.0000
Standard 3	6.0000		

Element Audit Trail - Fe

No changes are recorded for this element

Solution Results - Fe

Y = 0.04924x + 0.0141
 Fit: 0.9965
 Characteristic Conc: 0.0894



Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Blank	0.001	35.6	0.0000	
1	0.001	Background: -0.003		11-06-2022 17:31:26
2	0.001	Background: -0.003		11-06-2022 17:31:30
3	0.000	Background: -0.003		11-06-2022 17:31:35
Fe Standard 1	0.120	0.3	2.0000	
1	0.120	Background: 0.003		11-06-2022 17:32:05
2	0.119	Background: 0.003		11-06-2022 17:32:09
3	0.120	Background: 0.003		11-06-2022 17:32:13
Fe Standard 2	0.215	0.3	4.0000	
1	0.215	Background: 0.004		11-06-2022 17:32:40
2	0.215	Background: 0.004		11-06-2022 17:32:45
3	0.216	Background: 0.004		11-06-2022 17:32:49
Fe Standard 3	0.322	0.2	6.0000	
1	0.323	Background: 0.005		11-06-2022 17:33:19
2	0.322	Background: 0.005		11-06-2022 17:33:23
3	0.322	Background: 0.005		11-06-2022 17:33:27
Fe Standard 4	0.411	0.3	8.0000	
1	0.410	Background: 0.005		11-06-2022 17:33:59
2	0.412	Background: 0.005		11-06-2022 17:34:03
3	0.412	Background: 0.005		11-06-2022 17:34:07

MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Solution Results - Fe

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Standard 5	0.493	0.1	10.0000	
1	0.494	Background: 0.005		11-06-2022 17:34:38
2	0.494	Background: 0.005		11-06-2022 17:34:42
3	0.493	Background: 0.006		11-06-2022 17:34:46
Fe B.No.Group-II	0.834	0.1	16.6490 C	16.6490 C
1	0.834	Background: 0.005		11-06-2022 17:35:14
2	0.833	Background: 0.005		11-06-2022 17:35:19
3	0.834	Background: 0.005		11-06-2022 17:35:23
Fe B.No.Group-III	0.759	0.1	15.1286 C	15.1286 C
1	0.758	Background: 0.003		11-06-2022 17:35:52
2	0.760	Background: 0.003		11-06-2022 17:35:56
3	0.758	Background: 0.004		11-06-2022 17:36:00
Fe B.No.Group-IV	0.645	0.3	12.8189 C	12.8189 C
1	0.647	Background: 0.003		11-06-2022 17:36:31
2	0.644	Background: 0.003		11-06-2022 17:36:35
3	0.645	Background: 0.003		11-06-2022 17:36:40
Fe B.No.Group-V	0.809	0.2	16.1488 C	16.1488 C
1	0.808	Background: 0.005		11-06-2022 17:37:11
2	0.809	Background: 0.005		11-06-2022 17:37:15
3	0.811	Background: 0.005		11-06-2022 17:37:20
Fe B.No.Group-VI	0.711	0.3	14.1597 C	14.1597 C
1	0.709	Background: 0.005		11-06-2022 17:37:55
2	0.713	Background: 0.005		11-06-2022 17:37:59
3	0.712	Background: 0.004		11-06-2022 17:38:03

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DCA Approval No: 05/ML/TS/2020/G

CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-1 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	--

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-I Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Temperature Batch : NA
Room Temperature : 25°C±3°C size
Quantity Received : 4gm
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	620ppm

Authorized Signatory

(Dr.R.Marayya)

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CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer:

Tara Government College
Prashanth Nagar Colony, Balajinagar
Sangareddy Telangana. 502000
Contact Person: Dr. Abhijeet
Contact Number :9502344392

Reference / Report No. : MSL/2022/JUNE/TARA/0064-2
Sample Received Date : 11/06/2022
Report Date : 13/06/2022

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-II Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Room Temperature : 25°C±3°C Temperature Batch : NA
Quantity Received : 4gm size
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	832.5ppm

Authorized Signatory

(Dr.R.Marayya)

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---	---

DETAILS OF THE SAMPLE

Sample Name	: NA	Mfg.	: NA	Exp.	: NA
Name of the Manufacturer	: NA	date		date	
Batch no	: Group-III	Batch		Batch	: NA
Storage condition	: To be stored at room	size		size	
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	756.5ppm

Authorized Signatory

(Dr.R.Marayya)

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-4 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	---

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-IV Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Temperature Batch : NA
Room Temperature : 25°C±3°C size
Quantity Received : 4gm
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	641ppm

Authorized Signatory

(Dr.R.Marayya)

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-5 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
DETAILS OF THE SAMPLE	
Sample Name : NA	
Name of the Manufacturer : NA	
Batch no : Group-V	Mfg. : NA Exp. : NA
Storage condition : To be stored at room	date : NA
Room Temperature : 25°C±3°C	Batch : NA
Quantity Received : 4gm	size
Tests Required : Iron by AAS Analysis.	
Method : NA	
Analysis Starting Date : 11/06/2022	
Analysis Completion Date : 11/06/2022	
Mfg. License No. : Not provided	
A.R.NO : NA	
Remark : Sample analyzed as received	

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	807.5ppm

Authorized Signatory

(Dr.R.Marayya)

MART Specialities Lab. LLP

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-6 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	---

DETAILS OF THE SAMPLE

Sample Name	: NA				
Name of the Manufacturer	: NA				
Batch no	: Group-VI	Mfg. date	: NA	Exp. date	: NA
Storage condition	: To be stored at room Temperature			Batch size	: NA
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	708ppm

Authorized Signatory

(Dr.R.Marayya)

ADSORPTION OF Fe[III] ON CELLULOSE USING D-VALINE AS FACILITATING AGENT

*Dissertation submitted in Partial fulfillment for the requirements for the award of
degree of*

Bachelor of Science in CHEMISTRY

By

- | | |
|---------------------|-----------------------------|
| 1. K.Dheeraj Kumar, | B.Sc (Chemistry) , III Year |
| 2. G.Laxmi kanth, | B.Sc (Chemistry) , III Year |
| 3. K.Narasimha, | B.Sc (Chemistry) , III Year |
| 4. G.Omkar, | B.Sc (Chemistry) , III Year |
| 5. D.Anil, | B.Sc (Chemistry) , III Year |
| 6. A.Jeremiah, | B.Sc (Chemistry) , III Year |

Under the Guidance:

**Dr. K.ABHIJIT
HEAD
DEPARTMENT OF CHEMISTRY**



Tara Government College, Sangareddy(A)

2021-22

CERTIFICATE

*This is to certify that the project work entitled “**ADSORPTION OF Fe[III] ON CELLULOSE USING D-VALINE AS FACILITATING AGENT**” is presented by B.Sc (CHEMISTRY) students in partial fulfillment of the requirements for the degree of Bachelor of Science in Chemistry by the Tara Govt. College, Sangareddy(A) (Affiliated to Osmania University, Hyderabad) during the academic year 2021-2022.*

The results embodied in this report have not been to any other University or Institution for the award of any degree.

(Dr.K.ABHIJIT)

**Project Supervisor & Head, Department of Chemistry
Tara Government College, Sangareddy(A)**

EXTERNAL EVALUATOR

ACKNOWLEDGEMENTS

*We express my deep gratitude to my research supervisor **Dr.K.Abhijit**, Head, Department of Chemistry, Tara Govt. College, Sangareddy(A)-502001, INDIA for his inspiring guidance during the course of the Project work. The continuous encouragement extended by him propelled me to update my research skills and pedigree to engage in fruitful research.*

*We wish to express our gratitude to **Smt. M.Praveena**, Principal, Tara Govt. College, Sangareddy(A)-502001, INDIA for her constant support, cooperation and suggestions during the research work. We wish to express my sincere thanks to **K.Sreedhar**, Asst. Professor, Department of Chemistry for providing me facilities, help and support for the entire research work.*

*We express our special thanks to **MART Specialities Lab, Hyderabad** for providing technical assistance in Atomic absorption spectrometric analysis.*

Finally, we take this opportunity to thank one and all that has directly or indirectly helped me in completing the task.

1. **K.Dheeraj Kumar**, B.Sc (Chemistry) , III Year
2. **G.Laxmi kanth**, B.Sc (Chemistry) , III Year
3. **K.Narasimha**, B.Sc (Chemistry) , III Year
4. **G.Omkar**, B.Sc (Chemistry) , III Year
5. **D.Anil**, B.Sc (Chemistry) , III Year
6. **A.Jeremiah**, B.Sc (Chemistry) , III Year

DECLARATION

*We hereby declare that the project report entitled “**ADSORPTION OF Fe[III] ON CELLULOSE USING D-VALINE AS FACILITATING AGENT**” is the work done by us in the campus at Department of Chemistry, Tara Government College, Sangareddy(A) during the academic year 2021-2022 and is submitted in partial fulfillment of the requirements for the degree of Bachelor of Science by Tara Govt. College, Sangareddy(A) (Affiliated to Osmania University, Hyderabad) during the academic year 2021-2022.*

S.No.	Name of the Student	Roll Number	Group	Year	Signature
1	K.Dheeraj Kumar	605819578017	BSc Mccs	III	
2	G.Laxmi kanth	605819578012	BSc Mccs	III	
3	K.Narasimha	605819578016	BSc Mccs	III	
4	G.Omkar	605819578014	BSc Mccs	III	
5	D.Anil	605819578009	BSc Mccs	III	
6	A.Jeremiah	605819578001	BSc Mccs	III	

**TARA GOVERNMENT COLLEGE, SANGAREDDY – 502 001
(AUTONOMOUS)**

BONAFIDE CERTIFICATE

*Certified that the project report "ADSORPTION OF Fe[III] ON
CELLULOSE USING D-VALINE AS FACILITATING AGENT" is the
bonafidework of*

- | | |
|----------------------|-----------------------------|
| 1. K. Dheeraj Kumar, | B.Sc (Chemistry) , III Year |
| 2. G. Laxmi kanth, | B.Sc (Chemistry) , III Year |
| 3. K. Narasimha, | B.Sc (Chemistry) , III Year |
| 4. G. Omkar, | B.Sc (Chemistry) , III Year |
| 5. D. Anil, | B.Sc (Chemistry) , III Year |
| 6. A. Jeremiah, | B.Sc (Chemistry) , III Year |

who carried out the project work under my supervision.

Dr. K. ABHIJIT
PROJECT SUPERVISOR

Smt. M. PRAVEENA
PRINCIPAL

CONTENTS

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3	ATOMIC ABSORPTION SPECTROMETRY	13-20
4	METHODOLOGY	21-36
5	RESULTS AND DISCUSSION	37-52

Chapter-I

INTRODUCTION

ADSORPTION

Adsorption is a process in which solids come into contact with liquids or gases, and the mass transfer occurs from liquids to solids. Desorption is the reversal of this action. Adsorption operations take advantage of a solid's capacity to concentrate certain chemicals from a fluid on to its surface. Adsorbate refers to the adsorbed substance, while adsorbent refers to the solid substance. The following are some examples of solid-liquid and solid-gas applications:

- Removing dissolved moisture from gasoline.
- Decolorization of sugar solutions and petroleum products.
- Removing noxious odors and tastes from water. Dehumidification of air and gases is one of the solid-gas activities.
- To fractionate mixtures of hydrocarbon gases such as methane, ethane, and propane.
- To remove undesirable odors and contaminants from gases.
- To recover valuable solvent vapors from dilute gas mixtures.

NATURE OF ADSORBENTS

Adsorbents are typically granular in nature, ranging in size from 0.5 mm to 12 mm. They can't have a lot of pressure decrease or get swept away by a fast-moving stream. During handling, they must maintain their shape and size. They'll need a lot of pores and a lot of surface area per unit mass.

Some of the commonly used adsorbents, their sources and applications are given below:

S. No.	Adsorbent	Source	Application
1.	Fuller's earth	Naturally occurring clay is heated and dried to get a porous structure.	De-colorizing, drying of lubricating oils, kerosene and engine oils.
2.	Activated charcoal	Bentonite or other activated clay which are activated by treatment with sulfuric acid and further washing, drying and crushing.	Used for de-colorizing petroleum products.
3.	Bauxite	A naturally occurring hydrated alumina, activated by heating at 230-815	Used for de-colorizing petroleum products and for drying gases.

4.	Alumina	A hard hydrated aluminium oxide, which is activated by heating to drive off the moisture and then crushed to desired size.	Used as desiccant.
5.	Bone-char	Obtained by destructive distillation of crushed bones at 600-900	Used for refining sugar and can be reused after washing and burning.
6.	Silica gel	A hard granular and porous product obtained from sodium silicate solution after treatment with acid. Normally has 4 to 7% water in the product.	Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.

7.	Activated carbon	<p>(1) Vegetable matter is mixed with calcium chloride, carbonized and finally the inorganic compounds are leached away.</p> <p>(2) Organic matter is mixed with porous pumice stones and then heated and carbonized to deposit the carbonaceous matter throughout the porous particle.</p> <p>(3) Carbonizing substances like wood, sawdust, coconut shells, fruit pits, coal, lignite and subsequent activation with hot air steam. It is available in granular or pelleted form.</p>	<p>De-colorizing of sugar solutions, chemicals, drugs, water purification, refining of vegetable and animal oils, recovery of gold and silver from cyanide ore-leach solution, recovery of solvent vapour from gas-mixtures, collection of gasoline hydro-carbons from natural gas, fractionation of hydrocarbon gases.</p>
8.	Molecular sieves	<p>These are porous synthetic zeolite crystals, metal alumino-silicates.</p>	<p>Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.</p>

SIGNIFICANCE OF RESEARCH PROBLEM

Cellulose can be used for adsorption of heavy metals owing to its polyhydric functional groups which will be a fetching tool to develop eco-friendly remediation strategy. Mean while, there is a need to improve the adsorption efficacy of cellulose by the incorporation of facilitating agents to design and develop standardized heavy metal remediation technology. For this purpose organic ligands will be useful to bring the metal-adsorbent linkages by stabilizing the metal complexes which will bind to the adsorbent more covalently.

OBJECTIVE OF THE PROJECT

To evaluate the impact of D-Valine as facilitating agent in the adsorption of Fe (III) from aqueous solution by Cellulose as an adsorbent to develop efficient remediation technology using concept of Coordination chemistry.

Chapter-II

ADSORPTION OF HEAVY METALS FROM DILUTE SOLUTIONS

The phrase "heavy metals" refers to a collection of metals and metalloids that have an atomic density more than 6 g cm^{-3} . Although it is a broad phrase, it is typically used to refer to elements like Cd (cadmium), Cr (chromium), Cu (copper), Hg (mercury), Ni (nickel), Pb (lead), and Zn (zinc) that are commonly related with pollution and toxicity problems. Heavy metals, unlike most organic contaminants, occur naturally.

Each of these elements has a range of normal background concentrations in soils, sediments, waterways, and living creatures because they occur naturally in rock-forming and ore minerals. Significant amounts of various heavy metals are produced each year from the mining of their respective ores. Approximately 14,500 103 tonnes of copper were produced in 2004. (US Geological Survey, 2004). Soils, sediments, waterways, and live species all play a role in the environment. Significant amounts of various heavy metals are produced each year from the mining of their respective ores.

Metals used in industry and other domestic processes (e.g., burning fossil fuels, incineration of wastes, automobile exhausts, smelting processes, and the use of sewage sludge as a landfill material and fertiliser) have released large amounts of potentially toxic heavy metals into the atmosphere, as well as into aquatic and terrestrial environments. Cd, Pb, and Zn are common hazardous metals released into the environment. Cu, Ni, Cr, Co, Zn, and Pb are some of the most common metals (Babich et al., 1985). Table 1 shows the industrial sources of a variety of metals emitted, as well as the potential for contamination.

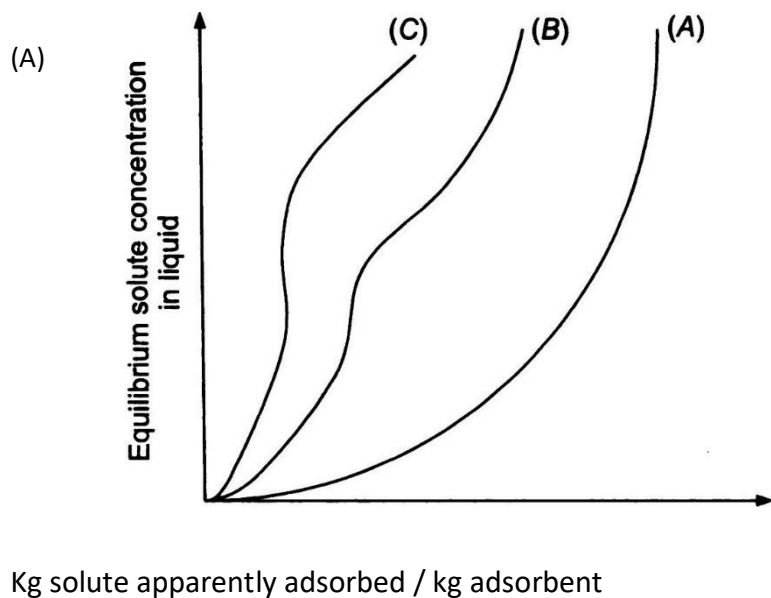
While many heavy metals are required by plants as micronutrients, larger quantities have been linked to a variety of harmful effects. Lead causes encephalopathy, cognitive impairment, behavioural problems, renal damage, anaemia, and reproductive system toxicity at high exposure levels (Pagliuca and Mufti, 1990). In its hexavalent state, chromium is well acknowledged to be hazardous (Rowbotham et al., 2000). Exposure to Cr (VI) compounds has been linked to a greater incidence of respiratory malignancies in humans (IARC, 1990). Cadmium has been linked to nephrotoxic effects, especially at high levels of exposure; long-term exposure may also induce bone damage (Friberg, 1985). Neurobehavioural problems and developmental abnormalities, such as dyslexia, attention deficit hyperactivity disorder, and intellectual retardation, can be caused by high mercury levels (Weiss and Landrigan, 2000). Copper poisoning can cause weakness, tiredness, and anorexia, as well as damage to the stomach and intestines (Theophanides and Anastassopoulou, 2002). Nordberg et al. go into great length about the toxicity of nickel and other heavy metals (2007)

Table : Significant anthropogenic sources of metals in the environment.

Industry	Metals	Pollution Arising	Reference
Metalliferous mining	Cd,Cu,Ni,Cr,Co,Zn	Acid mine drainage, tailings, slag heaps	Babich et al.(1985) Aswathanarayana(2003)
Agriculture materials Fertilisers	Cd,Cr,Mo,Pb,U,V,Zn	Run-off, surface and groundwater contamination, plant bioaccumulation	Nicholson et al.(2003) Otero et al.(2005)
Manures sewage sludge	Zn,Cu,Ni,Pb,Cd,Cr,As,Hg	Landspreading threat to ground and surface water	Nicholson et al.(2003) Cheung and Wong (1983) Walter et al.(2006)

Metallurgical industries Specialist alloys and steels	Pb,Mo,Ni,Cu,Cd,As,Te,U, Zn	Manufacture, disposal and recycling of metals, Tailings and slag heaps	Alloway and Ayres (1993) Rule et al (2006) Cheng (2003)
Waste disposal Landfill leachate	Zn,Cu,Cd,Pb,Ni,Cr,Hg	Landfill leachate, contamination of ground and surface	Kjeldson et al.(2002) Fernandez et al.(2005)
Electronics	Pb,Cd,Hg,Pt,Au,Cr,As,Ni, Mn	Aqueous and solid metallic waste food manufacturing and recycling process	Veglio et al. (2003)
Metal finishing industry Electroplating	Cr,Ni,Zn,Cu	Liquid effluents from plating processes	Castelblanque and salimbeni(2004) Zhao et al.(1999) Alvarez-Ayuso et al.(2003)
Miscellaneous sources Batteries	Pb,Sb,Zn,Cd,Ni,Hg	Waste battery fluid, contamination of soil and groundwater	EU Directorate general of the Environment (2004)
Paints and pigments	Pb,Cr,As,Ti,Ba,Zn	Aqueous waste from manufacture, old paint deterioration and soil pollution	Davis and Burns (1999) Barnes and Davis (1996) Monken(2000)

Both the solvent and the solute are adsorbed whenever a mixture of solute and solvent is adsorbed using an adsorbent. As a result, only relative or apparent solute adsorption can be determined. As a result, treating a known volume of solution of original concentration C with a known weight of adsorbent is standard procedure. Let C^* be the solution's final equilibrium solute concentration. If v is the volume of solution per unit mass of adsorbent (cc/g), and C and C^* are the starting and equilibrium concentrations (g/cc) of the solute, then the apparent adsorption of the solute per unit mass of adsorbent is $v(C - C^*)$, (g/g), neglecting any volume change. This statement is most useful in the case of dilute solutions. The C^* value is determined by the temperature, nature, and properties of the adsorbent when the proportion of the original solvent that can be adsorbed is tiny. The Freundlich adsorption isotherm, $C^* = K[v(C - C^*)]^n$, represents the adsorption phenomena in dilute fluids across a small concentration range. The Freundlich adsorption equation is especially useful in situations where the identification of the solute is unknown, such as the removal of colouring substances from sugar solutions, oils, and other liquids. A spectrophotometer or colorimeter can quickly determine the colour composition of the solute. In worked example 2, the interpretation of this data is demonstrated. Adsorption is good if the value of n is high, say 2 to 10. If it's between 1 and 2, it's relatively challenging, and if it's less than 1, it's easy and it indicates poor adsorption characteristics. Freundlich adsorption equation is also useful in such a case where the actual identification of solute is not known, e.g. removal of colouring substance from sugar solutions, oils etc. A typical adsorption isothermal for the adsorption of various adsorbents A, B and C in dilute solution at the same temperature for the same adsorbent is represented in a graph.

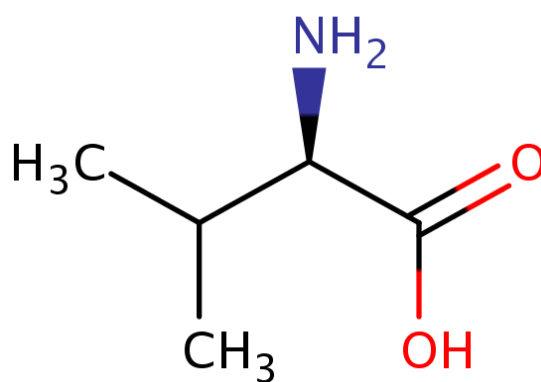


METAL COMPLEXES OF AMINO ACIDS

Transition metal amino acid complexes are a large family of coordination complexes containing the conjugate bases of the amino acids, the 2-aminocarboxylates. Amino acids are prevalent in nature, and all of them function as ligands toward the transition metals. Not included in this article are complexes of the amides (including peptide) and ester derivatives of amino acids. Also excluded are the polyamino acids including the chelating agents EDTA and NTA.

Most commonly, amino acids coordinate to metal ions as N,O bidentate ligands, utilizing the amino group and the carboxylate. They are "L-X" ligands. A five-membered chelate ring is formed. The chelate ring is only slightly ruffled at the sp^3 -hybridized carbon and nitrogen centers. For those amino acids containing coordinating substituents, the resulting complexes are more structurally diverse since these substituents can coordinate. Histidine, aspartic acid, methionine, and cysteine sometimes form

tridentate N,N,O, N,O,O, S,N,O, and S,N,O complexes, respectively. Using kinetically inert metal ions, complexes containing monodentate amino acids have been characterized. These complexes exist in either the N or the O linkage isomers. It can be assumed that such monodentate complexes exist transiently for many kinetically labile metal ions (e.g. Zn^{2+}). Mixing simple metal salts with solutions of amino acids near neutral or elevated pH often affords bis- or tris complexes. For metal ions that prefer octahedral coordination, these complexes often adopt the stoichiometry $M(aa)_3$ (aa = amino carboxylate, such as glycinate, $H_2NCH_2CO_2^-$). Complexes of the 3:1 stoichiometry have the formula $[M(O_2CC(R)HNH_2)_3]^z$. Such complexes adopt octahedral coordination geometry. These complexes can exist in facial and meridional isomers, both of which are chiral. The stereochemical possibilities increase when the amino acid ligands are not homochiral. Complexes with the 2:1 stoichiometry are illustrated by copper(II) glycinate $[Cu(O_2CC(R)HNH_2)_2]$, which exists both in anhydrous and pentacoordinate geometries. When the metal is square planar, these complexes can exist as cis and trans isomers. The stereochemical possibilities increase when the amino acid ligands are not homochiral. Homoleptic complexes are also known where the amino carboxylate is tridentate amino acids. One such complex is $Ni(\kappa^3\text{-histidinate})_2$. D-Valine can easily be involved in M-L complex formation due to its functional flexibility. Moreover its water solubility encourages the metal-ligand complex formation under aqueous conditions.



D-Valine

CELLULOSE AS ADSORBENT

Cellulose is the most plentiful and renewable polymer material available on the planet. According to estimates, deterioration and soil pollution Photosynthesis produces 10^{11} – 10^{12} tonnes of cellulose every year in a relatively pure form, such as in the seed hairs of cotton plants, but it is more commonly mixed with lignin and other polysaccharides (so-called hemicelluloses) in the cell walls of woody plants (Klemm et al., 2002). For thousands of years, cellulose has been utilised as an energy source, a building material, and a clothing material in the form of wood and cotton.

As a carbohydrate polymer, cellulose has a molecular structure that is made up of repeating b-D-glucopyranose units that are covalently linked by acetal functionalities between the OH groups of the C4 and C1 carbon atoms (b-1,4-glucan). Cellulose is a long, linear-chain polymer with a lot of hydroxyl groups (three per anhydroglucose (AGU) unit) and the 4C1 conformation. Every second AGU unit is rotated 180 degrees in the plane to accommodate the preferred bond angles. The number of constituent AGU units (degree of polymerization, DP) determines the length of the polymeric cellulose chain, which varies depending on the origin and treatment of the cellulose raw material (Klemm et al., 2002).

Cellulose has a ribbon form that allows it to twist and bend in directions other than the plane, making it a fairly flexible molecule. Due to the presence of hydroxyl (–OH) groups that protrude from the chain and create intermolecular hydrogen bonds, there is a relatively strong interaction between neighbouring cellulose molecules in dry fibres. Each chain of cellulose regenerated fibres contains 250–500 repeating units (Klemm et al., 2002). The hydrophilicity, chirality, and degradability features of cellulose are due to this molecular structure. Chemical reactivity is mostly determined by the OH groups' high donor reactivity.

Chapter-III

ATOMIC ABSORPTION SPECTROMETRY

Atomic absorption spectrometry (AAS) is an analytical technique that measures the concentrations of elements. Atomic absorption is so sensitive that it can measure down parts per billion of a gram ($\mu\text{g dm}^{-3}$) in a sample. The technique makes use of the wavelengths of light specifically absorbed by an element. They correspond to the energies needed to promote electrons from one energy level to another, higher, energy level.

Atomic absorption spectrometry has many uses in different areas of chemistry.

Clinical analysis: Analysing metals in biological fluids such as blood and urine.

Environmental analysis: Monitoring our environment- eg finding out the levels of various elements in rivers, seawater, drinking water, air, petrol and drinks such as wine, beer and fruit drinks.

Pharmaceuticals: In some pharmaceutical manufacturing processes, minute quantities of a catalyst used in the process (usually a metal) are sometimes present in the final product. By using AAS the amount of catalyst present can be determined.

Industry: Many raw materials are examined and AAS is widely used to check that the major elements are present and that toxic impurities are lower than specified- eg in concrete, where calcium is a major constituent, the lead level should be low because it is toxic.

Mining: By using AAS the amount of metals such as gold in rocks can be determined to see whether it is worth mining the rocks to extract the gold.

HOW IT WORKS

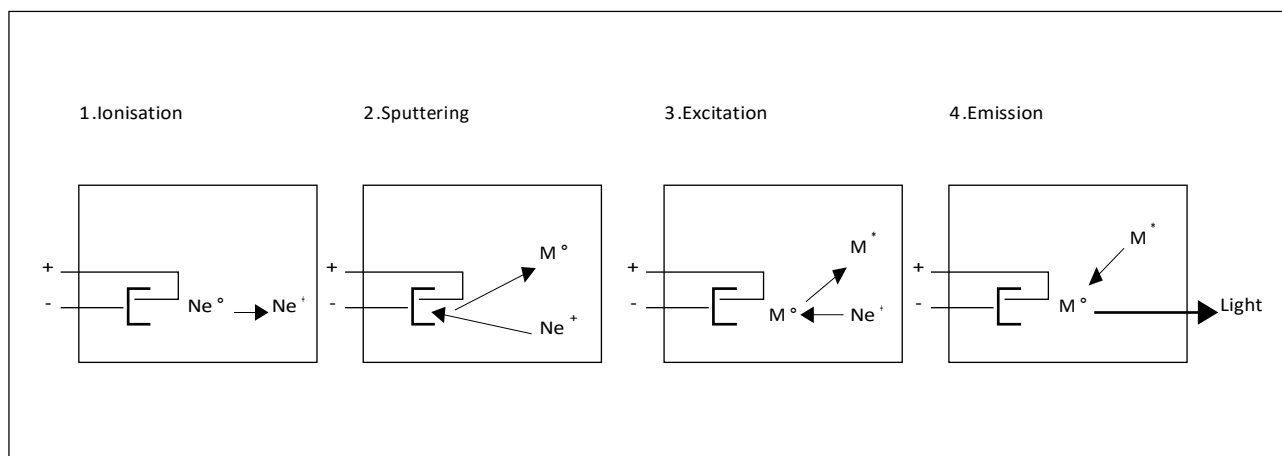
Atoms of different elements absorb characteristic wavelengths of light. Analysing a sample to see if it contains a particular element means using light from that element. For example with lead, a lamp containing lead emits light from excited lead atoms that produce the right mix of wavelengths to be absorbed by any lead atoms from the sample. In AAS, the sample is atomized- i.e. converted into ground state free atoms in the vapour state- and a beam of electromagnetic radiation emitted from excited lead atoms is passed through the vaporized sample. Some of the radiation is absorbed by the lead atoms in the sample. The greater the number of atoms there is in the vapour, the more radiation is absorbed. The amount of light absorbed is proportional to the number of lead atoms. A calibration curve is constructed by running several samples of known lead concentration under the same conditions as the unknown. The amount the standard absorbs is compared with the calibration curve and this enables the calculation of the lead concentration in the unknown sample. Consequently an atomic absorption spectrometer needs the following three components: a light source; a sample cell to produce gaseous atoms; and a means of measuring the specific light absorbed.

THE LIGHT SOURCE

The common source of light is a 'hollow cathode lamp'. This contains a tungsten anode and a cylindrical hollow cathode made of the element to be determined. These are sealed in a glass tube filled with an inert gas- e.g neon or argon- at a pressure of between 1 Nm^{-2} and 5 Nm^{-2} .

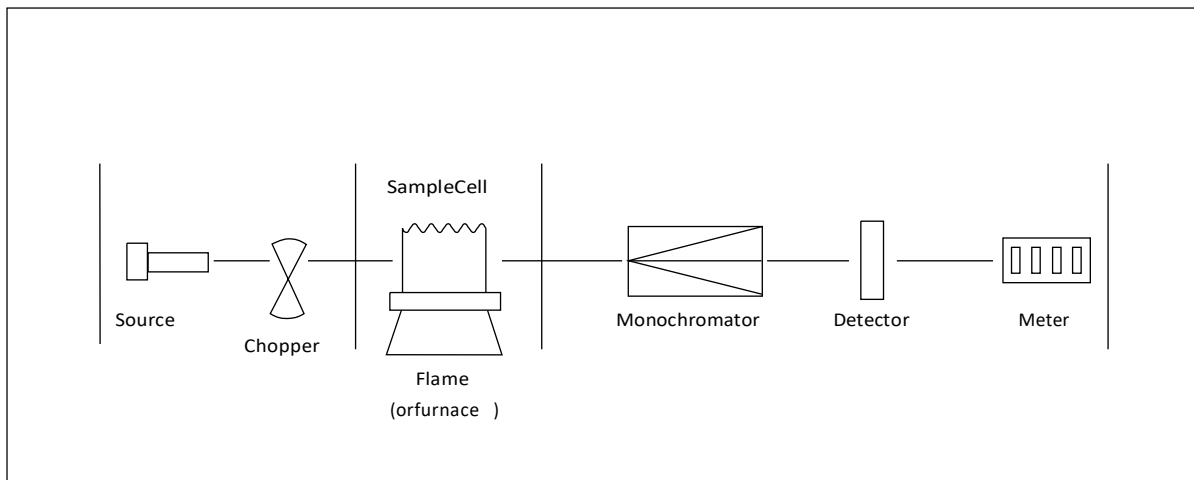


The ionization of some gas atoms occurs by applying a potential difference of about 300-400V between the anode and the cathode. These gaseous ions bombard the cathode and eject metal atoms from the cathode in a process called sputtering. Some sputtered atoms are in excited states and emit radiation characteristic of the metal as they fall back to the ground state – $eg Pb^* \rightarrow Pb + h\nu$. The shape of the cathode concentrates the radiation into a beam which passes through a quartz window, and the shape of the lamp is such that most of the sputtered atoms are redeposited on the cathode. A typical atomic absorption instrument holds several lamps each for a different element. The lamps are housed in a rotating turret so that the correct lamp can be quickly selected.



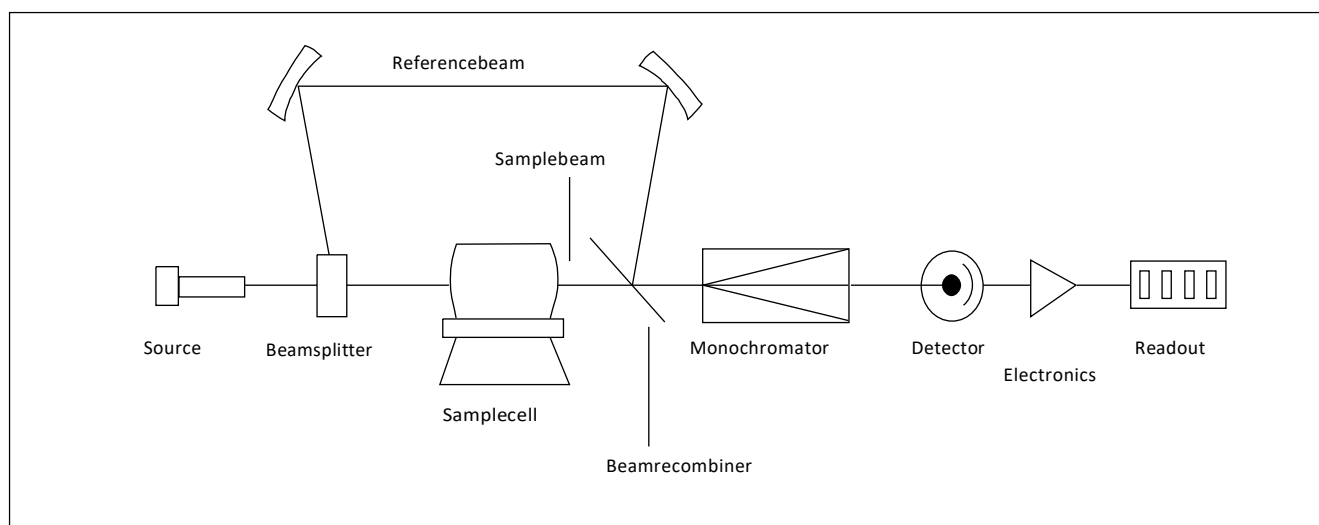
THE OPTICAL SYSTEM AND DETECTOR

A monochromator is used to select the specific wavelength of light –ie spectral line – which is absorbed by the sample, and to exclude other wavelengths. The selection of the specific light allows the determination of the selected element in the presence of others. The light selected by the monochromator is directed onto a detector that is typically a photomultiplier tube. This produces an electrical signal proportional to the light intensity



DOUBLE BEAM SPECTROMETERS

Modern spectrometers incorporate a beam splitter so that one part of the beam passes through the sample cell and the other is the reference. The intensity of the light source may not stay constant during an analysis. If only a single beam is used to pass through the atom cell, a blank reading containing no analyte (substance to be analysed) would have to be taken first, setting the absorbance at zero. If the intensity of the source changes by the time the sample is put in place, the measurement will be inaccurate. In the double beam instrument there is a constant monitoring between the reference beam and the light source. To ensure that the spectrum does not suffer from loss of sensitivity, the beam splitter is designed so that as high a proportion as possible of the energy of the lamp beam passes through the sample.



ATOMISATION OF THE SAMPLE

Two systems are commonly used to produce atoms from the sample. Aspiration involves sucking a solution of the sample into a flame; and electrothermal atomisation is where a drop of sample is placed into a graphite tube that is then heated electrically.

Some instruments have both atomisation systems but share one set of lamps. Once the appropriate lamp has been selected, it is pointed towards one or other atomisation system.

FLAME ASPIRATION

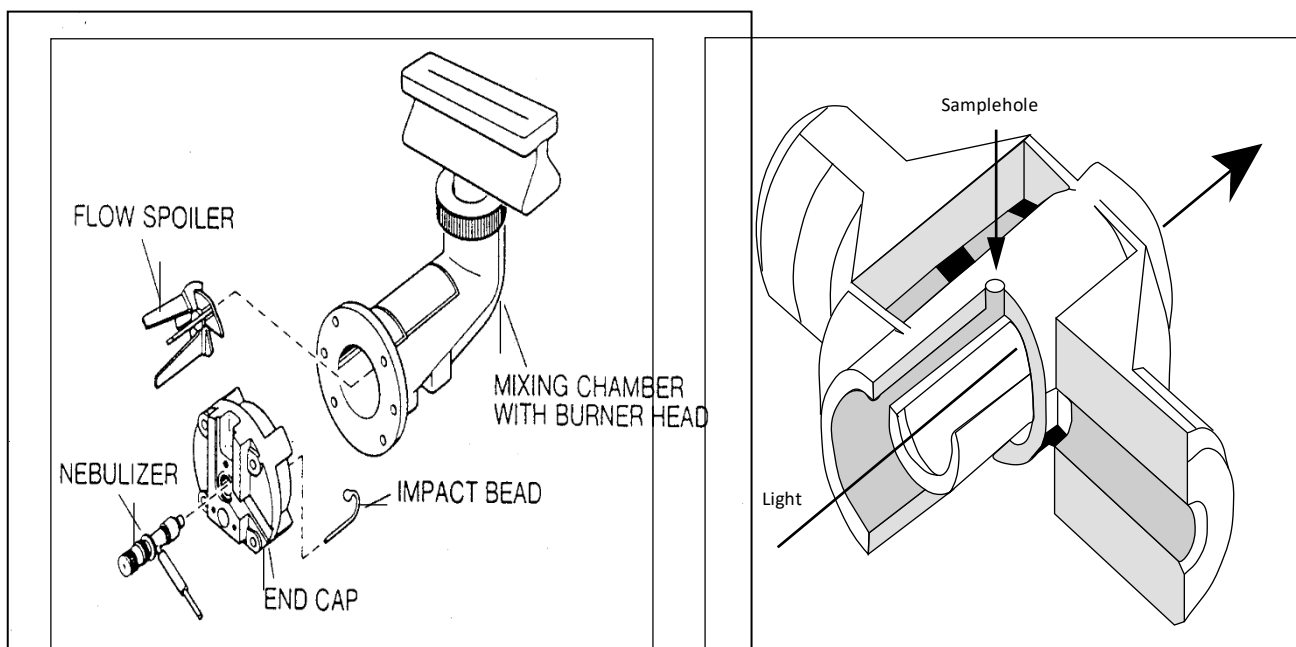


Figure 1

Figure 2

Ethyne/air (giving a flame with a temperature of 2200–2400°C) or ethyne/dinitrogen oxide (2600–2800°C) are often used. A flexible capillary tube connects the solution to the nebuliser. At the tip of the capillary, the solution is ‘nebulised’ –ie broken into small drops. The larger drops fall out and drain off while smaller ones vaporise in the flame. Only ca 1% of the sample is nebulised.

ELECTROTHERMAL ATOMIZATION

25 μl of sample (ca 1/100th of a raindrop) is placed through the sample hole and onto the platform from an automated micropipette and sample changer. The tube is heated electrically by passing a current through it in a pre-programmed series of steps. The details will vary with the sample but typically they might be 30–40 seconds at 150°C to evaporate the solvent, 30 seconds at 600°C to drive off any volatile organic material and char the sample to ash, and with a very fast heating rate (ca 1500 °C s⁻¹) to 2000–2500°C for 5–10 seconds to vaporise and atomise elements (including the element being analysed). Finally heating the tube to a still higher temperature –ca 2700°C – cleans it ready for the next sample. During this heating cycle the graphite tube is flushed with argon gas to prevent the tube burning away. In electrothermal atomisation almost 100% of the sample is atomised. This makes the technique much more sensitive than flame AAS.

SAMPLE PREPARATION

Sample preparation is often simple, and the chemical form of the element is usually unimportant. This is because atomisation converts the sample into free atoms irrespective of its initial state. The sample is weighed and made into a solution by suitable dilution. Elements in biological fluids such as urine and blood are often measured simply after a dilution of the original sample.



When making reference solutions of the element under analysis, for calibration, the chemical environment of the sample should be matched as closely as possible –i.e. the analyte should be in the same compound and the same solvent. Teflon containers may be used when analyzing very dilute solutions because elements such as lead are sometimes leached out of glass vessels and can affect the results

BACKGROUND ABSORPTION

It is possible that other atoms or molecules apart from those of the element being determined will absorb or scatter some radiation from the light source. These species could include unvaporised solvent droplets, or compounds of the matrix (chemical species, such as anions, that tend to accompany the metals being analysed) that are not removed completely. This means that there is a background absorption as well as that of the sample.

One way of measuring and correcting this background absorption is to use two light sources, one of which is the hollow cathode lamp appropriate to the element being measured. The second light source is a deuterium lamp.

The deuterium lamp produces broad band radiation, not specific spectral lines as with a hollow cathode lamp. By alternating the measurements of the two light sources – generally at 50 –100 Hz – the total absorption (absorption due to analyte atoms plus background) is measured with the specific light from the hollow cathode lamp and the background absorption is measured with the light from the deuterium lamp. Subtracting the background from the total absorption gives the absorption arising from only analyte atoms.

CALIBRATION

A calibration curve is used to determine the unknown concentration of an element –eg lead – in a solution. The instrument is calibrated using several solutions of known concentrations. A calibration curve is produced which is continually rescaled as more concentrated solutions are used – the more concentrated solutions absorb more radiation up to a certain absorbance. The calibration curve shows the concentration

against the amount of radiation absorbed in the given figure.(a) The sample solution is fed into the instrument and the unknown concentration of the element-e.g. lead- is then displayed on the calibration curve given in the below figure.(b)

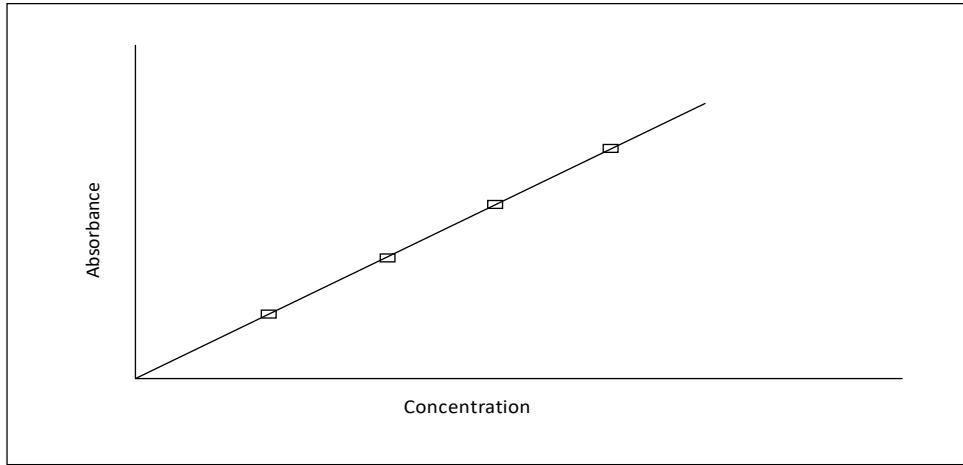


Figure (a)

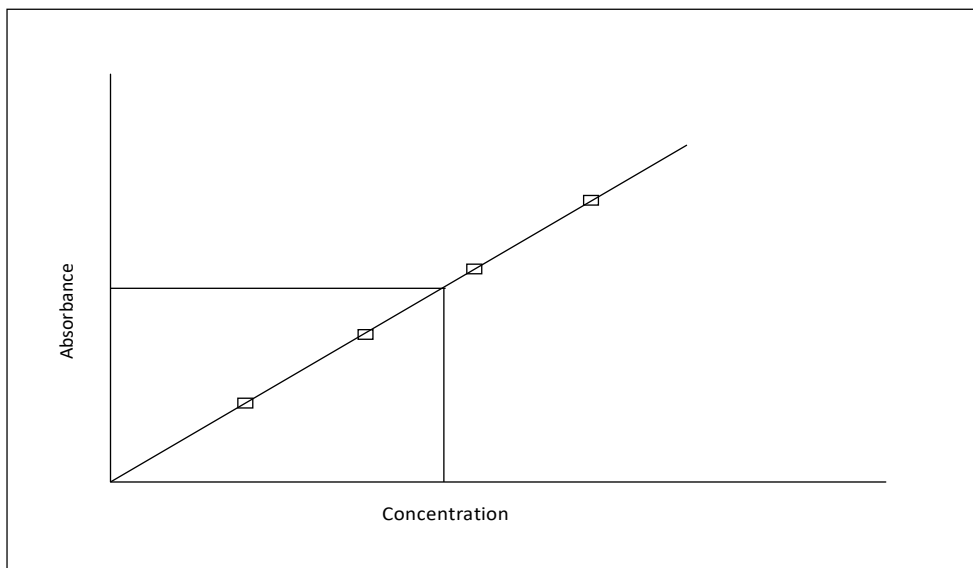


Figure (b)

Chapter-IV

METHODOLOGY

MATERIALS REQUIRED

- Ferric chloride pure Hexahydrate
- D-Valine
- Cellulose
- Volumetric flask
- Digital Weighing Machine
- Watch glasses
- Hot air oven
- Ultra pure water (Demineralized)
- 2% of Nitric acid

PROCEDURE

1. Using a 250ml Volumetric flask prepare a metal ligand solution by adding 100ppm of Ferric chloride Hexahydrate (MOLYCHEM MCR-11580) and 200ppm of D-Valine (Avra N2200133). Prepare 250ml solution by adding Ultra pure water and then keep this system aside for a few hours.
2. Weigh 5 grams of Cellulose (Avra N2001901) using a Digital weighing machine (Citizen Scales(I) PVT LTD CTG302-300) and take this into a beaker.
3. Now add 100ml of the above prepared metal ligand solution into the beaker and stir the mixture well for 10 minutes using a glass rod.

4. Keep this mixture aside for 48 hours without disturbing it as at this step Ferric is going to be adsorbed on Cellulose in the presence of D-Valine which acts as a chelating agent.
5. After completion of 48 hours take the mixture and filter it off using Whatman Grade 1 filter paper and a funnel.
6. After filtration of the mixture again add Ultra pure water for 3 times and then filtrate it to obtain pure concentration of Ferric which is get adsorbed on Cellulose.
7. Collect the filtered Cellulose powder and place it on a watch glass and keep this in a Hot air oven at 60 °C for 10 hours to get rid off moisture present in it.
8. Now weigh each 1 gm of Cellulose in glass vials.
9. Now take a beaker and rinse it with ultra pure water then followed by Nitric acid.
10. Take 0.5 grams of Cellulose sample in the beaker and add 2% of Nitric acid and stir the mixture well for 10-15 minutes.
11. Filter the mixture using Whatman Grade 1 filter paper and again 3 times by using Ultra pure water to obtain pure concentration of Ferric present in the mixture prepared using the sample.
12. Take this collected sample solution and keep this system under AAS (Thermo Scientific iCE 3300)
13. Calculate the concentration of Ferric adsorbed on Cellulose at different ppm levels. Observe the graph obtained and note down the readings of the result we obtained.
14. Same Experiment carried out without the interference/addition of Ligand i.e. D-Valine for Control Experiment.

AA spectrometer

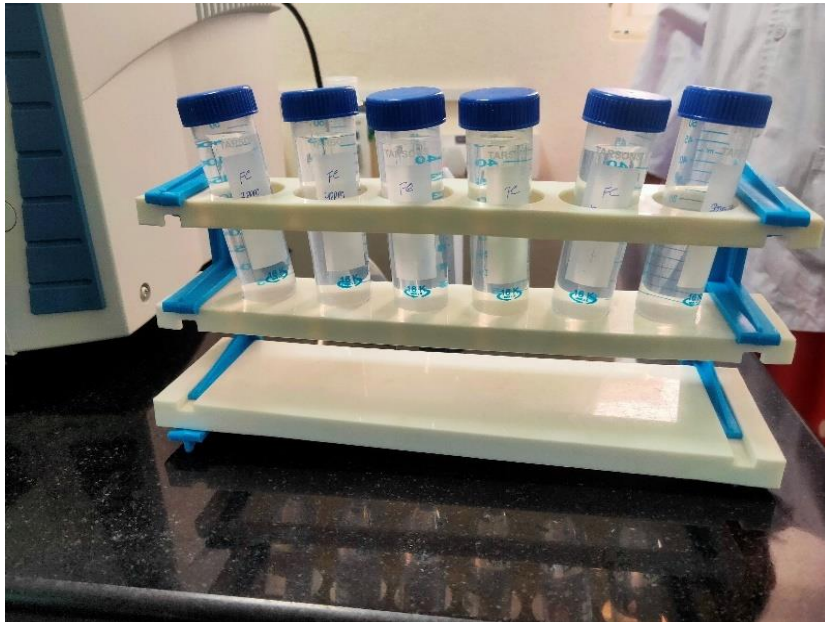


Model no. ICE 33 0

Fume hood



Fe standards with test sample

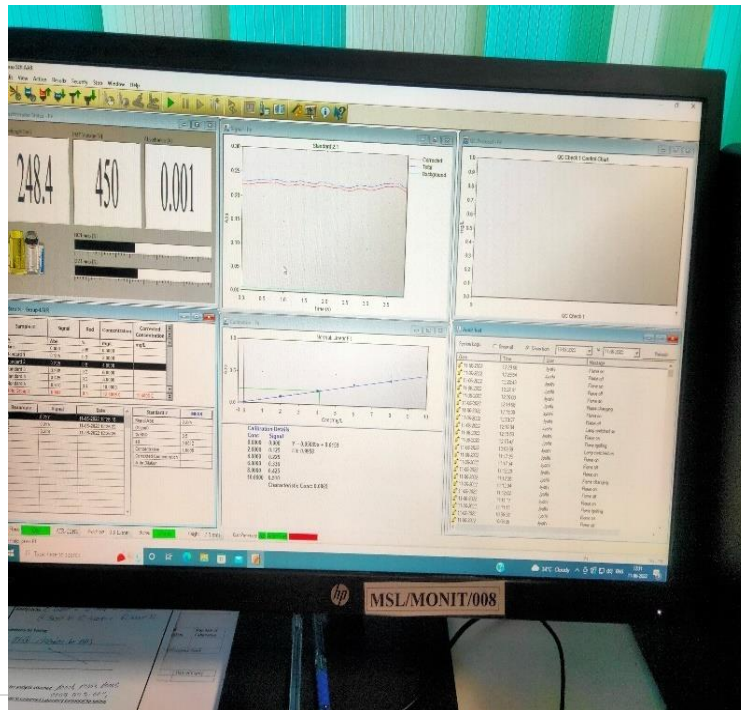


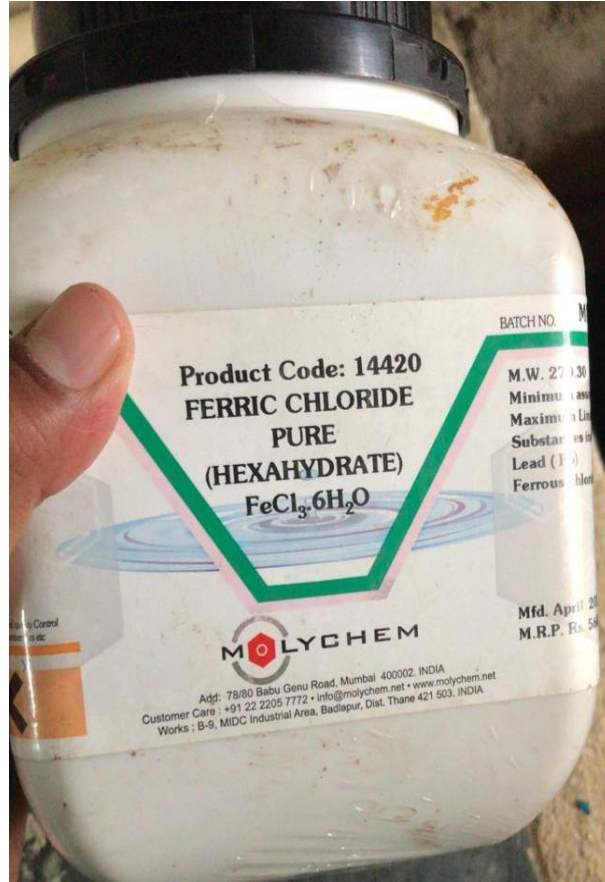
Sample is Taking in to the Machine \



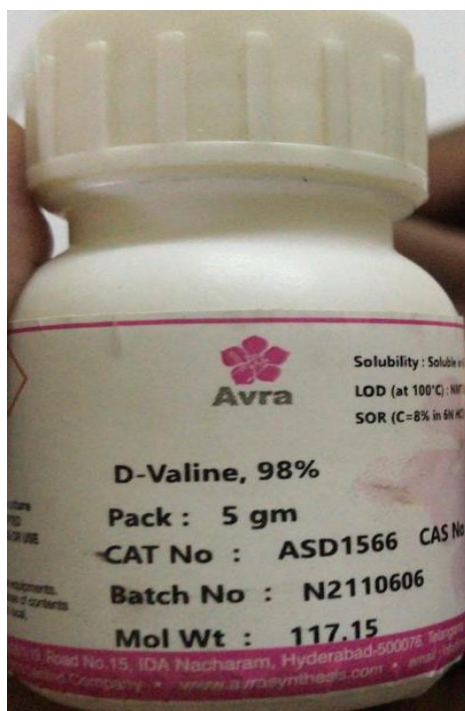
Burning of test sample in AASpectometer

Values after intake of test samples





Ferric Chloride (FeCl₃·6H₂O)



D-VALINE (Avra)



Solution of Fe(III)-D-Valine Solution

Other Apparatus Used



Watch glass



Spatula



Measuring Jar 50 ml



Digital weighing Machine





Filtering the solution



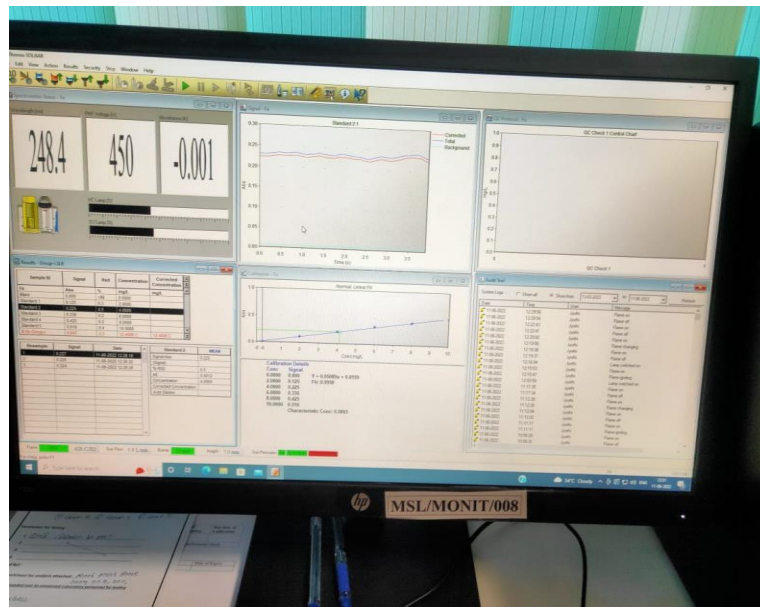
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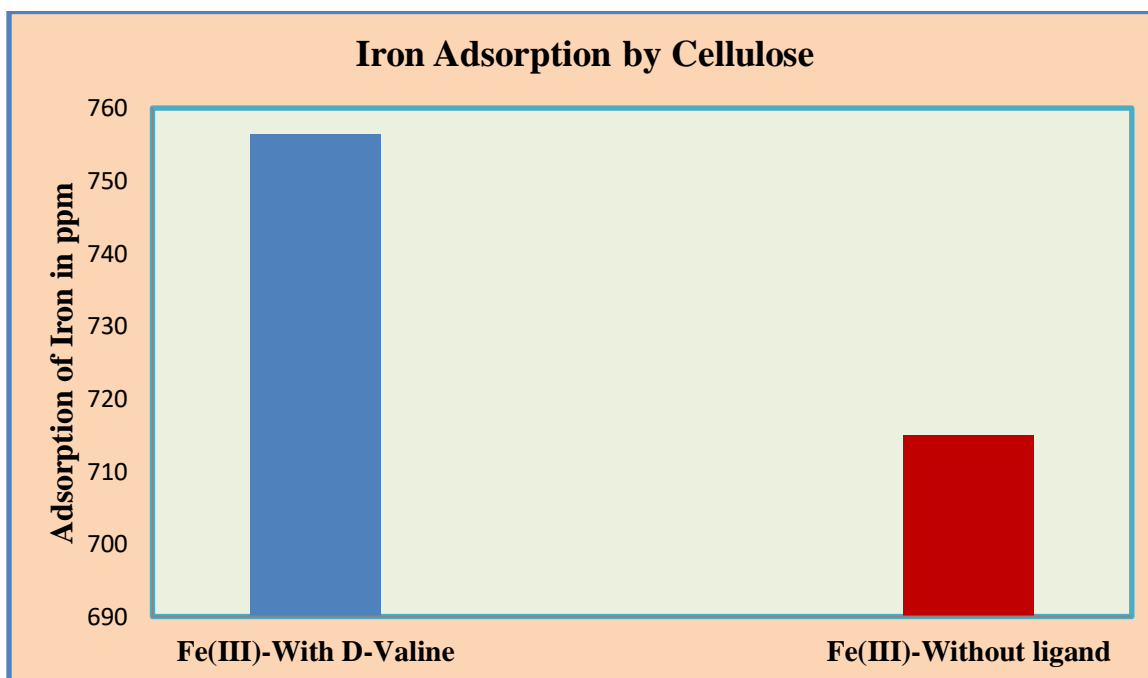


Results obtained on the monitor under AAS Method

Chapter-V

RESULTS AND DISCUSSIONS

From an aqueous solution of the metal ligand solution Fe(III)-D-Valine, Cellulose absorbed **756.5ppm** of iron. When D-Valine is absent, Cellulose only absorbed **715.0ppm**. The AAS data clearly show that the addition of ligands improved the metal adsorption by triggering possible chemical interactions between the adsorbent and adsorbate. Strong coordination bonds between D-Valine and Fe(III) result in the formation of a soluble complex in aqueous solution. By creating chemical bonds, the ligand-capped Fe(III) complex firmly adhered to Cellulose. The AAS data clearly show that **5.804%** more adsorption occurred when D-Valine was included as a chelating agent.



Impact of D-Valine on Adsorption of Fe (III) ions from aqueous solution by Cellulose.

Spectrometer Parameters – Fe:

Element : Fe	Measurement mode : Absorbance	
Wavelength : 248.3nm	Band pass : 0.2nm	Lamp current : 75%
Background correction : D2	High Resolution : Off	Optimise Spectrometer Parameters : No
Signal type : continuous	Resamples : Fast	Number of resamples : 3
Measurement time : 4.0secs	Flier mode : No	
Use RSD Test : No		

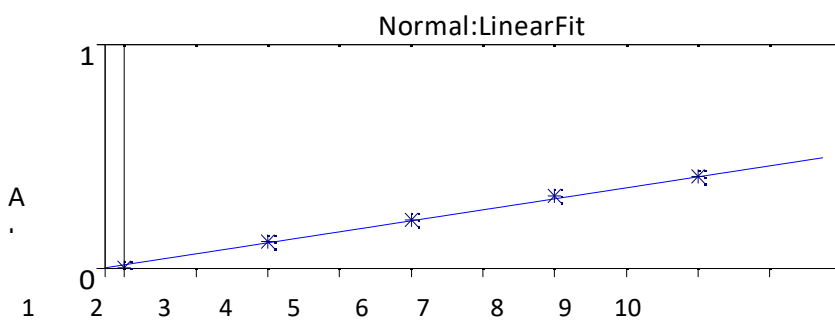
Flame Parameters – Fe:

Flame type : Air – C2H2	Fuel Flow : 0.9L/min	Auxiliary Oxidant : Off
Nebuliser Uptake : 4secs	Bunsen Stabilisation : 0mins	Optimise Fuel Flow : No
Burner Height : 7.0mm	Optimise Burner fuel : No	

Calibration Parameters–Fe:

Calibration mode : Normal	Line fit : Linear	Use stored calibration : No
Concentration units : mg/L	Scales units : mg/L	Scaling factor : 1.0000
Acceptable fit : 0.990	Rescale Limits : 10.0%	Failure Action : Flag and Continue
Standard 1 - 2.0000	Standard 4 - 8.0000	
Standard 2 - 4.0000	Standard 5 - 10.0000	
Standard 3 - 6.0000		

Solutions Results–Fe:



$Y = 0.04924x + 0.0141$

Fit: 0.9965

Characteristic Conc.: 0.0894

Sample ID	Signal	RSD	Conc.
	Abs	%	Mg/L
Fe Blank	0.001	35.6	0.0000
1	0.001	Background: -0.003	
2	0.001	Background: -0.003	
3	0.000	Background: -0.003	
Fe Standard 1	0.120	0.3	2.0000
1	0.120	Background: 0.003	
2	0.119	Background: 0.003	
3	0.120	Background: 0.003	
Fe Standard 2	0.215	0.3	4.0000
1	0.215	Background: 0.004	
2	0.215	Background:0.004	
3	0.216	Background:0.004	
Fe Standard 3	0.322	0.2	6.0000

1	0.323	Background: 0.005	
2	0.322	Background: 0.005	
3	0.322	Background: 0.005	
Fe Standard 4	0.411	0.3	8.0000
1	0.410	Background: 0.005	
2	0.412	Background: 0.005	
3	0.412	Background: 0.005	
Fe Standard 5	0.493	0.1	10.0000
1	0.494	Background: 0.005	
2	0.494	Background: 0.005	
3	0.494	Background: 0.006	
Fe(III)-D-Valine-Cellulose	0.759	0.1	15.1286
1	0.758	Background: 0.003	
2	0.760	Background: 0.003	
3	0.758	Background: 0.004	
Fe(III)-Cellulose (Without Ligand)	0.717	0.1	14.2986 C
1	0.719	Background: 0.004	
2	0.716	Background: 0.003	
3	0.716	Background: 0.004	

Test Results:

S.no	Test Parameters	Sample	Results
01.	Iron by AAS Analysis: (ppm)	Fe(III)-D-Valine – Cellulose Sample	756.5ppm
02.	Iron by AAS Analysis: (ppm)	Fe(III)– Cellulose (control)	715.0 PPM

CONCLUSION

According to the results of the current experiment, D-Valine, which acts as a chelating agent, is crucial to the adsorption of Fe (III) ions from aqueous solution by Cellulose and enhances adsorption by up to **5.804%**. Designing the latest heavy metal remediation systems that employ natural chelating ligands as facilitation agents in metal adsorption processes would benefit from this feature.

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MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

General Parameters

Method : Iron (Fe)

Operator : Jyothi

Instrument Mode: Flame

Autosampler : None

Dilution: None

Use SFI: No

Valid Method Signatures

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Method Audit Trail

11-06-2022 17:22:18 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Details

Analysis Name: Iron (Fe) 11-06-2022

Spectrometer: ICE 3000 AA01204906 v1.30

Operator Name: Jyothi

Lamp Information

Element(s)

Serial Number

mA Hours

Fe

n/a

n/a

Deuterium Lamp Hours: 68.34

Sequence Table

Shared Standards: Yes

Action	Fe
Calibration	✓
B.No.Group-II	✓
B.No.Group-III	✓
B.No.Group-IV	✓
B.No.Group-V	✓
B.No.Group-VI	✓

Sample Details

Nominal Mass: 1.0000

No.	Sample Id	Sample Mass	Dilution Ratio
1	B.No.Group-II	1.0000	1.0000
2	B.No.Group-III	1.0000	1.0000
3	B.No.Group-IV	1.0000	1.0000
4	B.No.Group-V	1.0000	1.0000
5	B.No.Group-VI	1.0000	1.0000

Valid Analysis Signatures

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Audit Trail

11-06-2022 17:30:16 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:38:27 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Error MD147 - Activity manually aborted by user.

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Spectrometer Parameters - Fe

Element: Fe

Measurement Mode: Absorbance

Wavelength: 248.3nm

Bandpass: 0.2nm

Lamp Current: 75%

Background Correction: D2

High Resolution: Off

Optimise Spectrometer Parameters: No

Signal Type: Continuous

Resamples: Fast

Number Of Resamples: 3

Measurement Time: 4.0secs

Flier Mode: No

Use RSD Test: No

Flame Parameters - Fe

Flame Type: Air-C2H2

Fuel Flow: 0.9L/min

Auxiliary Oxidant: Off

Nebuliser Uptake: 4secs

Burner Stabilisation: 0mins

Optimise Fuel Flow: No

Burner Height: 7.0mm

Optimise Burner Height: No

Sampling Parameters - Fe

Sampling: None

Calibration Parameters - Fe

Calibration Mode: Normal

Line Fit: Linear

Use Stored Calibration: No

Concentration Units: mg/L

Scaled Units: mg/L

Scaling Factor: 1.0000

Acceptable Fit: 0.990

Rescale Limit: 10.0%

Failure Action: Flag and Continue

Standard 1	2.0000
Standard 2	4.0000
Standard 3	6.0000

Standard 4	8.0000
Standard 5	10.0000

Element Audit Trail - Fe

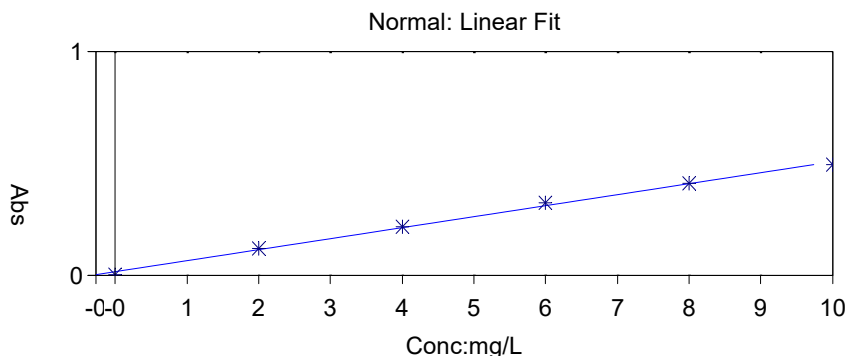
No changes are recorded for this element

Solution Results - Fe

$$Y = 0.04924x + 0.0141$$

Fit: 0.9965

Characteristic Conc: 0.0894



Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Blank	0.001	35.6	0.0000	
1	0.001	Background: -0.003		11-06-2022 17:31:26
2	0.001	Background: -0.003		11-06-2022 17:31:30
3	0.000	Background: -0.003		11-06-2022 17:31:35
Fe Standard 1	0.120	0.3	2.0000	
1	0.120	Background: 0.003		11-06-2022 17:32:05
2	0.119	Background: 0.003		11-06-2022 17:32:09
3	0.120	Background: 0.003		11-06-2022 17:32:13
Fe Standard 2	0.215	0.3	4.0000	
1	0.215	Background: 0.004		11-06-2022 17:32:40
2	0.215	Background: 0.004		11-06-2022 17:32:45
3	0.216	Background: 0.004		11-06-2022 17:32:49
Fe Standard 3	0.322	0.2	6.0000	
1	0.323	Background: 0.005		11-06-2022 17:33:19
2	0.322	Background: 0.005		11-06-2022 17:33:23
3	0.322	Background: 0.005		11-06-2022 17:33:27
Fe Standard 4	0.411	0.3	8.0000	
1	0.410	Background: 0.005		11-06-2022 17:33:59
2	0.412	Background: 0.005		11-06-2022 17:34:03
3	0.412	Background: 0.005		11-06-2022 17:34:07

MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Solution Results - Fe

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Standard 5	0.493	0.1	10.0000	
1	0.494	Background: 0.005		11-06-2022 17:34:38
2	0.494	Background: 0.005		11-06-2022 17:34:42
3	0.493	Background: 0.006		11-06-2022 17:34:46
Fe B.No.Group-II	0.834	0.1	16.6490 C	16.6490 C
1	0.834	Background: 0.005		11-06-2022 17:35:14
2	0.833	Background: 0.005		11-06-2022 17:35:19
3	0.834	Background: 0.005		11-06-2022 17:35:23
Fe B.No.Group-III	0.759	0.1	15.1286 C	15.1286 C
1	0.758	Background: 0.003		11-06-2022 17:35:52
2	0.760	Background: 0.003		11-06-2022 17:35:56
3	0.758	Background: 0.004		11-06-2022 17:36:00
Fe B.No.Group-IV	0.645	0.3	12.8189 C	12.8189 C
1	0.647	Background: 0.003		11-06-2022 17:36:31
2	0.644	Background: 0.003		11-06-2022 17:36:35
3	0.645	Background: 0.003		11-06-2022 17:36:40
Fe B.No.Group-V	0.809	0.2	16.1488 C	16.1488 C
1	0.808	Background: 0.005		11-06-2022 17:37:11
2	0.809	Background: 0.005		11-06-2022 17:37:15
3	0.811	Background: 0.005		11-06-2022 17:37:20
Fe B.No.Group-VI	0.711	0.3	14.1597 C	14.1597 C
1	0.709	Background: 0.005		11-06-2022 17:37:55
2	0.713	Background: 0.005		11-06-2022 17:37:59
3	0.712	Background: 0.004		11-06-2022 17:38:03

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CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-1 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
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DETAILS OF THE SAMPLE

Sample Name	: NA	Mfg. :	NA	Exp. :	NA
Name of the Manufacturer	: NA	date		date	
Batch no	: Group-I	Batch		size	
Storage condition	: To be stored at room Temperature				
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	620ppm

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MSL/QA/017-03/F07-00

Name & Address of the Customer:

Tara Government College
Prashanth Nagar Colony, Balajinagar
Sangareddy Telangana. 502000
Contact Person: Dr. Abhijeet
Contact Number :9502344392

Reference / Report No. : MSL/2022/JUNE/TARA/0064-2
Sample Received Date : 11/06/2022
Report Date : 13/06/2022

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-II Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Room Temperature : 25°C±3°C Temperature Batch : NA
Quantity Received : 4gm size
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	832.5ppm

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DETAILS OF THE SAMPLE

Sample Name	: NA	Mfg.	: NA	Exp.	: NA
Name of the Manufacturer	: NA	date		date	
Batch no	: Group-III	Batch		Batch	: NA
Storage condition	: To be stored at room	size		size	
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	756.5ppm

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DETAILS OF THE SAMPLE

Sample Name	: NA				
Name of the Manufacturer	: NA				
Batch no	: Group-IV	Mfg. date	: NA	Exp. date	: NA
Storage condition	: To be stored at room Temperature			Batch size	: NA
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	641ppm

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DETAILS OF THE SAMPLE	
Sample Name : NA	
Name of the Manufacturer : NA	
Batch no : Group-V	Mfg. : NA Exp. : NA
Storage condition : To be stored at room	date : NA
Room Temperature : 25°C±3°C	Batch : NA
Quantity Received : 4gm	size
Tests Required : Iron by AAS Analysis.	
Method : NA	
Analysis Starting Date : 11/06/2022	
Analysis Completion Date : 11/06/2022	
Mfg. License No. : Not provided	
A.R.NO : NA	
Remark : Sample analyzed as received	

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	807.5ppm

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-6 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
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DETAILS OF THE SAMPLE

Sample Name	: NA				
Name of the Manufacturer	: NA				
Batch no	: Group-VI	Mfg. date	: NA	Exp. date	: NA
Storage condition	: To be stored at room Temperature			Batch size	: NA
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	708ppm

Authorized Signatory

(Dr.R.Marayya)

**ANALYSIS OF ADSORPTION OF Fe[III] ON CELLULOSE USING
D-RIBOSE AS A CHELATING AGENT**

*Dissertation submitted in Partial fulfillment for the requirements for the award of
degree of*

*Bachelor of Science
in
CHEMISTRY*

By

1.N.Shiva shankar,	B.Sc (Chemistry) , III Year
2.K.Rahul,	B.Sc (Chemistry) , III Year
3.L.Sai ram goud,	B.Sc (Chemistry) , III Year
4.M.Arjun,	B.Sc (Chemistry) , III Year
5.M.Madhav,	B.Sc (Chemistry) , III Year
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Under the Guidance:

**Dr. K.ABHIJIT
HEAD
DEPARTMENT OF CHEMISTRY**



**Tara Government College, Sangareddy(A)
2021-22**

CERTIFICATE

This is to certify that the project work entitled “ANALYSIS OF ADSORPTION OF Fe[III] ON CELLULOSE USING D-RIBOSE AS A CHELATING AGENT” is presented by B.Sc (CHEMISTRY) students in partial fulfillment of the requirements for the degree of Bachelor of Science in Chemistry by the Tara Govt. College, Sangareddy(A) (Affiliated to Osmania University, Hyderabad) during the academic year 2021-2022.

The results embodied in this report have not been to any other University or Institution for the award of any degree.

(Dr.K.ABHIJIT)

**Project Supervisor & Head, Department of Chemistry
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EXTERNAL EVALUATOR

ACKNOWLEDGEMENTS

We express my deep gratitude to my research supervisor **Dr.K.Abhijit**, Head, Department of Chemistry, Tara Govt. College, Sangareddy(A)-502001, INDIA for his inspiring guidance during the course of the Project work. The continuous encouragement extended by him propelled me to update my research skills and pedigree to engage in fruitful research.

We wish to express our gratitude to **Smt. M.Praveena**, Principal, Tara Govt. College, Sangareddy(A)-502001, INDIA for her constant support, cooperation and suggestions during the research work. We wish to express my sincere thanks to **K.Sreedhar**, Asst. Professor, Department of Chemistry for providing me facilities, help and support for the entire research work.

We express our special thanks to **MART Specialities Lab, Hyderabad** for providing technical assistance in Atomic absorption spectrometric analysis.

Finally, we take this opportunity to thank one and all that has directly or indirectly helped me in completing the task.

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DECLARATION

We hereby declare that the project report entitled “ANALYSIS OF ADSORPTION OF Fe[III] ON CELLULOSE USING D-RIBOSE AS A CHELATING AGENT” is the work done by us in the campus at Department of Chemistry, Tara Government College, Sangareddy(A) during the academic year 2021-2022 and is submitted in partial fulfillment of the requirements for the degree of Bachelor of Science by Tara Govt. College, Sangareddy(A) (Affiliated to Osmania University, Hyderabad) during the academic year 2021-2022.

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(AUTONOMOUS)**

BONAFIDE CERTIFICATE

*Certified that the project ANALYSIS OF ADSORPTION OF Fe[III]
ON CELLULOSE USING D-RIBOSE AS A CHELATING AGENT”
is the bonafidework of*

1.N.Shiva shankar,	B.Sc (Chemistry) , III Year
2.K.Rahul,	B.Sc (Chemistry) , III Year
3.L.Sai ram goud,	B.Sc (Chemistry) , III Year
4.M.Arjun,	B.Sc (Chemistry) , III Year
5.M.Madhav,	B.Sc (Chemistry) , III Year
6.M.Binesh,	B.Sc (Chemistry) , III Year

who carried out the project work under my supervision.

*Dr.K.ABHIJIT
PROJECT SUPERVISOR*

*Smt. M.PRAVEENA
PRINCIPAL*

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Chapter-I

INTRODUCTION

ADSORPTION

Adsorption is a process in which solids come into contact with liquids or gases, and the mass transfer occurs from liquids to solids. Desorption is the reversal of this action. Adsorption operations take advantage of a solid's capacity to concentrate certain chemicals from a fluid on to its surface. Adsorbate refers to the adsorbed substance, while adsorbent refers to the solid substance. The following are some examples of solid-liquid and solid-gas applications:

- Removing dissolved moisture from gasoline.
- Decolorization of sugar solutions and petroleum products.
- Removing noxious odors and tastes from water. Dehumidification of air and gases is one of the solid-gas activities.
- To fractionate mixtures of hydrocarbon gases such as methane, ethane, and propane.
- To remove undesirable odors and contaminants from gases.
- To recover valuable solvent vapors from dilute gas mixtures.

NATURE OF ADSORBENTS

Adsorbents are typically granular in nature, ranging in size from 0.5 mm to 12 mm. They can't have a lot of pressure decrease or get swept away by a fast-moving stream. During handling, they must maintain their shape and size. They'll need a lot of pores and a lot of surface area per unit mass.

Some of the commonly used adsorbents, their sources and applications are given below:

Sl. No.	Adsorbent	Source	Application
1.	Fuller's earth	Naturally occurring clay is heated and dried to get a porous structure.	De-colorizing, drying of lubricating oils, kerosene and engine oils.
2.	Activated charcoal	Bentonite or other activated clay which are activated by treatment with sulfuric acid and further washing, drying and crushing.	Used for de-colorizing petroleum products.
3.	Bauxite	A naturally occurring hydrated alumina, activated by heating at 230-815	Used for de-colorizing petroleum products and for drying gases.

4.	Alumina	A hard hydrated aluminium oxide, which is activated by heating to drive off the moisture and then crushed to desired size.	Used as desiccant.
5.	Bone-char	Obtained by destructive distillation of crushed bones at 600-900	Used for refining sugar and can be reused after washing and burning.
6.	Silica gel	A hard granular and porous product obtained from sodium silicate solution after treatment with acid. Normally has 4 to 7% water in the product.	Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.

7.	Activated carbon	<p>(1) Vegetable matter is mixed with calcium chloride, carbonized and finally the inorganic compounds are leached away.</p> <p>(2) Organic matter is mixed with porous pumice stones and then heated and carbonized to deposit the carbonaceous matter throughout the porous particle.</p> <p>(3) Carbonizing substances like wood, sawdust, coconut shells, fruit pits, coal, lignite and subsequent activation with hot air steam. It is available in granular or pelleted form.</p>	<p>De-colorizing of sugar solutions, chemicals, drugs, water purification, refining of vegetable and animal oils, recovery of gold and silver from cyanide ore-leach solution, recovery of solvent vapour from gas-mixtures, collection of gasoline hydrocarbons from natural gas, fractionation of hydrocarbon gases.</p>
8.	Molecular sieves	<p>These are porous synthetic zeolite crystals, metal alumino-silicates.</p>	<p>Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.</p>

SIGNIFICANCE OF RESEARCH PROBLEM

Due to its polyhydric functional groups, cellulose may be utilised to adsorb heavy metals, making it a valuable tool for developing environmentally acceptable remediation methods. The adsorption efficiency of cellulose must be increased in the interim by the addition of facilitating agents in order to design and create standardised heavy metal remediation technology. By stabilising the metal complexes that will more strongly bind to the adsorbent, organic ligands will be helpful for this aim in bringing the metal-adsorbent connections.

OBJECTIVE OF THE PROJECT

To evaluate the impact of D-Ribose as chelating agent in the adsorption of Fe (III) from aqueous solution by Cellulose as an adsorbent to develop efficient remediation technology using concept of Coordination chemistry.

Chapter-II

ADSORPTION OF HEAVY METALS FROM DILUTE SOLUTIONS

The phrase "heavy metals" refers to a collection of metals and metalloids that have an atomic density more than 6 g cm^{-3} . Although it is a broad phrase, it is typically used to refer to elements like Cd (cadmium), Cr (chromium), Cu (copper), Hg (mercury), Ni (nickel), Pb (lead), and Zn (zinc) that are commonly related with pollution and toxicity problems. Heavy metals, unlike most organic contaminants, occur naturally. Each of these elements has a range of normal background concentrations in soils, sediments, waterways, and living creatures because they occur naturally in rock-forming and ore minerals. Significant amounts of various heavy metals are produced each year from the mining of their respective ores. Soils, sediments, waterways, and live species all play a role in the environment. Significant amounts of various heavy metals are produced each year from the mining of their respective ores. Metals used in industry and other domestic processes (e.g., burning fossil fuels, incineration of wastes, automobile exhausts, smelting processes, and the use of sewage sludge as a landfill material and fertiliser) have released large amounts of potentially toxic heavy metals into the atmosphere, as well as into aquatic and terrestrial environments. Cd, Pb, and Zn are common hazardous metals released into the environment. Cu, Ni, Cr, Co, Zn, and Pb are some of the most common metals (Babich et al., 1985). Table 1 shows the industrial sources of a variety of metals emitted, as well as the potential for contamination. While many heavy metals are required by plants as micronutrients, larger quantities have been linked to a variety of harmful effects. Lead causes encephalopathy, cognitive impairment, behavioural problems, renal damage, anaemia, and reproductive system toxicity at high exposure levels (Pagliuca and Mufti, 1990). In its hexavalent state, chromium is

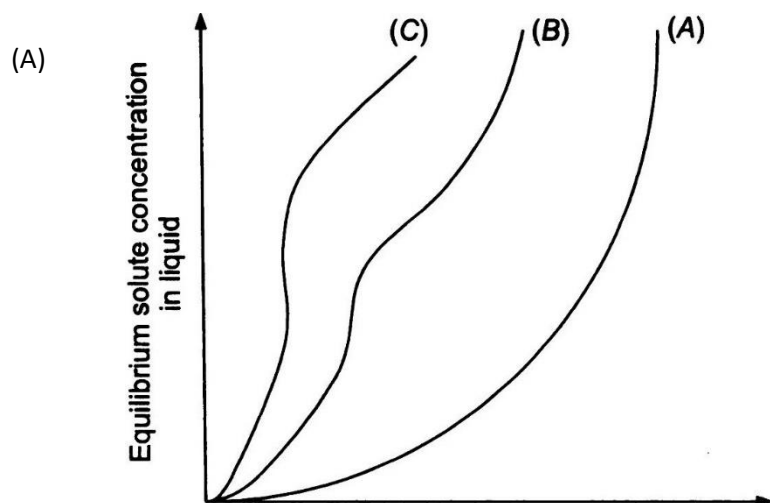
well acknowledged to be hazardous (Rowbotham et al., 2000). Exposure to Cr (VI) compounds has been linked to a greater incidence of respiratory malignancies in humans (IARC, 1990). Cadmium has been linked to nephrotoxic effects, especially at high levels of exposure; long-term exposure may also induce bone damage (Friberg, 1985). Neurobehavioural problems and developmental abnormalities, such as dyslexia, attention deficit hyperactivity disorder, and intellectual retardation, can be caused by high mercury levels (Weiss and Landrigan, 2000). Copper poisoning can cause weakness, tiredness, and anorexia, as well as damage to the stomach and intestines (Theophanides and Anastassopoulou, 2002). Nordberg et al. go into great length about the toxicity of nickel and other heavy metals (2007)

Table 1 : Significant anthropogenic sources of metals in the environment.

Industry	Metals	Pollution Arising	Reference
Metalliferous mining	Cd,Cu,Ni,Cr,Co,Zn	Acid mine drainage, tailings, slag heaps	Babich et al.(1985) Aswathanarayana(2003)
Agriculture materials Fertilisers	Cd,Cr,Mo,Pb,U,V,Zn	Run-off, surface and groundwater contamination, plant bioaccumulation	Nicholson et al.(2003) Otero et al.(2005)
Manures sewage sludge	Zn,Cu,Ni,Pb,Cd,Cr,As,Hg	Landspreading threat to ground and surface water	Nicholson et al.(2003) Cheung and Wong (1983) Walter et al.(2006)
Metallurgical	Pb,Mo,Ni,Cu,Cd,As,Te,U,	Manufacture, disposal and	Alloway and Ayres

industries Specialist alloys and steels	Zn	recycling of metals, Tailings and slag heaps	(1993) Rule et al (2006) Cheng (2003)
Waste disposal Landfill leachate	Zn,Cu,Cd,Pb,Ni,Cr,Hg	Landfill leachate, contamination of ground and surface	Kjeldson et al.(2002) Fernandez et al.(2005)
Electronics	Pb,Cd,Hg,Pt,Au,Cr,As,Ni, Mn	Aqueous and solid metallic waste food manufacturing and recycling process	Veglio et al. (2003)
Metal finishing industry Electroplating	Cr,Ni,Zn,Cu	Liquid effluents from plating processes	Castelblanque and salimbeni(2004) Zhao et al.(1999) Alvarez-Ayuso et al.(2003)
Miscellaneous sources Batteries	Pb,Sb,Zn,Cd,Ni,Hg	Waste battery fluid, contamination of soil and groundwater	EU Directorate general of the Environment (2004)
Paints and pigments	Pb,Cr,As,Ti,Ba,Zn	Aqueous waste from manufacture, old paint deterioration and soil pollution	Davis and Burns (1999) Barnes and Davis (1996) Monken(2000)

Both the solvent and the solute are adsorbed whenever a mixture of solute and solvent is adsorbed using an adsorbent. As a result, only relative or apparent solute adsorption can be determined. As a result, treating a known volume of solution of original concentration C with a known weight of adsorbent is standard procedure. Let C^* be the solution's final equilibrium solute concentration. If v is the volume of solution per unit mass of adsorbent (cc/g), and C and C^* are the starting and equilibrium concentrations (g/cc) of the solute, then the apparent adsorption of the solute per unit mass of adsorbent is $v(C - C^*)$, (g/g), neglecting any volume change. This statement is most useful in the case of dilute solutions. The C^* value is determined by the temperature, nature, and properties of the adsorbent when the proportion of the original solvent that can be adsorbed is tiny. The Freundlich adsorption isotherm, $C^* = K[v(C - C^*)]^n$, represents the adsorption phenomena in dilute fluids across a small concentration range. The Freundlich adsorption equation is especially useful in situations where the identification of the solute is unknown, such as the removal of colouring substances from sugar solutions, oils, and other liquids. A spectrophotometer or colorimeter can quickly determine the colour composition of the solute. In worked example 2, the interpretation of this data is demonstrated. Adsorption is good if the value of n is high, say 2 to 10. If it's between 1 and 2, it's relatively challenging, and if it's less than 1, it's easy and it indicates poor adsorption characteristics. Freundlich adsorption equation is also useful in such a case where the actual identification of solute is not known, e.g. removal of colouring substance from sugar solutions, oils etc. A typical adsorption isothermal for the adsorption of various adsorbents A, B and C in dilute solution at the same temperature for the same adsorbent is represented in a graph.



Kg solute apparently adsorbed / kg adsorbent

METAL COMPLEXATION OF A D- RIBOSE- BASED LIGAND

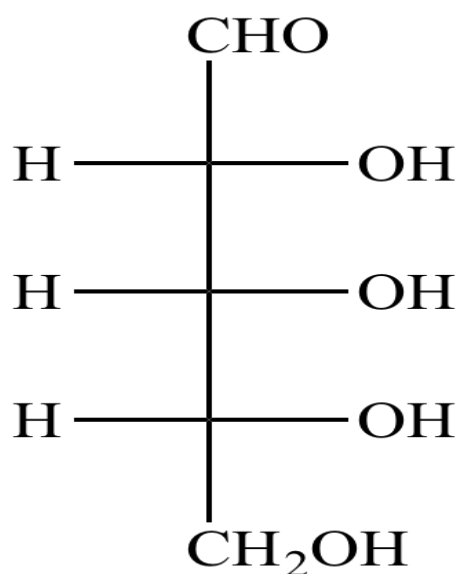
The complexation characteristics of methyl 2,3,4-tri-O-(2-picolyl)—D-ribofuranoside, a novel sugar-derived hexadentate ligand, were investigated using a combination of experimental and theoretical approaches. In the complexes with Mn^{II} , Co^{II} , Ni^{II} , and Zn^{II} , the coordination bond lengths reveal significant departures from perfect octahedral, with deformation towards trigonal-prismatic geometries, indicating a conformationally constrained ligand. The metal-ligand interactions for D-Ribose and its acyclic analogue ligand [1, 2, 3-tri-O-(2-picolyl)-1,2,3-propanetriol] were investigated using spectroscopic techniques and isothermal calorimetric titrations for the series Mn^{II} , Co^{II} , Ni^{II} , Zn^{II} , and Cu^{II} . Depending on the nature of the metal, the results show that the complexes produced with D-Ribose are more stable than those obtained with According to molecular modelling studies; the presence of the sugar moiety greatly favours conformations that are compatible with metal binding. In many ways, a close comparison can be sketched between metal complexation and other host-guest interactions. To describe them both, several molecular variables have to be taken into consideration. One of the most complex

variables is the relation between the conformational flexibility of the ligand and the binding strength of the metal cation. For ligands with a reduced number of low-energy conformations, relatively straightforward estimations of the binding same wavelength of metal cations as well as a direct interaction between structural and thermodynamic data are available. However, for ligands with a huge number of degrees of freedom, the correct orientation of the chelating groups becomes one of the most important issues in metal-ion identification processes. For coordination chemists, the prediction and understanding about coordination properties of new ligands is one the most challenging tasks. We decided to investigate how entropic and enthalpic variables can impact on metal binding and selectivity for systems with a substantial number of degrees of freedom.

FERRIC COMPLEXES OF SUGAR-TYPE LIGAND

Fe(III) complexes formed with sugar-type ligands such as aldoses, ketoses, polyalcohols, sugar acids, di and trisaccharides was prepared. These complexes composition was determined by standard analytical methods. Deprotonated alcoholic hydroxy groups participate in the complex formation which results in the formation of polynuclear species. Mossbauer spectra reflected the presence of high spin iron(III) central atoms. EPR spectra showed antiferromagnetic interactions between the iron(III) centres in the complexes indicating dimeric or oligomeric complex structures. Depending upon the nature of a ligand as well as on the preparation mode of the complexes the ratio of interacting and isolated iron(III) is calculated. Formation of polynuclear iron(III) complexes of D-fructose, sorbose, lactobionic acid, glucose, galactose, mannose, and lactose were shown by the analysis and structural study by the sugar type ligand with ferric system. Ferric complexes of reducing sugars also contained ferrous species in some

cases. The combination of Mossbauer spectroscopic measurements with ERP or magnetic susceptibility studies has led valuable information concerning the intramolecular and electronic structure on which the system has been developed.



Structure of D-Ribose

CELLULOSE AS ADSORBENT

Cellulose is the most plentiful and renewable polymer material available on the planet. According to estimates, deterioration and soil pollution Photosynthesis produces 10^{11} – 10^{12} tonnes of cellulose every year in a relatively pure form, such as in the seed hairs of cotton plants, but it is more commonly mixed with lignin and other polysaccharides (so-called hemicelluloses) in the cell walls of woody plants (Klemm et al., 2002). For thousands of years, cellulose has been utilised as an energy source, a building material, and a clothing material in the form of wood and cotton.

As a carbohydrate polymer, cellulose has a molecular structure that is made up of repeating β -D-glucopyranose units that are covalently linked by acetal functionalities between the OH groups of the C4 and C1 carbon atoms (β -1,4-glucan). Cellulose is a long, linear-chain polymer with a lot of hydroxyl groups (three per anhydroglucose (AGU) unit) and the $4C_1$ conformation. Every second AGU unit is rotated 180 degrees in the plane to accommodate the preferred bond angles. The number of constituent AGU units (degree of polymerization, DP) determines the length of the polymeric cellulose chain, which varies depending on the origin and treatment of the cellulose raw material (Klemm et al., 2002).

Cellulose has a ribbon form that allows it to twist and bend in directions other than the plane, making it a fairly flexible molecule. Due to the presence of hydroxyl ($-\text{OH}$) groups that protrude from the chain and create intermolecular hydrogen bonds, there is a relatively strong interaction between neighbouring cellulose molecules in dry fibres. Each chain of cellulose regenerated fibres contains 250–500 repeating units (Klemm et al., 2002). The hydrophilicity, chirality, and degradability features of cellulose are due to this molecular structure. Chemical reactivity is mostly determined by the OH groups' high donor reactivity.

Chapter-III

ATOMIC ABSORPTION SPECTROMETRY

Atomic absorption spectrometry (AAS) is an analytical technique that measures the concentrations of elements. Atomic absorption is so sensitive that it can measure down parts per billion of a gram ($\mu\text{g dm}^{-3}$) in a sample. The technique makes use of the wavelengths of light specifically absorbed by an element. They correspond to the energies needed to promote electrons from one energy level to another, higher, energy level.

Atomic absorption spectrometry has many uses in different areas of chemistry.

Clinical analysis: Analysing metals in biological fluids such as blood and urine.

Environmental analysis: Monitoring our environment- eg finding out the levels of various elements in rivers, seawater, drinking water, air, petrol and drinks such as wine, beer and fruit drinks.

Pharmaceuticals: In some pharmaceutical manufacturing processes, minute quantities of a catalyst used in the process (usually a metal) are sometimes present in the final product. By using AAS the amount of catalyst present can be determined.

Industry: Many raw materials are examined and AAS is widely used to check that the major elements are present and that toxic impurities are lower than specified- eg in concrete, where calcium is a major constituent, the lead level should be low because it is toxic.

Mining: By using AAS the amount of metals such as gold in rocks can be determined to see whether it is worth mining the rocks to extract the gold.

HOW IT WORKS

Atoms of different elements absorb characteristic wavelengths of light. Analysing a sample to see if it contains a particular element means using light from that element. For example with lead, a lamp containing lead emits light from excited lead atoms that produce the right mix of wavelengths to be absorbed by any lead atoms from the sample. In AAS, the sample is atomized- i.e. converted into ground state free atoms in the vapour state- and a beam of electromagnetic radiation emitted from excited lead atoms is passed through the vaporized sample. Some of the radiation is absorbed by the lead atoms in the sample. The greater the number of atoms there is in the vapour, the more radiation is absorbed. The amount of light absorbed is proportional to the number of lead atoms. A calibration curve is constructed by running several samples of known lead concentration under the same conditions as the unknown. The amount the standard absorbs is compared with the calibration curve and this enables the calculation of the lead concentration in the unknown sample.

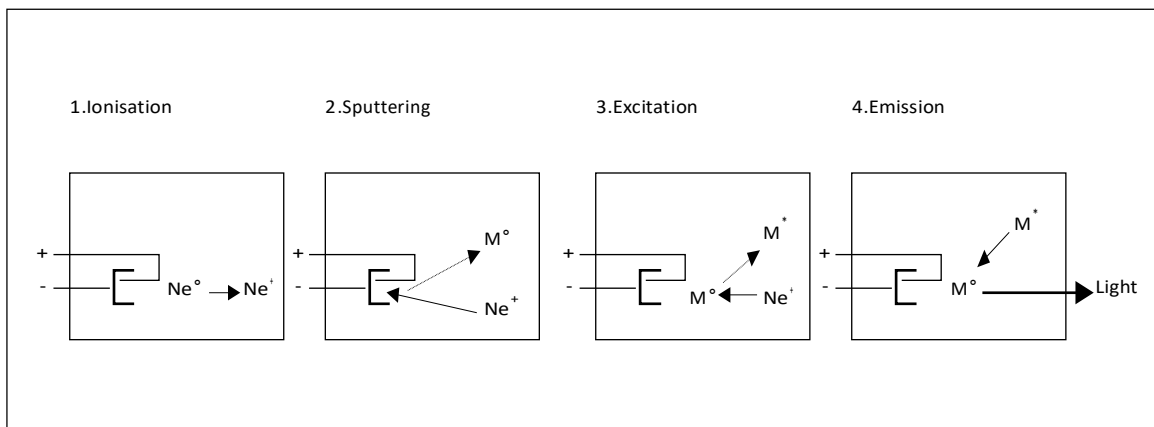
Consequently an atomic absorption spectrometer needs the following three components: a light source; a sample cell to produce gaseous atoms; and a means of measuring the specific light absorbed.

THE LIGHT SOURCE

The common source of light is a 'hollow cathode lamp'. This contains a tungsten anode and a cylindrical hollow cathode made of the element to be determined. These are sealed in a glass tube filled with an inert gas- e.g neon or argon- at a pressure of between 1 Nm^{-2} and 5 Nm^{-2} .

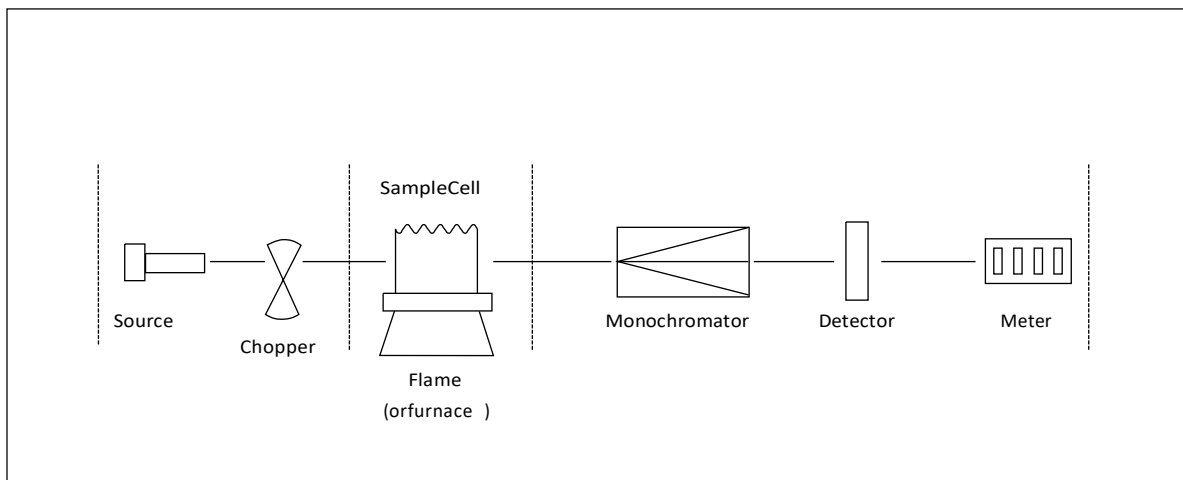


The ionization of some gas atoms occurs by applying a potential difference of about 300-400V between the anode and the cathode. These gaseous ions bombard the cathode and eject metal atoms from the cathode in a process called sputtering. Some sputtered atoms are in excited states and emit radiation characteristic of the metal as they fall back to the ground state – $eg Pb^* \rightarrow Pb + h\nu$. The shape of the cathode concentrates the radiation into a beam which passes through a quartz window, and the shape of the lamp is such that most of the sputtered atoms are redeposited on the cathode. A typical atomic absorption instrument holds several lamps each for a different element. The lamps are housed in a rotating turret so that the correct lamp can be quickly selected.



THE OPTICAL SYSTEM AND DETECTOR

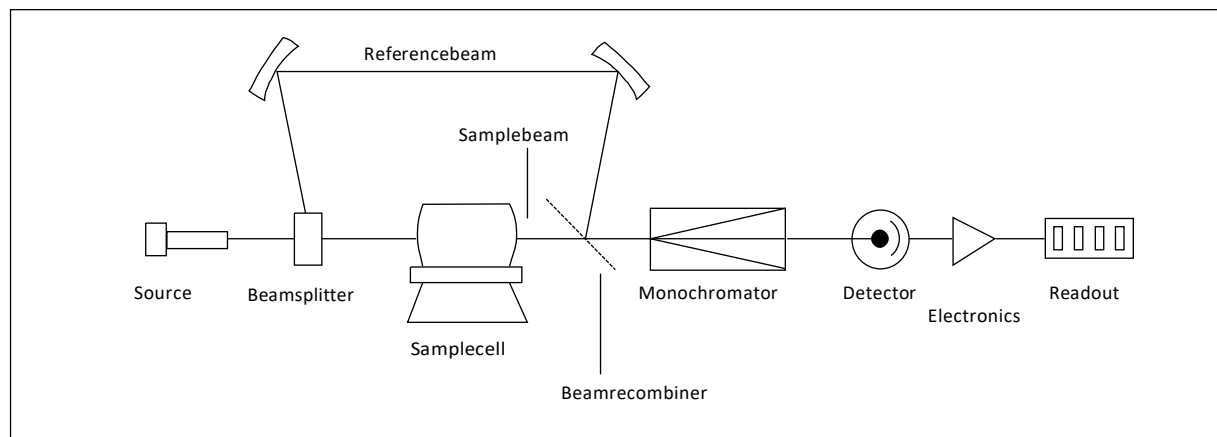
A monochromator is used to select the specific wavelength of light –ie spectral line – which is absorbed by the sample, and to exclude other wavelengths. The selection of the specific light allows the determination of the selected element in the presence of others. The light selected by the monochromator is directed onto a detector that is typically a photomultiplier tube. This produces an electrical signal proportional to the light intensity



DOUBLE BEAM SPECTROMETERS

Modern spectrometers incorporate a beam splitter so that one part of the beam passes through the sample cell and the other is the reference . The intensity of the light source may not stay constant during an analysis. If only a single beam is used to pass through the atom cell, a blank reading containing no analyte (substance to be analysed) would have to be taken first, setting the absorbance at zero. If the intensity of the source changes by the time the sample is put in place, the measurement will be inaccurate. In the double beam instrument there is a constant monitoring between the reference beam and the light source. To ensure that the spectrum does

not suffer from loss of sensitivity, the beam splitter is designed so that as high a proportion as possible of the energy of the lamp beam passes through the sample.



ATOMISATION OF THE SAMPLE

Two systems are commonly used to produce atoms from the sample. Aspiration involves sucking a solution of the sample into a flame; and electrothermal atomisation is where a drop of sample is placed into a graphite tube that is then heated electrically.

Some instruments have both atomisation systems but share one set of lamps. Once the appropriate lamp has been selected, it is pointed towards one or other atomisation system.

FLAME ASPIRATION

Ethyne/air (giving a flame with a temperature of 2200–2400°C) or ethyne/dinitrogen oxide (2600– 2800°C) are often used. A flexible capillary tube connects the solution to the nebuliser. At the tip of the capillary, the solution is ‘nebulised’ –ie broken into small drops. The larger drops fall out and drain off while smaller ones vaporise in the flame. Only ca 1% of the sample is nebulised.

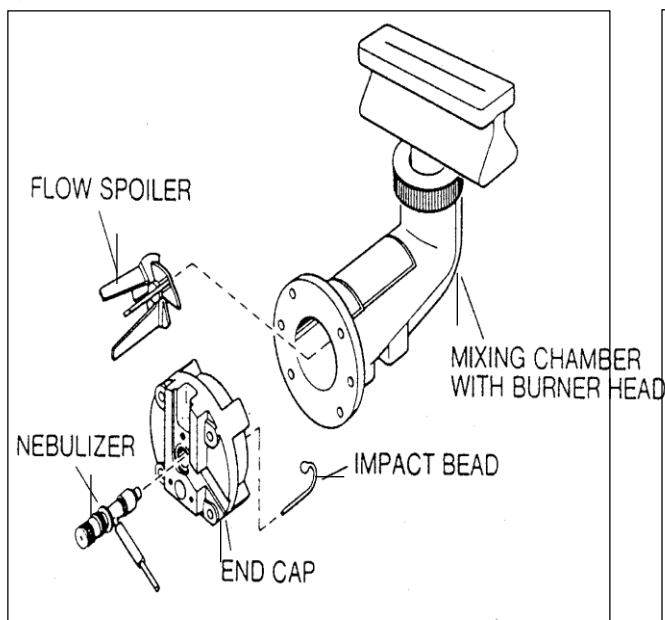


Figure 1

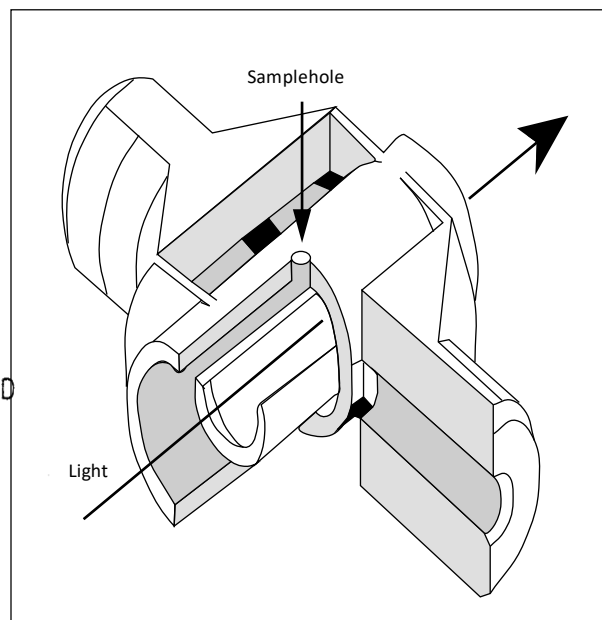


Figure 2

ELECTRO-THERMAL ATOMIZATION

25 μl of sample (ca 1/100th of a raindrop) is placed through the sample hole and onto the platform from an automated micropipette and sample changer. The tube is heated electrically by passing a current through it in a pre-programmed series of steps. The details will vary with the sample but typically they might be 30–40 seconds at 150°C to evaporate the solvent, 30 seconds at 600°C to drive off any volatile organic material and char the sample to ash, and with a very fast heating rate (ca 1500 °C s⁻¹) to 2000-2500°C for 5–10 seconds to vaporise and atomise elements (including the element being analysed). Finally heating the tube to a still higher temperature –ca 2700°C – cleans it ready for the next sample. During this heating cycle the graphite tube is flushed with argon gas to prevent the tube burning away. In electrothermal atomisation almost 100% of the sample is atomised. This makes the technique much more sensitive than flame AAS.

SAMPLE PREPARATION

Sample preparation is often simple, and the chemical form of the element is usually unimportant. This is because atomisation converts the sample into free atoms irrespective of its initial state. The sample is weighed and made into a solution by suitable dilution. Elements in biological fluids such as urine and blood are often measured simply after a dilution of the original sample.



When making reference solutions of the element under analysis, for calibration, the chemical environment of the sample should be matched as closely as possible –i.e. the analyte should be in the same compound and the same solvent. Teflon containers may be used when analyzing very dilute solutions because elements such as lead are sometimes leached out of glass vessels and can affect the results

BACKGROUND ABSORPTION

It is possible that other atoms or molecules apart from those of the element being determined will absorb or scatter some radiation from the light source. These species could

include unvaporised solvent droplets, or compounds of the matrix (chemical species, such as anions, that tend to accompany the metals being analysed) that are not removed completely. This means that there is a background absorption as well as that of the sample.

One way of measuring and correcting this background absorption is to use two light sources, one of which is the hollow cathode lamp appropriate to the element being measured. The second light source is a deuterium lamp.

The deuterium lamp produces broad band radiation, not specific spectral lines as with a hollow cathode lamp. By alternating the measurements of the two light sources – generally at 50 –100 Hz – the total absorption (absorption due to analyte atoms plus background) is measured with the specific light from the hollow cathode lamp and the background absorption is measured with the light from the deuterium lamp. Subtracting the background from the total absorption gives the absorption arising from only analyte atoms.

CALIBRATION

A calibration curve is used to determine the unknown concentration of an element –eg lead – in a solution. The instrument is calibrated using several solutions of known concentrations. A calibration curve is produced which is continually rescaled as more concentrated solutions are used – the more concentrated solutions absorb more radiation up to a certain absorbance. The calibration curve shows the concentration against the amount of radiation absorbed in the given figure. (a) The sample solution is fed into the instrument and the unknown concentration of the element-e.g. lead- is then displayed on the calibration curve given in the below figure. (b)

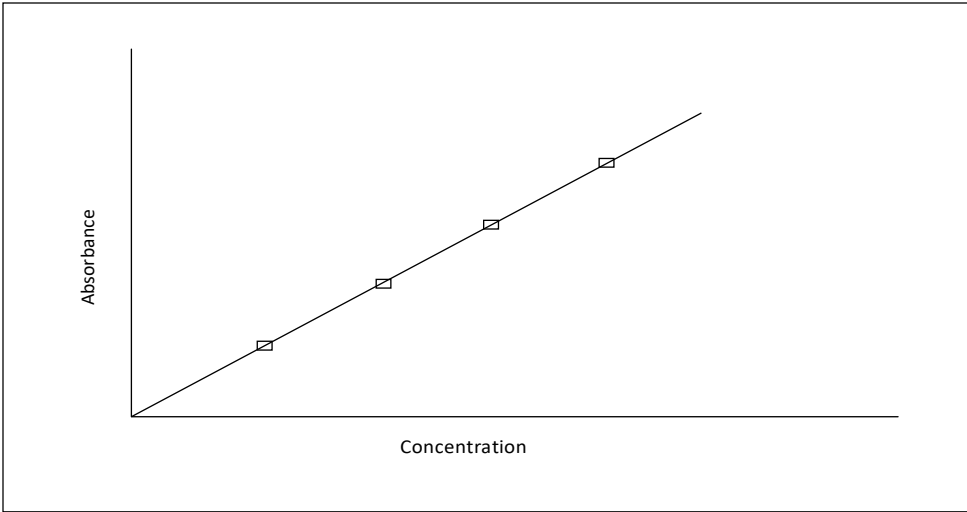


Figure (a)

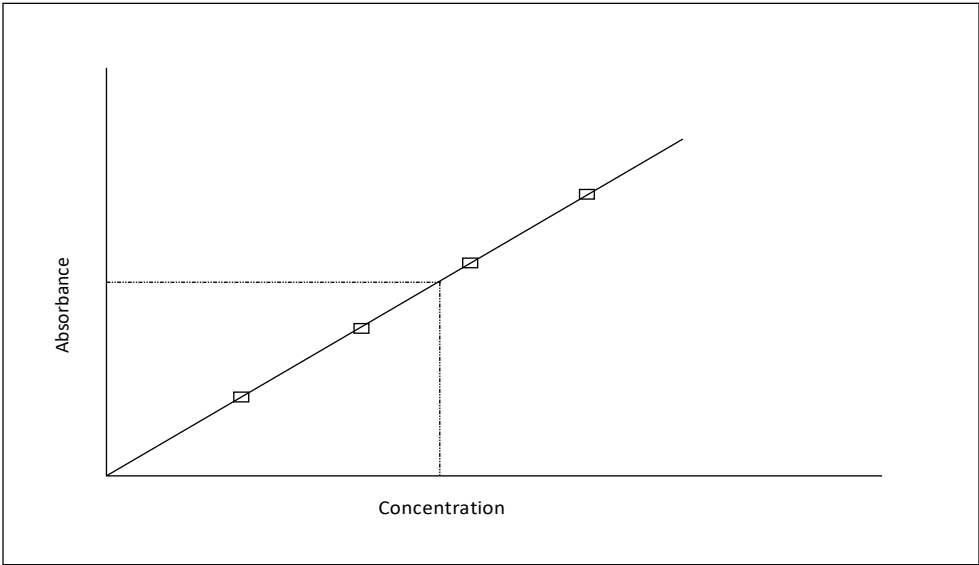


Figure (b)

INTERFERENCES AND MATRIX MODIFICATION

Other chemicals that are present in the sample may affect the atomisation process. For example, in flame atomic absorption, phosphate ions may react with calcium ions to form calcium pyrophosphate. This does not dissociate in the flame and therefore results in a low reading for calcium. This problem is avoided by adding different reagents to the sample that may react with the phosphate to give a more volatile compound that is dissociated easily. Lanthanum nitrate solution is added to samples containing calcium to tie up the phosphate and to allow the calcium to be atomised, making the calcium absorbance independent of the amount of phosphate. With electrothermal atomisation, chemical modifiers can be added which react with an interfering substance in the sample to make it more volatile than the analyte compound. This volatile component vaporises at a relatively low temperature and is removed during the low and medium temperature stages of electrothermal atomisation.

Chapter-IV

METHODOLOGY

MATERIALS REQUIRED

- Ferric chloride Hexahydrate
- D- Ribose
- Cellulose
- Volumetric flask
- Digital Weighing Machine
- Watch glasses
- Hot air oven
- Ultra pure water (Demineralized)
- 2% of Nitric acid

PROCEDURE

1. Using a 250ml Volumetric flask prepare a metal ligand solution by adding 100ppm of Ferric chloride Hexahydrate (MOLYCHEM MCR-11580) and 200ppm of D-Ribose (Avra N2200133). Prepare 250ml solution by adding Ultra pure water and then keep this system aside for a few hours.
2. Weigh 5 grams of Cellulose(Avra N2001901) using a Digital weighing machine (Citizen Scales(I) PVT LTD CTG302-300) and take this into a beaker.

3. Now add 100ml of the above prepared metal ligand solution into the beaker and stir the mixture well for 10 minutes using a glass rod.
4. Keep this mixture aside for 48 hours without disturbing it as at this step Ferric is going to be adsorbed on Cellulose in the presence of D-Ribose which acts as a chelating agent.
5. After completion of 48 hours take the mixture and filter it off using Whatman Grade 1 filter paper and a funnel.
6. After filtration of the mixture again add Ultra pure water for 3 times and then filtrate it to obtain pure concentration of Ferric which is get adsorbed on Cellulose.
7. Collect the filtered Cellulose powder and place it on a watch glass and keep this in a Hot air oven at 60 °C for 10 hours to get rid off moisture present in it.
8. Now weigh each 1 gm of Cellulose in glass vials.
9. Now take a beaker and rinse it with ultra pure water then followed by Nitric acid.
10. Take 0.5 grams of Cellulose sample in the beaker and add 2% of Nitric acid and stir the mixture well for 10-15 minutes.
11. Filter the mixture using Whatman Grade 1 filter paper and again 3 times by using Ultra pure water to obtain pure concentration of Ferric present in the mixture prepared using the sample.
12. Take this collected sample solution and keep this system under AAS (Thermo Scientific iCE 3300)
13. Calculate the concentration of Ferric adsorbed on Cellulose at different ppm levels. Observe the graph obtained and note down the readings of the result we obtained.
14. Same Experiment carried out without the interference/addition of Ligand i.e. D-Ribose for Control Experiment.



Ferric chloride Hexahydrate, D-Ribose



Preparing 250 ml of metal ligand solution using volumetric flask



5 grams of Cellulose added to 100ml of Metal Ligand solution



Metal Ligand solution



Measuring flask



Digital Weighing Machine



Hot air oven



Measuring 100ml of metal ligand prepared solution



Cellulose added to Metal Ligand solution is prepared



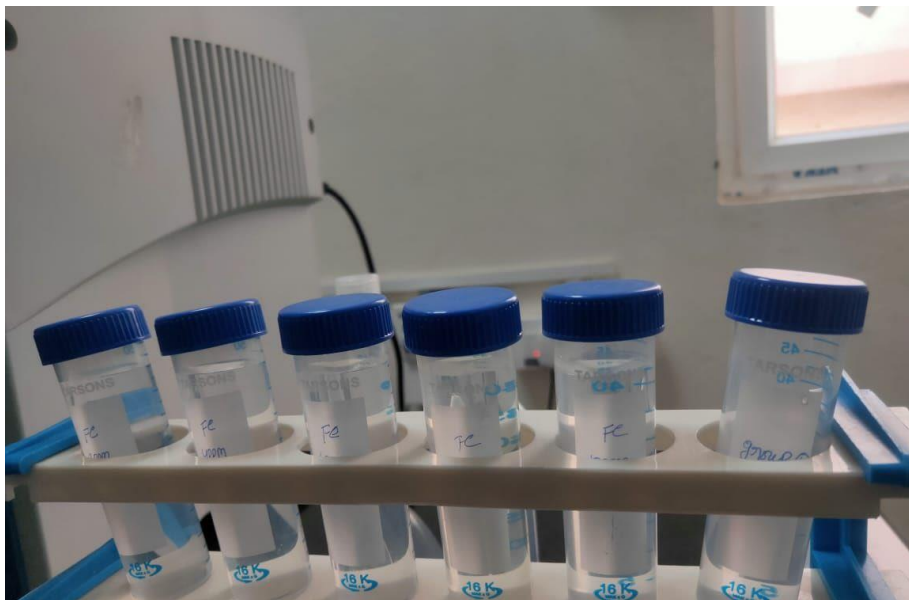
Glass vials



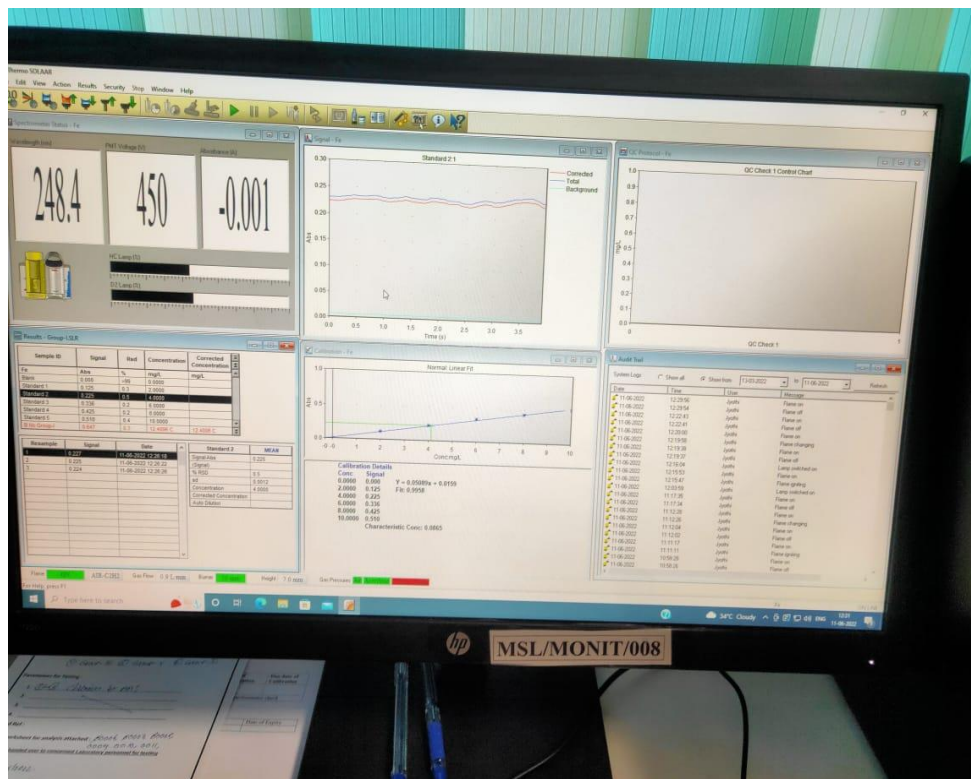
Sample collecting in glass vials



AA spectrometer



Sample solution added to 2% of nitric acid

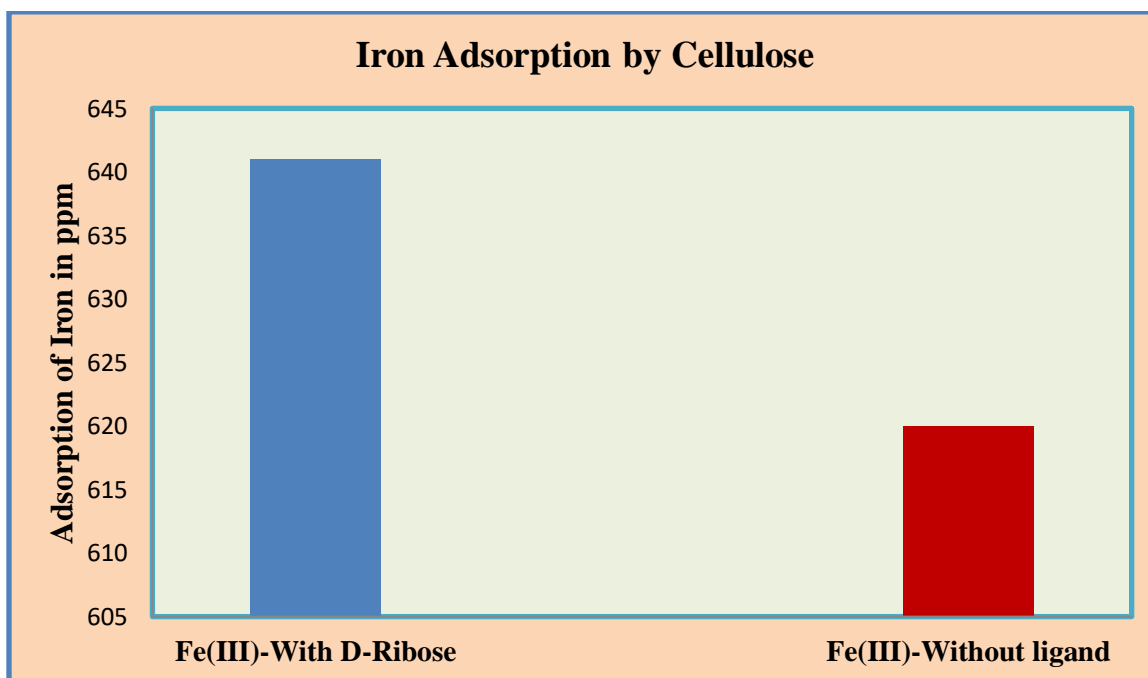


Results obtained on the monitor under AAS Method

Chapter-V

RESULTS AND DISCUSSIONS

Cellulose adsorbs **641** ppm of Iron metal from aqueous solution of Fe(III)-D-Ribose metal ligand solution. Whereas, Cellulose adsorbs only **620** ppm when D-Ribose is absent. It is evident from the AAS results, ligand involvement enhanced the metal adsorption by initiating potential chemical interactions between adsorbate and adsorbent. D-Ribose firmly interacts with Fe(III) to form a stable complex in aqueous condition. The complex coordination sphere in the resulted complex facilitates strong interactions with the polar hydroxyl functional groups of the adsorbent, Cellulose. From the AAS results, it is conclusive that **3.387** % of adsorption increased in the presence of D-Ribose as chelating agent.



Impact of D-Ribose on Adsorption of Fe (III) ions from aqueous solution by Cellulose.

Spectrometer Parameters – Fe:

Element : Fe	Measurement mode : Absorbance	
Wavelength : 248.3nm	Band pass : 0.2nm	Lamp current : 75%
Background correction : D2	High Resolution : Off	Optimise Spectrometer Parameters : No
Signal type : continuous	Resamples : Fast	Number of resamples : 3
Measurement time : 4.0secs	Flier mode : No	
Use RSD Test : No		

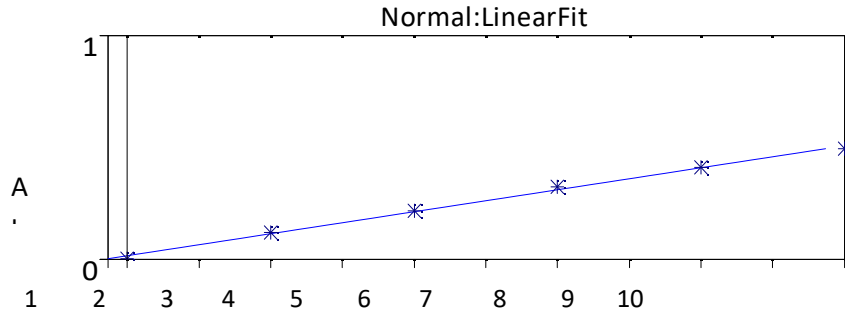
Flame Parameters – Fe:

Flame type : Air – C2H2	Fuel Flow : 0.9L/min	Auxiliary Oxidant : Off
Nebuliser Uptake : 4secs	Bunsen Stabilisation : 0mins	Optimise Fuel Flow : No
Burner Height : 7.0mm	Optimise Burner fuel : No	

Calibration Parameters–Fe:

Calibration mode : Normal	Line fit : Linear	Use stored calibration : No
Concentration units : mg/L	Scales units : mg/L	Scaling factor : 1.0000
Acceptable fit : 0.990	Rescale Limits : 10.0%	Failure Action : Flag and Continue
Standard 1 - 2.0000	Standard 4 - 8.0000	
Standard 2 - 4.0000	Standard 5 - 10.0000	
Standard 3 - 6.0000		

Solutions Results–Fe:



$Y = 0.04924x + 0.0141$

Fit: 0.9965

Characteristic Conc.: 0.0894

Sample ID	Signal	RSD	Conc.
	Abs	%	Mg/L
Fe Blank	0.001	35.6	0.0000
1	0.001	Background: -0.003	
2	0.001	Background: -0.003	
3	0.000	Background: -0.003	
Fe Standard 1	0.120	0.3	2.0000
1	0.120	Background: 0.003	
2	0.119	Background: 0.003	
3	0.120	Background: 0.003	
Fe Standard 2	0.215	0.3	4.0000
1	0.215	Background: 0.004	
2	0.215	Background:0.004	
3	0.216	Background:0.004	

Fe Standard 3	0.322	0.2	6.0000
1	0.323	Background: 0.005	
2	0.322	Background: 0.005	
3	0.322	Background: 0.005	
Fe Standard 4	0.411	0.3	8.0000
1	0.410	Background: 0.005	
2	0.412	Background: 0.005	
3	0.412	Background: 0.005	
Fe Standard 5	0.493	0.1	10.0000
1	0.494	Background: 0.005	
2	0.494	Background: 0.005	
3	0.494	Background: 0.006	
Fe(III)-D-Ribose-Cellulose	0.645	0.3	12.8191 C
1	0.647	Background: 0.003	
2	0.644	Background: 0.003	
3	0.645	Background: 0.003	
Fe(III)-Cellulose (Without Ligand)	0.624	0.3	12.3991 C
1	0.622	Background: 0.003	
2	0.626	Background: 0.003	
3	0.624	Background: 0.003	

Test Results:

S.no	Test Parameters	Sample	Results
01.	Iron by AAS Analysis: (ppm)	Fe(III)-D-Ribose – Cellulose Sample	641ppm
02.	Iron by AAS Analysis: (ppm)	Fe(III)– Cellulose (control)	620 PPM

CONCLUSION

According to the results of the current experiment, D-Ribose, which acts as a chelating agent, is crucial to the adsorption of Fe (III) ions from aqueous solution by Cellulose and enhances adsorption by up to **3.387 %**. Designing the latest heavy metal remediation systems that employ natural chelating ligands as facilitation agents in metal adsorption processes would benefit from this feature.

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Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

General Parameters

Method : Iron (Fe)

Operator : Jyothi

Instrument Mode: Flame

Autosampler : None

Dilution: None

Use SFI: No

Valid Method Signatures

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Method Audit Trail

11-06-2022 17:22:18 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Details

Analysis Name: Iron (Fe) 11-06-2022

Spectrometer: ICE 3000 AA01204906 v1.30

Operator Name: Jyothi

Lamp Information

Element(s)

Serial Number

mA Hours

Fe

n/a

n/a

Deuterium Lamp Hours: 68.34

Sequence Table

Shared Standards: Yes

Action

Fe

Calibration

✓

B.No.Group-II

✓

B.No.Group-III

✓

B.No.Group-IV

✓

B.No.Group-V

✓

B.No.Group-VI

✓

Sample Details

Nominal Mass: 1.0000

No.	Sample Id	Sample Mass	Dilution Ratio
1	B.No.Group-II	1.0000	1.0000
2	B.No.Group-III	1.0000	1.0000
3	B.No.Group-IV	1.0000	1.0000
4	B.No.Group-V	1.0000	1.0000
5	B.No.Group-VI	1.0000	1.0000

Valid Analysis Signatures

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Audit Trail

11-06-2022 17:30:16 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:38:27 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Error MD147 - Activity manually aborted by user.

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Spectrometer Parameters - Fe

Element: Fe

Measurement Mode: Absorbance

Wavelength: 248.3nm

Bandpass: 0.2nm

Lamp Current: 75%

Background Correction: D2

High Resolution: Off

Optimise Spectrometer Parameters: No

Signal Type: Continuous

Resamples: Fast

Number Of Resamples: 3

Measurement Time: 4.0secs

Flier Mode: No

Use RSD Test: No

Flame Parameters - Fe

Flame Type: Air-C2H2

Fuel Flow: 0.9L/min

Auxiliary Oxidant: Off

Nebuliser Uptake: 4secs

Burner Stabilisation: 0mins

Optimise Fuel Flow: No

Burner Height: 7.0mm

Optimise Burner Height: No

Sampling Parameters - Fe

Sampling: None

Calibration Parameters - Fe

Calibration Mode: Normal

Line Fit: Linear

Use Stored Calibration: No

Concentration Units: mg/L

Scaled Units: mg/L

Scaling Factor: 1.0000

Acceptable Fit: 0.990

Rescale Limit: 10.0%

Failure Action: Flag and Continue

Standard 1	2.0000
Standard 2	4.0000
Standard 3	6.0000

Standard 4	8.0000
Standard 5	10.0000

Element Audit Trail - Fe

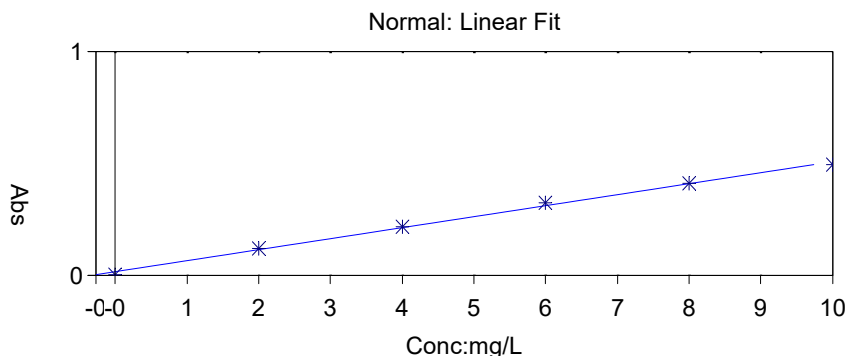
No changes are recorded for this element

Solution Results - Fe

$$Y = 0.04924x + 0.0141$$

Fit: 0.9965

Characteristic Conc: 0.0894



Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Blank	0.001	35.6	0.0000	
1	0.001	Background: -0.003		11-06-2022 17:31:26
2	0.001	Background: -0.003		11-06-2022 17:31:30
3	0.000	Background: -0.003		11-06-2022 17:31:35
Fe Standard 1	0.120	0.3	2.0000	
1	0.120	Background: 0.003		11-06-2022 17:32:05
2	0.119	Background: 0.003		11-06-2022 17:32:09
3	0.120	Background: 0.003		11-06-2022 17:32:13
Fe Standard 2	0.215	0.3	4.0000	
1	0.215	Background: 0.004		11-06-2022 17:32:40
2	0.215	Background: 0.004		11-06-2022 17:32:45
3	0.216	Background: 0.004		11-06-2022 17:32:49
Fe Standard 3	0.322	0.2	6.0000	
1	0.323	Background: 0.005		11-06-2022 17:33:19
2	0.322	Background: 0.005		11-06-2022 17:33:23
3	0.322	Background: 0.005		11-06-2022 17:33:27
Fe Standard 4	0.411	0.3	8.0000	
1	0.410	Background: 0.005		11-06-2022 17:33:59
2	0.412	Background: 0.005		11-06-2022 17:34:03
3	0.412	Background: 0.005		11-06-2022 17:34:07

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Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Solution Results - Fe

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Standard 5	0.493	0.1	10.0000	
1	0.494	Background: 0.005		11-06-2022 17:34:38
2	0.494	Background: 0.005		11-06-2022 17:34:42
3	0.493	Background: 0.006		11-06-2022 17:34:46
Fe B.No.Group-II	0.834	0.1	16.6490 C	16.6490 C
1	0.834	Background: 0.005		11-06-2022 17:35:14
2	0.833	Background: 0.005		11-06-2022 17:35:19
3	0.834	Background: 0.005		11-06-2022 17:35:23
Fe B.No.Group-III	0.759	0.1	15.1286 C	15.1286 C
1	0.758	Background: 0.003		11-06-2022 17:35:52
2	0.760	Background: 0.003		11-06-2022 17:35:56
3	0.758	Background: 0.004		11-06-2022 17:36:00
Fe B.No.Group-IV	0.645	0.3	12.8189 C	12.8189 C
1	0.647	Background: 0.003		11-06-2022 17:36:31
2	0.644	Background: 0.003		11-06-2022 17:36:35
3	0.645	Background: 0.003		11-06-2022 17:36:40
Fe B.No.Group-V	0.809	0.2	16.1488 C	16.1488 C
1	0.808	Background: 0.005		11-06-2022 17:37:11
2	0.809	Background: 0.005		11-06-2022 17:37:15
3	0.811	Background: 0.005		11-06-2022 17:37:20
Fe B.No.Group-VI	0.711	0.3	14.1597 C	14.1597 C
1	0.709	Background: 0.005		11-06-2022 17:37:55
2	0.713	Background: 0.005		11-06-2022 17:37:59
3	0.712	Background: 0.004		11-06-2022 17:38:03

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Tel. : 85007 98350, 81423 98350 & 98481 98350 Mail:martspecialities@gmail.com



DCA Approval No: 05/ML/TS/2020/G

CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-1 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
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DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-I Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Temperature : 25°C±3°C Batch : NA
Room Temperature : 25°C±3°C size
Quantity Received : 4gm
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	620ppm

Authorized Signatory

(Dr.R.Marayya)

MART Specialities Lab. LLP

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DCA Approval No: 05/ML/TS/2020/G

CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer:

Tara Government College
Prashanth Nagar Colony, Balajinagar
Sangareddy Telangana. 502000
Contact Person: Dr. Abhijeet
Contact Number :9502344392

Reference / Report No. : MSL/2022/JUNE/TARA/0064-2
Sample Received Date : 11/06/2022
Report Date : 13/06/2022

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-II Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Temperature Batch : NA
Room Temperature : 25°C±3°C size
Quantity Received : 4gm
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	832.5ppm

Authorized Signatory

(Dr.R.Marayya)

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-3 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	---

DETAILS OF THE SAMPLE

Sample Name	: NA	Mfg.	: NA	Exp.	: NA
Name of the Manufacturer	: NA	date		date	
Batch no	: Group-III	Batch		Batch	: NA
Storage condition	: To be stored at room	size		size	
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	756.5ppm

Authorized Signatory

(Dr.R.Marayya)

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Tel. : 85007 98350, 81423 98350 & 98481 98350 Mail:martspecialities@gmail.com



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CERTIFICATE OF ANALYSIS

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-4 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	---

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-IV Mfg. : NA Exp. : NA
Storage condition : To be stored at room date : NA
Temperature : 25°C±3°C Batch : NA
Room Temperature : 25°C±3°C size : NA
Quantity Received : 4gm
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	641ppm

Authorized Signatory

(Dr.R.Marayya)

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Tel. : 85007 98350, 81423 98350 & 98481 98350 Mail:martspecialities@gmail.com



DCA Approval No: 05/ML/TS/2020/G

CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-5 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
DETAILS OF THE SAMPLE	
Sample Name : NA	
Name of the Manufacturer : NA	
Batch no : Group-V	Mfg. : NA Exp. : NA
Storage condition : To be stored at room	date : NA
Room Temperature : 25°C±3°C	Batch : NA
Quantity Received : 4gm	size
Tests Required : Iron by AAS Analysis.	
Method : NA	
Analysis Starting Date : 11/06/2022	
Analysis Completion Date : 11/06/2022	
Mfg. License No. : Not provided	
A.R.NO : NA	
Remark : Sample analyzed as received	

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	807.5ppm

Authorized Signatory

(Dr.R.Marayya)

MART Specialities Lab. LLP

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-6 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	---

DETAILS OF THE SAMPLE

Sample Name	: NA				
Name of the Manufacturer	: NA				
Batch no	: Group-VI	Mfg. date	: NA	Exp. date	: NA
Storage condition	: To be stored at room Temperature			Batch size	: NA
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	708ppm

Authorized Signatory

(Dr.R.Marayya)

**ADSORPTION STUDIES OF Fe[III] ON
BENTONITE IN THE PRESENCE OF D-RIBOSE
AS CHELATING AGENT**

*Dissertation submitted in Partial fulfillment for the requirements for the award of
degree of*

*Bachelor of Science
in
CHEMISTRY*

By

- | | |
|---------------------|----------------------------|
| 1. T. Chandana, | B.Sc (Chemistry), III Year |
| 2. T. Pranay kumar, | B.Sc (Chemistry), III Year |
| 3. T. Shiva charan, | B.Sc (Chemistry), III Year |
| 4. N. Sai mahesh, | B.Sc (Chemistry), III Year |
| 5. T. Raghavendra, | B.Sc (Chemistry), III Year |

Under the Guidance:

K.SREEDHAR
Assistant Professor
DEPARTMENT OF CHEMISTRY



Tara Government College, Sangareddy(A)
2021-22

CERTIFICATE

This is to certify that the project work entitled “ADSORPTION STUDIES OF Fe[III] ON BENTONITE IN THE PRESENCE OF D-RIBOSE AS CHELATING AGENT” is presented by B.Sc (CHEMISTRY) students in partial fulfillment of the requirements for the degree of Bachelor of Science in Chemistry by the Tara Govt. College, Sangareddy(A) (Affiliated to Osmania University, Hyderabad) during the academic year 2021-2022.

The results embodied in this report have not been to any other University or Institution for the award of any degree.

(K.SREEDHAR)

**Asst. Professor, Department of Chemistry
Tara Government College, Sangareddy (A)**

EXTERNAL EVALUATOR

ACKNOWLEDGEMENTS

*We express my deep gratitude to my research supervisor **K.Sreedhar**, Asst. Professor, Department of Chemistry, Tara Govt. College, Sangareddy(A)-502001, INDIA for his inspiring guidance during the course of the Project work. The continuous encouragement extended by him propelled me to update my research skills and pedigree to engage in fruitful research.*

*We wish to express our gratitude to **Smt. M.Praveena**, Principal, Tara Govt. College, Sangareddy(A)-502001, INDIA for her constant support, cooperation and suggestions during the research work. We wish to express our sincere thanks to **Dr.K.Abhijit**, Head, Department of Chemistry, Tara Govt. College, Sangareddy(A)-502001, INDIA for providing me facilities, help and support for the entire research work.*

*We express our special thanks to **MART Specialities Lab, Hyderabad** for providing technical assistance in Atomic absorption spectrometric analysis.*

Finally, we take this opportunity to thank one and all that has directly or indirectly helped me in completing the task.

- | | |
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| 4. N. Sai mahesh, | B.Sc (Chemistry) , III Year |
| 5. T. Raghavendra, | B.Sc (Chemistry) , III Year |

DECLARATION

*We hereby declare that the project report entitled “**ADSORPTION STUDIES OF Fe[III] ON BENTONITE IN THE PRESENCE OF D-RIBOSE AS CHELATING AGENT**” is the work done by us in the campus at **Department of Chemistry, Tara Government College, Sangareddy(A)** during the academic year 2021-2022 and is submitted in partial fulfillment of the requirements for the degree of **Bachelor of Science** by **Tara Govt. College, Sangareddy(A)** (Affiliated to **Osmania University, Hyderabad**) during the academic year 2021-2022.*

S.No.	Name of the Student	Roll Number	Group	Year	Signature
1	T.CHANDANA	6058-19-578-032	B.Sc(MCCs)	III	
2	T.PRANAY KUMAR	6058-19-578-033	B.Sc(MCCs)	III	
3	T.SHIVA CHARAN	6058-19-578-034	B.Sc(MCCs)	III	
4	N.SAI MAHESH	6058-19-578-026	B.Sc(MCCs)	III	
5	T.RAGHAVENDRA	6058-19-578-035	B.Sc(MCCs)	III	

**TARA GOVERNMENT COLLEGE, SANGAREDDY – 502 001
(AUTONOMOUS)**

BONAFIDE CERTIFICATE

*Certified that the project report " ADSORPTION STUDIES OF Fe[III]
ON BENTONITE IN THE PRESENCE OF D-RIBOSE AS CHELATING
AGENT" is the bonafide work of*

- | | |
|---------------------|-----------------------------|
| 1. T. Chandana, | B.Sc (Chemistry) , III Year |
| 2. T. Pranay kumar, | B.Sc (Chemistry) , III Year |
| 3. T. Shiva charan, | B.Sc (Chemistry) , III Year |
| 4. N. Sai mahesh, | B.Sc (Chemistry) , III Year |
| 5. T. Raghavendra, | B.Sc (Chemistry) , III Year |

who carried out the project work under my supervision.

K.Sreedhar
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Chapter-I

INTRODUCTION

ADSORPTION

Adsorption is a process in which solids come into contact with liquids or gases, and the mass transfer occurs from liquids to solids. Desorption is the reversal of this action. Adsorption operations take advantage of a solid's capacity to concentrate certain chemicals from a fluid on to its surface. Adsorbate refers to the adsorbed substance, while adsorbent refers to the solid substance. The following are some examples of solid-liquid and solid-gas applications:

- Removing dissolved moisture from gasoline.
- Decolorization of sugar solutions and petroleum products.
- Removing noxious odors and tastes from water. Dehumidification of air and gases is one of the solid-gas activities.
- To fractionate mixtures of hydrocarbon gases such as methane, ethane, and propane.
- To remove undesirable odors and contaminants from gases.
- To recover valuable solvent vapors from dilute gas mixtures.

NATURE OF ADSORBENTS

Adsorbents are typically granular in nature, ranging in size from 0.5 mm to 12 mm. They can't have a lot of pressure decrease or get swept away by a fast-moving stream. During handling, they must maintain their shape and size. They'll need a lot of pores and a lot of surface area per unit mass.

Some of the commonly used adsorbents, their sources and applications are given below:

Sl. No.	Adsorbent	Source	Application
1.	Fuller's earth	Naturally occurring clay is heated and dried to get a porous structure.	De-colorizing, drying of lubricating oils, kerosene and engine oils.
2.	Activated charcoal	Bentonite or other activated clay which are activated by treatment with sulfuric acid and further washing, drying and crushing.	Used for de-colorizing petroleum products.
3.	Bauxite	A naturally occurring hydrated alumina, activated by heating at 230-815	Used for de-colorizing petroleum products and for drying gases.

4.	Alumina	A hard hydrated aluminum oxide, which is activated by heating to drive off the moisture and then crushed to desired size.	Used as desiccant.
5.	Bone-char	Obtained by destructive distillation of crushed bones at 600-900	Used for refining sugar and can be reused after washing and burning.
6.	Silica gel	A hard granular and porous product obtained from sodium silicate solution after treatment with acid. Normally has 4 to 7% water in the product.	Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.

7.	Activated carbon	<p>(1) Vegetable matter is mixed with calcium chloride, carbonized and finally the inorganic compounds are leached away.</p> <p>(2) Organic matter is mixed with porous pumice stones and then heated and carbonized to deposit the carbonaceous matter throughout the porous particle.</p> <p>(3) Carbonizing substances like wood, sawdust, coconut shells, fruit pits, coal, lignite and subsequent activation with hot air steam. It is available in granular or pelleted form.</p>	<p>De-colorizing of sugar solutions, chemicals, drugs, water purification, refining of vegetable and animal oils, recovery of gold and silver from cyanide ore-leach solution, recovery of solvent vapor from gas-mixtures, collection of gasoline hydrocarbons from natural gas, fractionation of hydrocarbon gases.</p>
8.	Molecular sieves	<p>These are porous synthetic zeolite crystals, metal alumino-silicates.</p>	<p>Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.</p>

SIGNIFICANCE OF RESEARCH PROBLEM

Adsorption of heavy metals is an important strategy to develop newer remediation technologies for the sustainable environmental protection. But the efficacy of adsorption of heavy metals under the normal conditions using suitable adsorbent depends on several factors which need to be finely tuned to get efficient adsorption process. In the presence of proper facilitating agents, the adsorption of heavy metals enhanced which will certainly improves the existing heavy metal techniques.

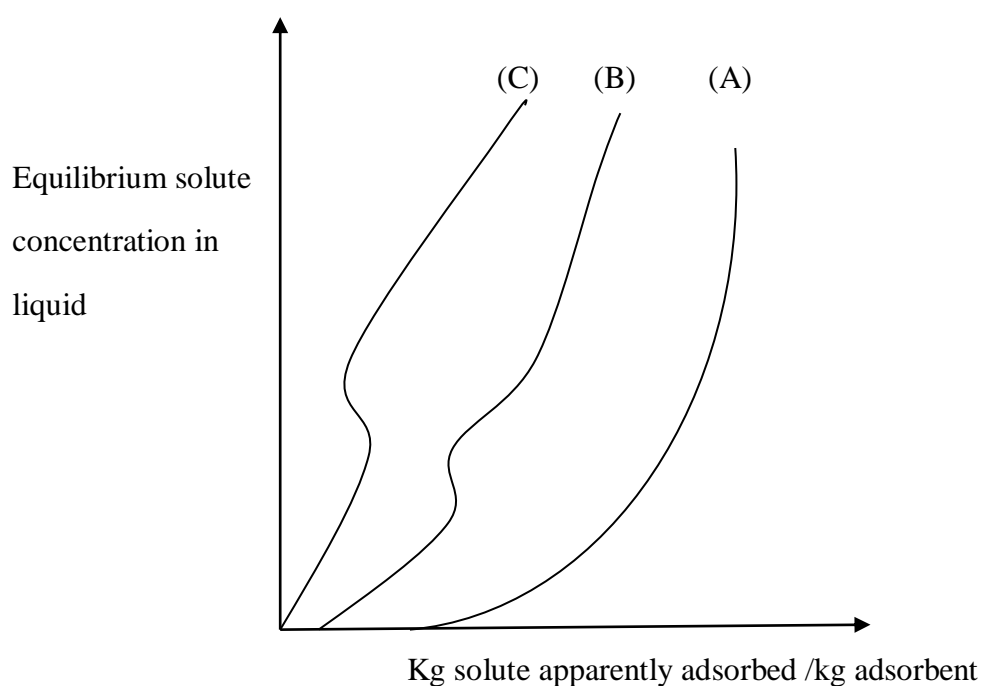
OBJECTIVE OF THE PROJECT

To evaluate the impact of D-Ribose as a chelating agent in the adsorption of Fe (III) from aqueous solution by Bentonite as an adsorbent to develop efficient remediation technology using concept of Coordination chemistry.

Chapter-II

ADSORPTION OF SOLUTES FROM DILUTE SOLUTIONS

Both the solvent and the solute are adsorbed whenever a mixture of solute and solvent is adsorbed using an adsorbent. As a result, only relative or apparent solute adsorption can be determined. As a result, treating a known volume of solution of original concentration C with a known weight of adsorbent is standard procedure. Let C^* be the solution's final equilibrium solute concentration. If v is the volume of solution per unit mass of adsorbent (cc/g), and C and C^* are the starting and equilibrium concentrations (g/cc) of the solute, then the apparent adsorption of the solute per unit mass of adsorbent is $v(C - C^*)$, (g/g), neglecting any volume change. This statement is most useful in the case of dilute solutions. The C^* value is determined by the temperature, nature, and properties of the adsorbent when the proportion of the original solvent that can be adsorbed is tiny. The Freundlich adsorption isotherm, $C^* = K[v(C - C^*)]^n$, represents the adsorption phenomena in dilute fluids across a small concentration range. The Freundlich adsorption equation is especially useful in situations where the identification of the solute is unknown, such as the removal of coloring substances from sugar solutions, oils, and other liquids. A spectrophotometer or colorimeter can quickly determine the color composition of the solute. In worked example 2, the interpretation of this data is demonstrated. Adsorption is good if the value of n is high, say 2 to 10. If it's between 1 and 2, it's relatively challenging, and if it's less than 1, it's easy and it indicates poor adsorption characteristics. Freundlich adsorption equation is also useful in such a case where the actual identification of solute is not known, e.g., removal of coloring substance from sugar solutions, oils etc. A typical adsorption isothermal for the adsorption of various adsorbents A, B and C in dilute solution at the same temperature for the same adsorbent is represented in a graph.



Adsorption isotherms for various adsorbents

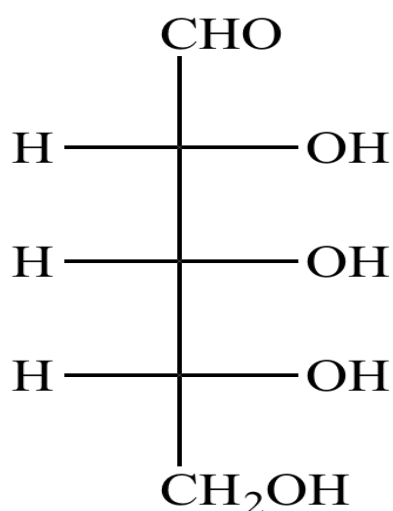
METAL COMPLEXATION OF A D- RIBOSE- BASED LIGAND

The complexation characteristics of methyl 2, 3, 4-tri-O-(2-picolyl)—D-ribose, a novel sugar-derived hexadentate ligand, were investigated using a combination of experimental and theoretical approaches. In the complexes with Mn^{II} , Co^{II} , Ni^{II} , and Zn^{II} , the coordination bond lengths reveal significant departures from perfect octahedral, with deformation towards trigonal-prismatic geometries, indicating a conformationally constrained ligand. The metal-cation–ligand interactions for D-Ribose and its acyclic analogue ligand [1, 2, 3-tri-O-(2-picolyl)-1, 2, 3-propanetriol] were investigated using spectroscopic techniques and isothermal calorimetric titrations for the series Mn^{II} , Co^{II} , Ni^{II} , Zn^{II} , and Cu^{II} . Depending on the nature of the metal, the results show that the complexes produced with D-Ribose are more stable than those obtained with According to molecular modelling studies; the presence of the sugar moiety greatly favours conformations that are compatible with metal binding. In many ways, a close comparison can be sketched between metal complexation and other host-guest interactions. To describe them both, several molecular variables have to be taken into consideration. One of the most

complex variables is the relation between the conformational flexibility of the ligand and the binding strength of the metal cation. For ligands with a reduced number of low-energy conformations, relatively straightforward estimations of the binding same wavelength of metal cations as well as a direct interaction between structural and thermodynamic data are available. However, for ligands with a huge number of degrees of freedom, the correct orientation of the chelating groups becomes one of the most important issues in metal-ion identification processes. For coordination chemists, the prediction and understanding about coordination properties of new ligands is one the most challenging tasks. We decided to investigate how entropic and enthalpic variables can impact on metal binding and selectivity for systems with a substantial number of degrees of freedom.

FERRIC COMPLEXES OF SUGAR-TYPE LIGAND

Fe (III) complexes formed with sugar-type ligands such as aldoses, ketoses, polyalcohols, sugar acids, di and trisaccharides was prepared. These complexes composition was determined by standard analytical methods. Deprotonated alcoholic hydroxy groups participate in the complex formation which results in the formation of polynuclear species. Mossbauer spectra reflected the presence of high spin iron (III) central atoms. EPR spectra showed antiferromagnetic interactions between the iron(III) centres in the complexes indicating dimeric or oligomeric complex structures. Depending upon the nature of a ligand as well as on the preparation mode of the complexes the ratio of interacting and isolated iron(III) is calculated. Formation of polynuclear iron(III) complexes of D-fructose, sorbose, lactobionic acid, glucose, galactose, mannose, and lactose were shown by the analysis and structural study by the sugar type ligand with ferric system. Ferric complexes of reducing sugars also contained ferrous species in some cases. The combination of Mossbauer spectroscopic measurements with ERP or magnetic susceptibility studies has led valuable information concerning the intramolecular and electronic structure on which the system has been developed.



Structure of D-Ribose

BENTONITE AS ADSORBENT

Because of heavy metals toxicity and non-biodegradable nature, the advent of heavy metals in water is turning into a critical environmental and public fitness concern. A variety of technology were evolved to do away with poisonous heavy metals from wastewater. The maximum crucial technology for the heavy steel ions elimination from wastewater consist of perception, ion exchange, adsorption, coagulation, evaporation and opposite osmosis. Adsorption on strong matrices has been proven to be an economically viable opportunity method (Abollino et al., 2003¹; Hoda et al., 2009² Kapoor and Vira Raghavan, 1998³). Cheaper Na-bentonite has been observed to be so beneficial for elimination of heavy steel ions from aqueous answers that it has attracted geologists and environmental engineers (Al-Quadbit et al., 2005⁴; Guo et al.,(2009).

The Na-bentonite from Gaomiaozi has been used as boundaries to save you infection of wastewater containing heavy metals. For this cause it's far crucial to take a look at the adsorption of metals of metals via way of means of Na-bentonite so one can offer crucial parameters and essential principle for the knowledge of adsorptive elimination of heavy metals via way of means of Na-bentonite from an aqueous environment. The bivalence ions of copper and nickel are not unusual

place observed within the commercial wastewater. The bivalence ions of copper and nickel are commonly found in the industrial wastewater. On a Na-montmorillonite turned into studied as feature of answer pH, dosage of Na-bentonite, temperature and make contact with and make contact with time. The aggressive isothermal Adsorption conduct of copper and nickel on Na-bentonite in single-aspect structures and binary-aspect structures has been investigated.



BENTONITE POWDER

Chapter-III

ATOMIC ABSORPTION SPECTROMETRY

Atomic absorption spectrometry (AAS) is an analytical technique that measures the concentrations of elements. Atomic absorption is so sensitive that it can measure down parts per billion of a gram ($\mu\text{g dm}^{-3}$) in a sample. The technique makes use of the wavelengths of light specifically absorbed by an element. They correspond to the energies needed to promote electrons from one energy level to another, higher, energy level.

Atomic absorption spectrometry has many uses in different areas of chemistry.

Clinical analysis: Analysing metals in biological fluids such as blood and urine.

Environmental analysis: Monitoring our environment- eg finding out the levels of various elements in rivers, seawater, drinking water, air, petrol and drinks such as wine, beer and fruit drinks.

Pharmaceuticals: In some pharmaceutical manufacturing processes, minute quantities of a catalyst used in the process (usually a metal) are sometimes present in the final product. By using AAS the amount of catalyst present can be determined.

Industry: Many raw materials are examined and AAS is widely used to check that the major elements are present and that toxic impurities are lower than specified- eg in concrete, where calcium is a major constituent, the lead level should be low because it is toxic.

Mining: By using AAS the amount of metals such as gold in rocks can be determined to see whether it is worth mining the rocks to extract the gold.

HOW IT WORKS

Atoms of different elements absorb characteristic wavelengths of light. Analysing a sample to see if it contains a particular element means using light from that element. For example with lead, a lamp containing lead emits light from excited lead atoms that produce the right mix of wavelengths to be absorbed by any lead atoms from the sample. In AAS, the sample is atomized- i.e. converted into ground state free atoms in the vapour state- and a beam of electromagnetic radiation emitted from excited lead atoms is passed through the vaporized sample. Some of the radiation is absorbed by the lead atoms in the sample. The greater the number of atoms there is in the vapour, the more radiation is absorbed. The amount of light absorbed is proportional to the number of lead atoms. A calibration curve is constructed by running several samples of known lead concentration under the same conditions as the unknown. The amount the standard absorbs is compared with the calibration curve and this enables the calculation of the lead concentration in the unknown sample.

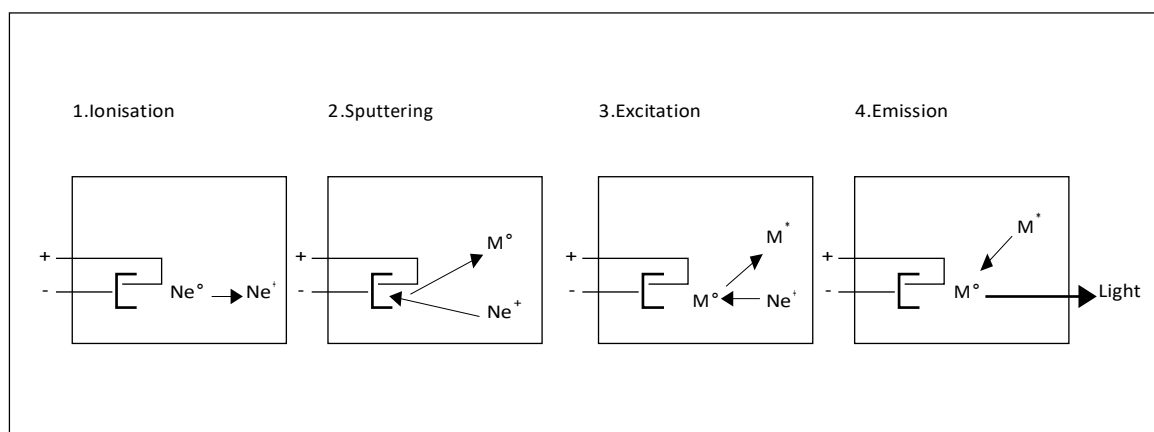
Consequently an atomic absorption spectrometer needs the following three components: a light source; a sample cell to produce gaseous atoms; and a means of measuring the specific light absorbed.

THE LIGHT SOURCE

The common source of light is a 'hollow cathode lamp'. This contains a tungsten anode and a cylindrical hollow cathode made of the element to be determined. These are sealed in a glass tube filled with an inert gas- e.g neon or argon- at a pressure of between 1 Nm^{-2} and 5 Nm^{-2} .

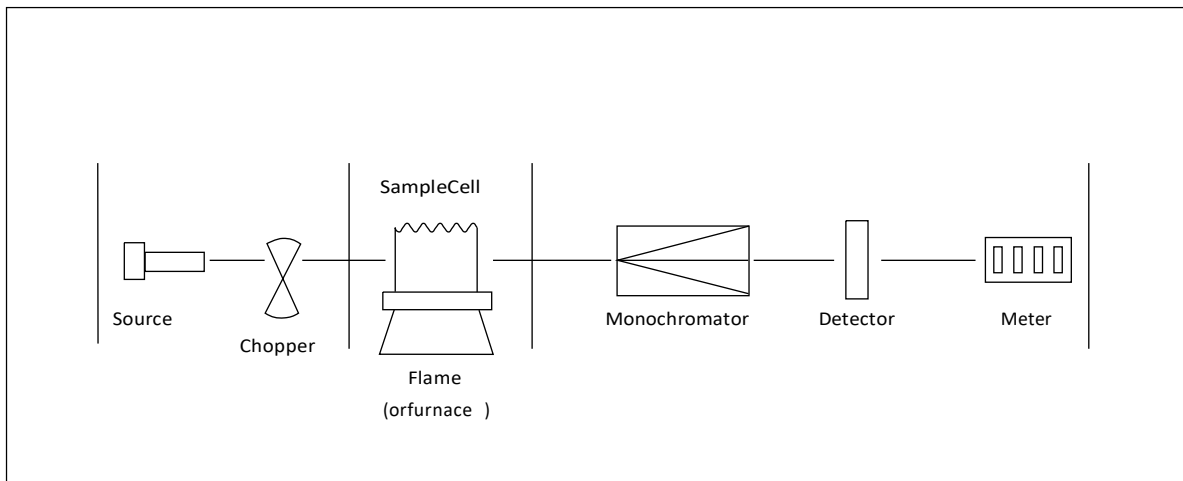


The ionization of some gas atoms occurs by applying a potential difference of about 300-400V between the anode and the cathode. These gaseous ions bombard the cathode and eject metal atoms from the cathode in a process called sputtering. Some sputtered atoms are in excited states and emit radiation characteristic of the metal as they fall back to the ground state – $eg Pb^* \rightarrow Pb + h\nu$. The shape of the cathode concentrates the radiation into a beam which passes through a quartz window, and the shape of the lamp is such that most of the sputtered atoms are redeposited on the cathode. A typical atomic absorption instrument holds several lamps each for a different element. The lamps are housed in a rotating turret so that the correct lamp can be quickly selected.



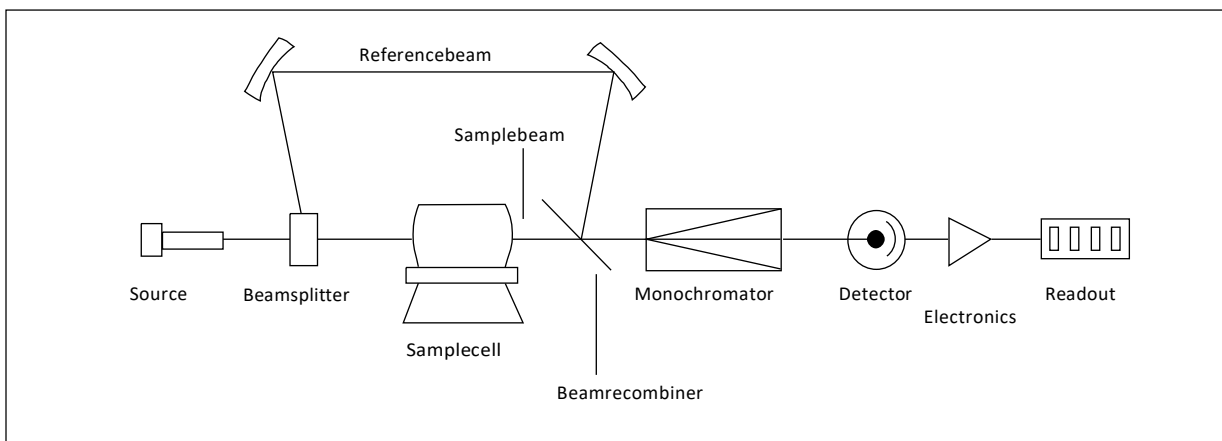
THE OPTICAL SYSTEM AND DETECTOR

A monochromator is used to select the specific wavelength of light –ie spectral line – which is absorbed by the sample, and to exclude other wavelengths. The selection of the specific light allows the determination of the selected element in the presence of others. The light selected by the monochromator is directed onto a detector that is typically a photomultiplier tube. This produces an electrical signal proportional to the light intensity



DOUBLE BEAM SPECTROMETERS

Modern spectrometers incorporate a beam splitter so that one part of the beam passes through the sample cell and the other is the reference. The intensity of the light source may not stay constant during an analysis. If only a single beam is used to pass through the atom cell, a blank reading containing no analyte (substance to be analysed) would have to be taken first, setting the absorbance at zero. If the intensity of the source changes by the time the sample is put in place, the measurement will be inaccurate. In the double beam instrument, there is a constant monitoring between the reference beam and the light source. To ensure that the spectrum does not suffer from loss of sensitivity, the beam splitter is designed so that as high a proportion as possible of the energy of the lamp beam passes through the sample.



ATOMIZATION OF THE SAMPLE

Two systems are commonly used to produce atoms from the sample. Aspiration involves sucking a solution of the sample into a flame; and electrothermal atomization is where a drop of sample is placed into a graphite tube that is then heated electrically.

Some instruments have both atomization systems but share one set of lamps. Once the appropriate lamp has been selected, it is pointed towards one or other atomization system.

FLAME ASPIRATION

Ethyne/air (giving a flame with a temperature of 2200–2400°C) or ethyne/dinitrogen oxide (2600–2800°C) are often used. A flexible capillary tube connects the solution to the nebulizer. At the tip of the capillary, the solution is ‘nebulized’ –ie broken into small drops. The larger drops fall out and drain off while smaller ones vaporize in the flame. Only ca 1% of the sample is nebulized.

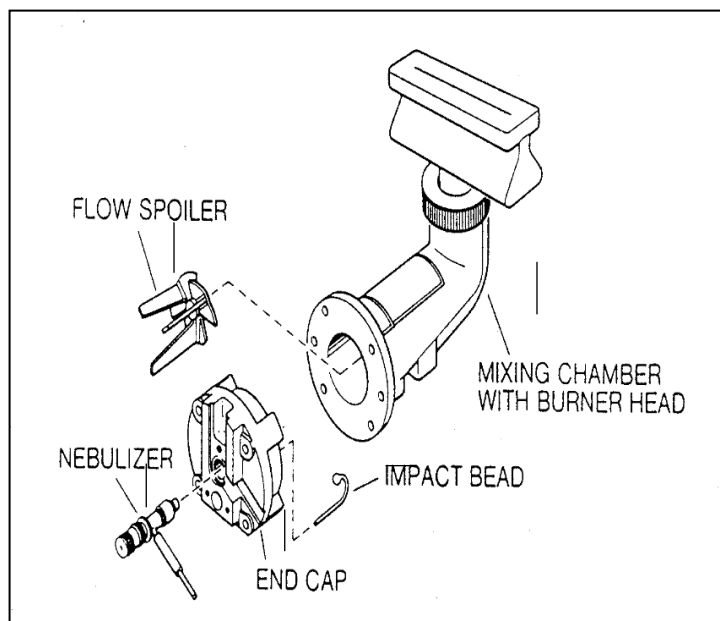


Figure 1

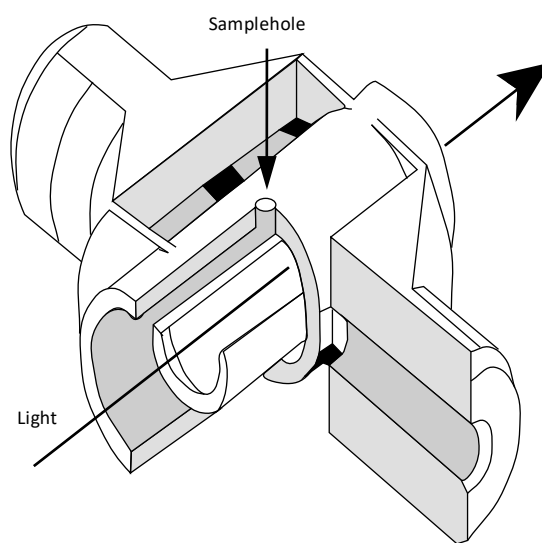


Figure 2

ELECTROTHERMAL ATOMIZATION

25 µl of sample (ca 1/100th of a raindrop) is placed through the sample hole and onto the platform from an automated micropipette and sample changer. The tube is heated electrically by passing a current through it in a pre-programmed series of steps. The details will vary with the sample but typically they

might be 30–40 seconds at 150°C to evaporate the solvent, 30 seconds at 600°C to drive off any volatile organic material and char the sample to ash, and with a very fast heating rate (ca 1500 °C s⁻¹) to 2000–2500°C for 5–10 seconds to vaporise and atomize elements (including the element being analysed). Finally heating the tube to a still higher temperature –ca 2700°C – cleans it ready for the next sample. During this heating cycle the graphite tube is flushed with argon gas to prevent the tube burning away. In electrothermal atomization almost 100% of the sample is atomised. This makes the technique much more sensitive than flame AAS.

SAMPLE PREPARATION

Sample preparation is often simple, and the chemical form of the element is usually unimportant. This is because atomization converts the sample into free atoms irrespective of its initial state. The sample is weighed and made into a solution by suitable dilution. Elements in biological fluids such as urine and blood are often measured simply after a dilution of the original sample.



When making reference solutions of the element under analysis, for calibration, the chemical environment of the sample should be matched as closely as possible –i.e., the analyte should be in the same compound and the same solvent. Teflon containers may be used when analysing very dilute Solutions because elements such as lead are sometimes leached out of glass vessels and can affect the results

BACKGROUND ABSORPTION

It is possible that other atoms or molecules apart from those of the element being determined will absorb or scatter some radiation from the light source. These species could include unvaporised solvent droplets, or compounds of the matrix (chemical species, such as anions, that tend to accompany the metals being analysed) that are not removed completely. This means that there is a background absorption as well as that of the sample.

One way of measuring and correcting this background absorption is to use two light sources, one of which is the hollow cathode lamp appropriate to the element being measured. The second light source is a deuterium lamp.

The deuterium lamp produces broad band radiation, not specific spectral lines as with a hollow cathode lamp. By alternating the measurements of the two light sources – generally at 50 –100 Hz – the total absorption (absorption due to analyte atoms plus background) is measured with the specific light from the hollow cathode lamp and the background absorption is measured with the light from the deuterium lamp. Subtracting the background from the total absorption gives the absorption arising from only analyte atoms.

CALIBRATION

A calibration curve is used to determine the unknown concentration of an element –eg lead – in a solution. The instrument is calibrated using several solutions of known concentrations. A calibration curve is produced which is continually rescaled as more concentrated solutions are used – the more concentrated solutions absorb more radiation up to a certain absorbance. The calibration curve shows the concentration against the amount of radiation absorbed in the given figure. (a) The sample solution is fed into the instrument and the unknown concentration of the element-e.g., lead- is then displayed on the calibration curve given in the below figure. (b)

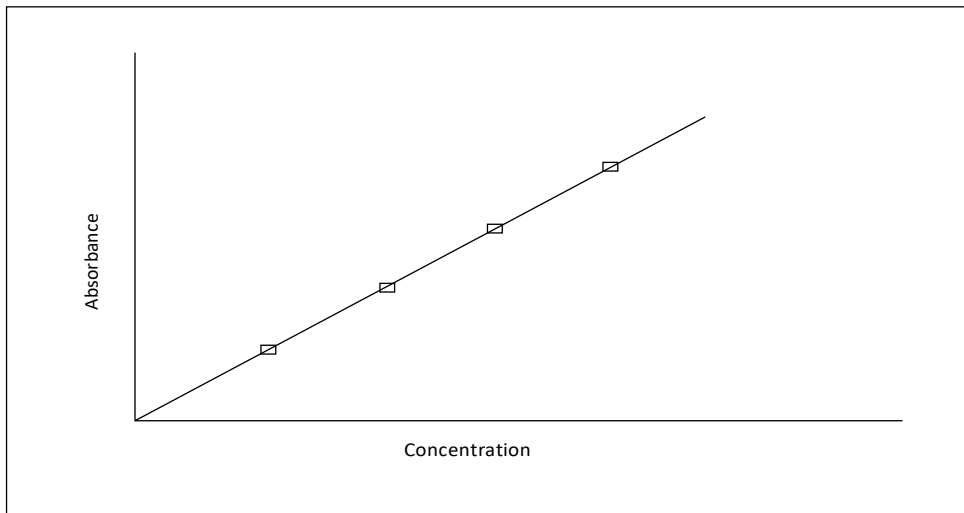


Figure (a)

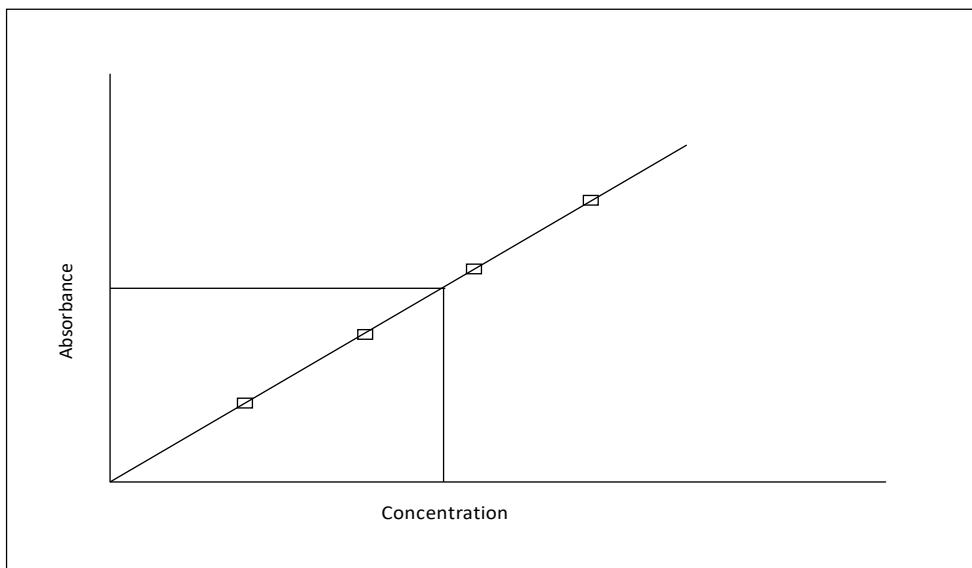


Figure (b)

Chapter-IV

METHODOLOGY

MATERIALS REQUIRED

- Ferric chloride Hexahydrate
- D-Ribose
- Bentonite
- Volumetric flask
- Digital Weighing Machine
- Watch glasses
- Hot air oven
- Ultra-pure water (Demineralized)
- 2% of Nitric acid

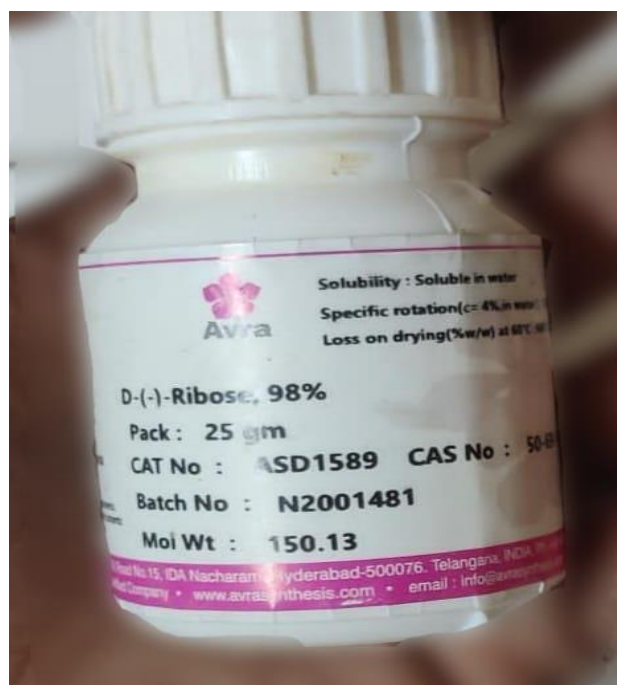
PROCEDURE

1. Using a 250ml Volumetric flask prepare a metal ligand solution by adding 100ppm of Ferric chloride Hexahydrate (MOLYCHEM MCR-11580) and 200ppm of D-Ribose (AVRAN2200133). Prepare 250ml solution by adding Ultra-pure water and then keep this system aside for a few hours.
2. Weigh 5 grams of Bentonite(AVRA N2101070) using a Digital weighing machine (Citizen Scales(I) PVT LTD CTG302-300) and take this into a beaker.
3. Now add 100ml of the above prepared metal ligand solution into the beaker and stir the mixture well for 10 minutes using a glass rod.
4. Keep this mixture aside for 48 hours without disturbing it as at this step Ferric is going to be adsorbed on Bentonite in the presence of D-Ribose which acts as a chelating agent.
5. After completion of 48 hours take the mixture and filter it off using Whatman Grade 1 filter paper and a funnel.

6. After filtration of the mixture again add Ultra-pure water for 3 times and then filtrate it to obtain pure concentration of Ferric which is get adsorbed on Bentonite.
7. Collect the filtered Bentonite powder and place it on a watch glass and keep this in a Hot air Owen at 60 °C for 10 hours to get rid of moisture present in it.
8. Now weigh each 1 gm of Bentonite in glass vials.
9. Now take a beaker and rinse it with ultra-pure water then followed by Nitric acid.
10. Take 0.5 grams of Bentonite sample in the beaker and add 2% of Nitric acid and stir the mixture well for 10-15 minutes.
11. Filter the mixture using Whatman Grade 1 filter paper and again 3 times by using Ultra-pure water to obtain pure concentration of Ferric present in the mixture prepared using the sample.
12. Take this collected sample solution and keep this system under AAS (Thermos Scientific iCE 3300)
13. Calculate the concentration of Ferric adsorbed on Bentonite at different ppm levels. Observe the graph obtained and note down the readings of the result we obtained.
14. Same Experiment carried out without the interference/addition of Ligand i.e. D-Ribose for Control Experiment.



Bentonite Powder



D – Ribose



FERRIC CHLORIDE (HEXAHYDRATE) $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$



Metal Ligand Solution



Watch Glass



Spatula



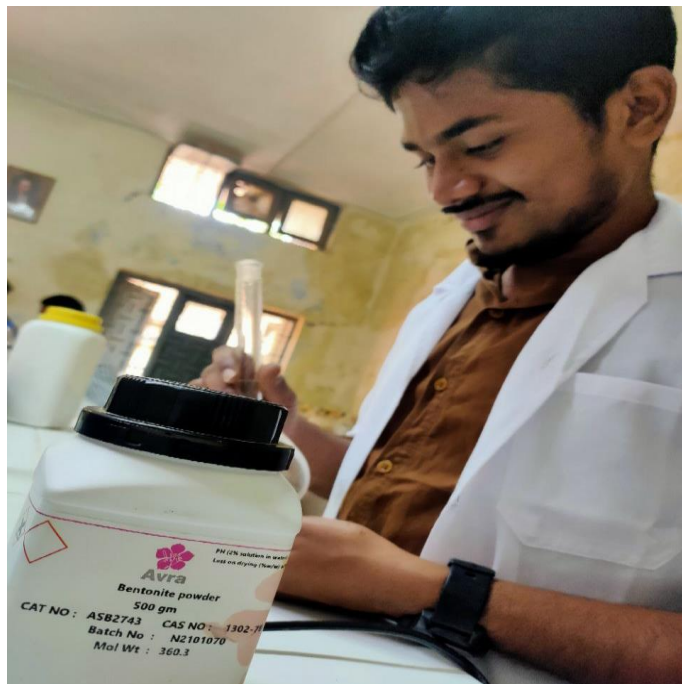
Digital Weighing Machine



Hot air Owen



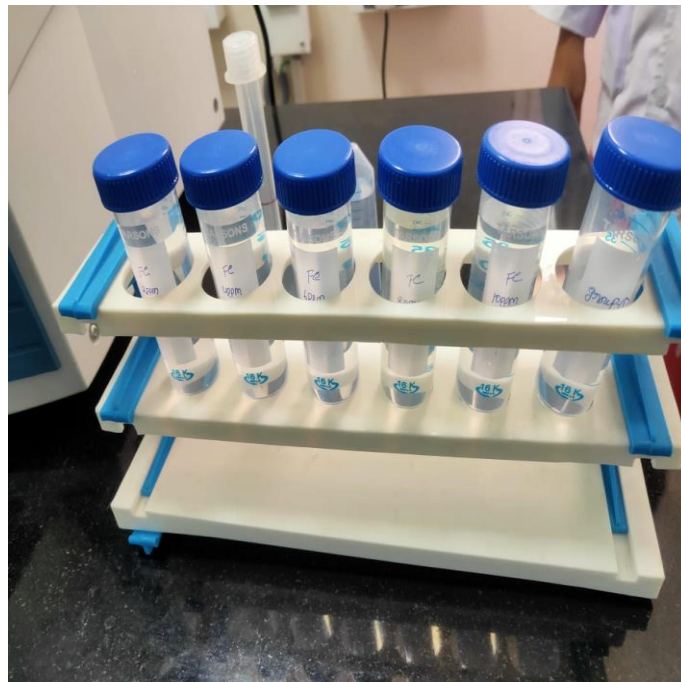








ATOMIC ASORPTION SPECTROSCOPY

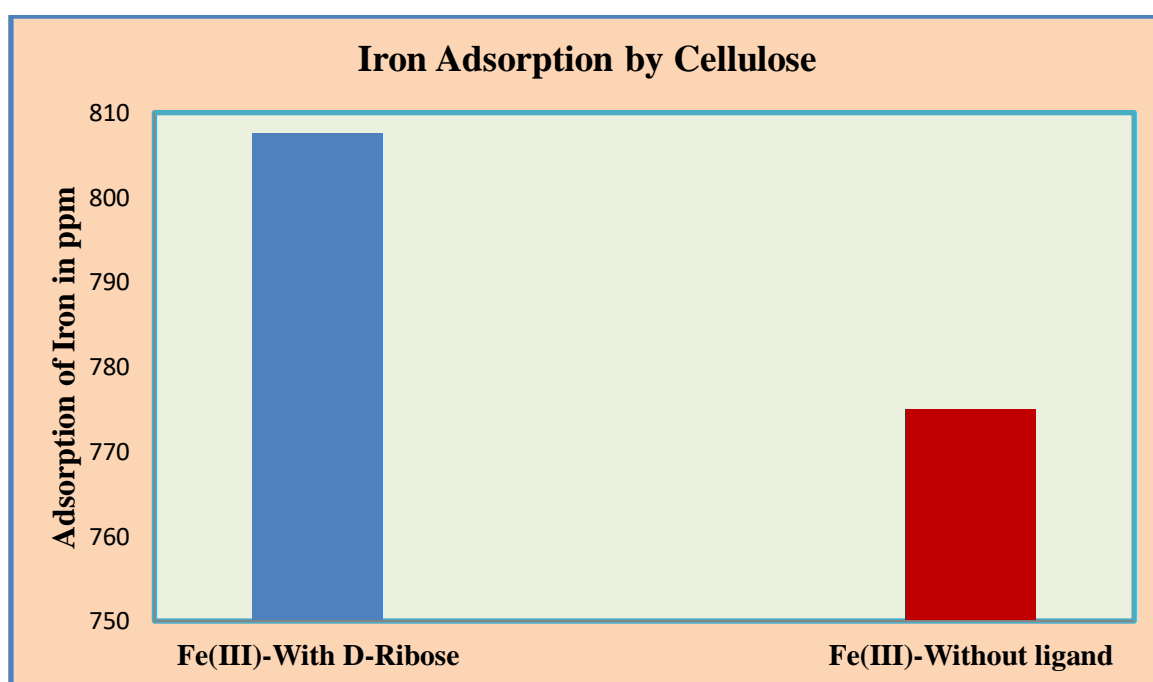


Fe standards with test sample

Chapter-V

RESULTS AND DISCUSSIONS

Bentonite adsorbs **807.5ppm** of Iron metal from aqueous solution of Fe(III)-D-Ribose metal ligand solution. Whereas, Bentonite adsorbs only **775.0ppm** when D-Ribose is absent. It is evident from the AAS results, ligand involvement enhanced the metal adsorption by initiating potential chemical interactions between adsorbate and adsorbent. D-Ribose firmly coordinates with Fe(III) to form a stable complex in aqueous condition. The complex coordination sphere in the resulted complex facilitates strong interactions with the polar points of Bentonite. From the AAS results, it is conclusive that **4.193%** of adsorption increased in the presence of D-Ribose as chelating agent.



Impact of D-Ribose on Adsorption of Fe (III) ions from aqueous solution by Bentonite.

Spectrometer Parameters – Fe:

Element : Fe	Measurement mode : Absorbance	
Wavelength : 248.3nm	Band pass : 0.2nm	Lamp current : 75%
Background correction : D2	High Resolution : Off	Optimise Spectrometer Parameters : No
Signal type : continuous	Resamples : Fast	Number of resamples : 3
Measurement time : 4.0secs	Flier mode : No	
Use RSD Test : No		

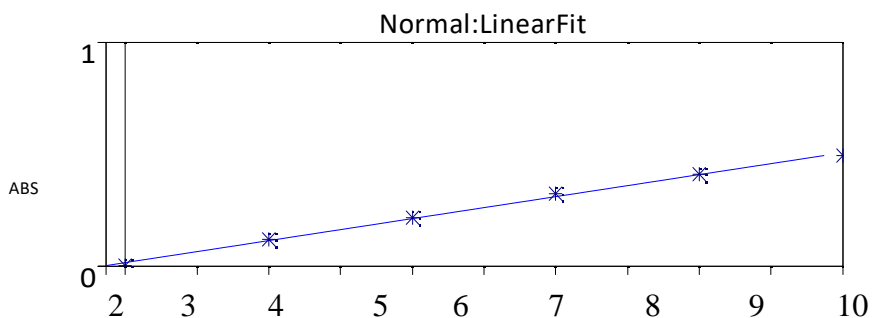
Flame parameters – Fe:

Flame type : Air – C2H2	Fuel Flow : 0.9L/min	Auxiliary Oxidant : Off
Nebuliser Uptake : 4secs	Bunsen Stabilisation : 0mins	Optimise Fuel Flow : No
Burner Height : 7.0mm	Optimise Burner fuel : No	

Calibration Parameters – Fe:

Calibration mode : Normal	Line fit : Linear	Use stored calibration : No
Concentration units : mg/L	Scales units : mg/L	Scaling factor : 1.0000
Acceptable fit : 0.990	Rescale Limits : 10.0%	Failure Action : Flag and Continue
Standard 1 - 2.0000	Standard 4 - 8.0000	
Standard 2 - 4.0000	Standard 5 - 10.0000	
Standard 3 - 6.0000		

Solutions Results–Fe:



$Y = 0.04924x + 0.0141$

Fit: 0.9965

Characteristic Conc.: 0.0894

Sample ID	Signal	RSD	Conc.
	Abs	%	Mg/L
Fe Blank	0	<99	0
1	0	Background: 0.000	
2	0	Background: 0.000	
3	0	Background: 0.000	
Fe Standard 1	0.125	0.3	2
1	0.125	Background: 0.006	
2	0.125	Background: 0.006	
3	0.126	Background: 0.006	
Fe Standard 2	0.225	0.5	4
1	0.227	Background: 0.007	
2	0.225	Background:0.007	
3	0.224	Background:0.007	

Fe Standard 3	0.336	0.2	6
1	0.336	Background: 0.008	
2	0.336	Background: 0.008	
3	0.335	Background: 0.008	
Fe Standard 4	0.425	0.2	8
1	0.426	Background: 0.009	
2	0.425	Background: 0.008	
3	0.425	Background: 0.009	
Fe Standard 5	0.51	0.4	10
1	0.51	Background: 0.009	
2	0.509	Background: 0.009	
3	0.513	Background: 0.009	
Fe(III)-D-Ribose-Bentonite	0.809	0.2	16.1488 C
1	0.808	Background: 0.005	
2	0.809	Background: 0.005	
3	0.811	Background: 0.005	
Fe(III)-Bentonite (Without Ligand)	0.776	0.2	15.4988C
1	0.778	Background: 0.004	
2	0.775	Background: 0.004	
3	0.775	Background: 0.004	

TEST RESULTS:

S.No.	Test Parameters	Sample	Results
01.	Iron by AAS Analysis: (ppm)	Fe(III)- D-Ribose- Bentonite Sample	807.5ppm
02.	Iron by AAS Analysis: (ppm)	Fe(III)-Bentonite (control)	775.0ppm

CONCLUSION

From the current project it is clear that D-Ribose as a Chelating agent has played a vital role in adsorption of Fe(III) ions from aqueous solution and increases the adsorption up to **4.193 %**. This aspect will be useful in designing the newer strategies of Heavy metal Remediation techniques using Natural Chelating Ligands as Facilitating agents in Metal Adsorption processes.

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MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

General Parameters

Method : Iron (Fe)

Operator : Jyothi

Instrument Mode: Flame

Autosampler : None

Dilution: None

Use SFI: No

Valid Method Signatures

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Method Audit Trail

11-06-2022 17:22:18 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Details

Analysis Name: Iron (Fe) 11-06-2022

Spectrometer: ICE 3000 AA01204906 v1.30

Operator Name: Jyothi

Lamp Information

Element(s)

Serial Number

mA Hours

Fe

n/a

n/a

Deuterium Lamp Hours: 68.34

Sequence Table

Shared Standards: Yes

Action

Fe

Calibration

✓

B.No.Group-II

✓

B.No.Group-III

✓

B.No.Group-IV

✓

B.No.Group-V

✓

B.No.Group-VI

✓

Sample Details

Nominal Mass: 1.0000

No.	Sample Id	Sample Mass	Dilution Ratio
1	B.No.Group-II	1.0000	1.0000
2	B.No.Group-III	1.0000	1.0000
3	B.No.Group-IV	1.0000	1.0000
4	B.No.Group-V	1.0000	1.0000
5	B.No.Group-VI	1.0000	1.0000

Valid Analysis Signatures

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Audit Trail

11-06-2022 17:30:16 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:38:27 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Error MD147 - Activity manually aborted by user.

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Spectrometer Parameters - Fe

Element: Fe
 Wavelength: 248.3nm
 Background Correction: D2
 Signal Type: Continuous
 Measurement Time: 4.0secs
 Use RSD Test: No

Measurement Mode: Absorbance
 Bandpass: 0.2nm
 High Resolution: Off
 Resamples: Fast
 Flier Mode: No
 Lamp Current: 75%
 Optimise Spectrometer Parameters: No
 Number Of Resamples: 3

Flame Parameters - Fe

Flame Type: Air-C2H2
 Nebuliser Uptake: 4secs
 Burner Height: 7.0mm

Fuel Flow: 0.9L/min
 Burner Stabilisation: 0mins
 Optimise Burner Height: No
 Auxiliary Oxidant: Off
 Optimise Fuel Flow: No

Sampling Parameters - Fe

Sampling: None

Calibration Parameters - Fe

Calibration Mode: Normal
 Concentration Units: mg/L
 Acceptable Fit: 0.990

Line Fit: Linear
 Scaled Units: mg/L
 Rescale Limit: 10.0%
 Use Stored Calibration: No
 Scaling Factor: 1.0000
 Failure Action: Flag and Continue

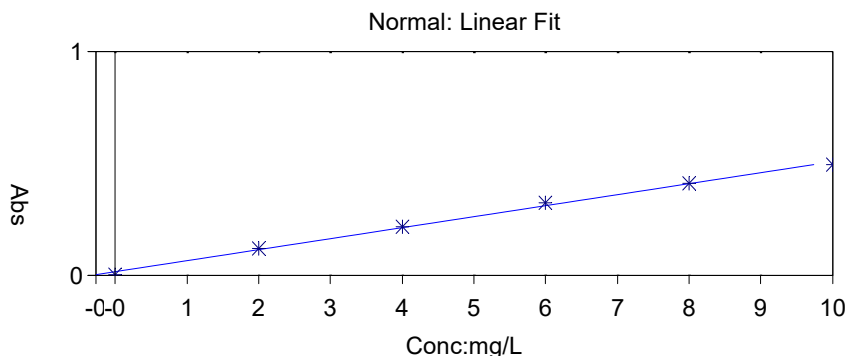
Standard 1	2.0000	Standard 4	8.0000
Standard 2	4.0000	Standard 5	10.0000
Standard 3	6.0000		

Element Audit Trail - Fe

No changes are recorded for this element

Solution Results - Fe

Y = 0.04924x + 0.0141
 Fit: 0.9965
 Characteristic Conc: 0.0894



Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Blank	0.001	35.6	0.0000	
1	0.001	Background: -0.003		11-06-2022 17:31:26
2	0.001	Background: -0.003		11-06-2022 17:31:30
3	0.000	Background: -0.003		11-06-2022 17:31:35
Fe Standard 1	0.120	0.3	2.0000	
1	0.120	Background: 0.003		11-06-2022 17:32:05
2	0.119	Background: 0.003		11-06-2022 17:32:09
3	0.120	Background: 0.003		11-06-2022 17:32:13
Fe Standard 2	0.215	0.3	4.0000	
1	0.215	Background: 0.004		11-06-2022 17:32:40
2	0.215	Background: 0.004		11-06-2022 17:32:45
3	0.216	Background: 0.004		11-06-2022 17:32:49
Fe Standard 3	0.322	0.2	6.0000	
1	0.323	Background: 0.005		11-06-2022 17:33:19
2	0.322	Background: 0.005		11-06-2022 17:33:23
3	0.322	Background: 0.005		11-06-2022 17:33:27
Fe Standard 4	0.411	0.3	8.0000	
1	0.410	Background: 0.005		11-06-2022 17:33:59
2	0.412	Background: 0.005		11-06-2022 17:34:03
3	0.412	Background: 0.005		11-06-2022 17:34:07

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Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Solution Results - Fe

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Standard 5	0.493	0.1	10.0000	
1	0.494	Background: 0.005		11-06-2022 17:34:38
2	0.494	Background: 0.005		11-06-2022 17:34:42
3	0.493	Background: 0.006		11-06-2022 17:34:46
Fe B.No.Group-II	0.834	0.1	16.6490 C	16.6490 C
1	0.834	Background: 0.005		11-06-2022 17:35:14
2	0.833	Background: 0.005		11-06-2022 17:35:19
3	0.834	Background: 0.005		11-06-2022 17:35:23
Fe B.No.Group-III	0.759	0.1	15.1286 C	15.1286 C
1	0.758	Background: 0.003		11-06-2022 17:35:52
2	0.760	Background: 0.003		11-06-2022 17:35:56
3	0.758	Background: 0.004		11-06-2022 17:36:00
Fe B.No.Group-IV	0.645	0.3	12.8189 C	12.8189 C
1	0.647	Background: 0.003		11-06-2022 17:36:31
2	0.644	Background: 0.003		11-06-2022 17:36:35
3	0.645	Background: 0.003		11-06-2022 17:36:40
Fe B.No.Group-V	0.809	0.2	16.1488 C	16.1488 C
1	0.808	Background: 0.005		11-06-2022 17:37:11
2	0.809	Background: 0.005		11-06-2022 17:37:15
3	0.811	Background: 0.005		11-06-2022 17:37:20
Fe B.No.Group-VI	0.711	0.3	14.1597 C	14.1597 C
1	0.709	Background: 0.005		11-06-2022 17:37:55
2	0.713	Background: 0.005		11-06-2022 17:37:59
3	0.712	Background: 0.004		11-06-2022 17:38:03

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Tel. : 85007 98350, 81423 98350 & 98481 98350 Mail:martspecialities@gmail.com



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CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-1 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	--

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-I Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Temperature : 25°C±3°C Batch : NA
Room Temperature : 25°C±3°C size
Quantity Received : 4gm
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	620ppm

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Name & Address of the Customer:

Tara Government College
Prashanth Nagar Colony, Balajinagar
Sangareddy Telangana. 502000
Contact Person: Dr. Abhijeet
Contact Number :9502344392

Reference / Report No. : MSL/2022/JUNE/TARA/0064-2
Sample Received Date : 11/06/2022
Report Date : 13/06/2022

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-II Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Temperature Batch : NA
Room Temperature : 25°C±3°C size
Quantity Received : 4gm
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	832.5ppm

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---	---

DETAILS OF THE SAMPLE

Sample Name	: NA	Mfg.	: NA	Exp.	: NA
Name of the Manufacturer	: NA	date		date	
Batch no	: Group-III	Batch		Batch	: NA
Storage condition	: To be stored at room	size		size	
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	756.5ppm

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---	--

DETAILS OF THE SAMPLE

Sample Name	: NA				
Name of the Manufacturer	: NA				
Batch no	: Group-IV	Mfg. date	: NA	Exp. date	: NA
Storage condition	: To be stored at room Temperature			Batch size	: NA
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	641ppm

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-5 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
DETAILS OF THE SAMPLE	
Sample Name : NA	
Name of the Manufacturer : NA	
Batch no : Group-V	Mfg. : NA Exp. : NA
Storage condition : To be stored at room	date : NA
Room Temperature : 25°C±3°C	Batch : NA
Quantity Received : 4gm	size
Tests Required : Iron by AAS Analysis.	
Method : NA	
Analysis Starting Date : 11/06/2022	
Analysis Completion Date : 11/06/2022	
Mfg. License No. : Not provided	
A.R.NO : NA	
Remark : Sample analyzed as received	

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	807.5ppm

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(Dr.R.Marayya)

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-6 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	---

DETAILS OF THE SAMPLE

Sample Name	: NA				
Name of the Manufacturer	: NA				
Batch no	: Group-VI	Mfg. date	: NA	Exp. date	: NA
Storage condition	: To be stored at room Temperature			Batch size	: NA
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	708ppm

Authorized Signatory

(Dr.R.Marayya)

**ADSORPTION STUDIES OF Fe[III] ON
BENTONITE IN THE PRESENCE OF D-VALINE
AS CHELATING AGENT**

*Dissertation submitted in Partial fulfillment for the requirements for the award of
degree of*

*Bachelor of Science
in
CHEMISTRY*

By

- | | | |
|----------------------|--------------------|----------|
| 1.Y. Avinash Reddy, | B.Sc (Chemistry) , | III Year |
| 2.K.Prashanth Reddy, | B.Sc (Chemistry) , | III Year |
| 3.V. Prashanth, | B.Sc (Chemistry) , | III Year |
| 4.Y.Shashi Pranay, | B.Sc (Chemistry) , | III Year |
| 5.D.Sai Kiran, | B.Sc (Chemistry) , | III Year |
| 6.V.Aravind, | B.Sc (Chemistry) , | III Year |

Under the Guidance:

K.SREEDHAR
Assistant Professor
DEPARTMENT OF CHEMISTRY



Tara Government College, Sangareddy(A)
2021-22

CERTIFICATE

*This is to certify that the project work entitled “**ADSORPTION STUDIES OF Fe[III] ON BENTONITE IN THE PRESENCE OF D-VALINE AS CHELATING AGENT**” is presented by B.Sc (CHEMISTRY) students in partial fulfillment of the requirements for the degree of Bachelor of Science in Chemistry by the Tara Govt. College, Sangareddy(A) (Affiliated to Osmania University, Hyderabad) during the academic year 2021-2022.*

The results embodied in this report have not been to any other University or Institution for the award of any degree.

(K.SREEDHAR)

**Asst. Professor, Department of Chemistry
Tara Government College, Sangareddy (A)**

EXTERNAL EVALUATOR

ACKNOWLEDGEMENTS

*We express my deep gratitude to my research supervisor **K.Sreedhar**, Asst. Professor, Department of Chemistry, Tara Govt. College, Sangareddy(A)-502001, INDIA for his inspiring guidance during the course of the Project work. The continuous encouragement extended by him propelled me to update my research skills and pedigree to engage in fruitful research.*

*We wish to express our gratitude to **Smt. M.Praveena**, Principal, Tara Govt. College, Sangareddy(A)-502001, INDIA for her constant support, cooperation and suggestions during the research work. We wish to express our sincere thanks to **Dr.K.Abhijit**, Head, Department of Chemistry, Tara Govt. College, Sangareddy(A)-502001, INDIA for providing me facilities, help and support for the entire research work.*

*We express our special thanks to **MART Specialities Lab, Hyderabad** for providing technical assistance in Atomic absorption spectrometric analysis.*

Finally, we take this opportunity to thank one and all that has directly or indirectly helped me in completing the task.

1.Y. Avinash Reddy,	B.Sc (Chemistry) , III Year
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3.V. Prashanth,	B.Sc (Chemistry) , III Year
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5.D.Sai Kiran,	B.Sc (Chemistry) , III Year
6.V.Aravind,	B.Sc (Chemistry) , III Year

DECLARATION

We hereby declare that the project report entitled “*ADSORPTION STUDIES OF Fe[III] ON BENTONITE IN THE PRESENCE OF D-VALINE AS CHELATING AGENT*” is the work done by us in the campus at *Department of Chemistry, Tara Government College, Sangareddy(A)* during the academic year 2021-2022 and is submitted in partial fulfillment of the requirements for the degree of *Bachelor of Science* by *Tara Govt. College, Sangareddy(A)* (Affiliated to *Osmania University, Hyderabad*) during the academic year 2021-2022.

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**TARA GOVERNMENT COLLEGE, SANGAREDDY – 502 001
(AUTONOMOUS)**

BONAFIDE CERTIFICATE

*Certified that the project report "ADSORPTION STUDIES OF Fe[III] ON
BENTONITE IN THE PRESENCE OF D-VALINE AS CHELATING AGENT"
is the bonafidework of*

- | | |
|------------------------|-----------------------------|
| 1. Y. Avinash Reddy, | B.Sc (Chemistry) , III Year |
| 2. K. Prashanth Reddy, | B.Sc (Chemistry) , III Year |
| 3. V. Prashanth, | B.Sc (Chemistry) , III Year |
| 4. Y. Shashi Pranay, | B.Sc (Chemistry) , III Year |
| 5. D. Sai Kiran, | B.Sc (Chemistry) , III Year |
| 6. V. Aravind, | B.Sc (Chemistry) , III Year |

who carried out the project work under my supervision.

K. Sreedhar
PROJECT SUPERVISOR

Dr. K. ABHIJIT
HEAD, DEPARTMENT OF CHEMISTRY

Smt. M. PRAVEENA
PRINCIPAL

CONTENTS

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Chapter-I

INTRODUCTION

ADSORPTION

Adsorption is a process in which solids come into contact with liquids or gases, and the mass transfer occurs from liquids to solids. Desorption is the reversal of this action. Adsorption operations take advantage of a solid's capacity to concentrate certain chemicals from a fluid on to its surface. Adsorbate refers to the adsorbed substance, while adsorbent refers to the solid substance. The following are some examples of solid-liquid and solid-gas applications:

- Removing dissolved moisture from gasoline.
- Decolorization of sugar solutions and petroleum products.
- Removing noxious odors and tastes from water. Dehumidification of air and gases is one of the solid-gas activities.
- To fractionate mixtures of hydrocarbon gases such as methane, ethane, and propane.
- To remove undesirable odors and contaminants from gases.
- To recover valuable solvent vapors from dilute gas mixtures.

NATURE OF ADSORBENTS

Adsorbents are typically granular in nature, ranging in size from 0.5 mm to 12 mm. They can't have a lot of pressure decrease or get swept away by a fast-moving stream. During handling, they must maintain their shape and size. They'll need a lot of pores and a lot of surface area per unit mass.

Some of the commonly used adsorbents, their sources and applications are given below:

Sl. No.	Adsorbent	Source	Application
1.	Fuller's earth	Naturally occurring clay is heated and dried to get a porous structure.	De-colorizing, drying of lubricating oils, kerosene and engine oils.
2.	Activated charcoal	Bentonite or other activated clay which are activated by treatment with sulfuric acid and further washing, drying and crushing.	Used for de-colorizing petroleum products.
3.	Bauxite	A naturally occurring hydrated alumina, activated by heating at 230-815	Used for de-colorizing petroleum products and for drying gases.

4.	Alumina	A hard hydrated aluminum oxide, which is activated by heating to drive off the moisture and then crushed to desired size.	Used as desiccant.
5.	Bone-char	Obtained by destructive distillation of crushed bones at 600-900	Used for refining sugar and can be reused after washing and burning.
6.	Silica gel	A hard granular and porous product obtained from sodium silicate solution after treatment with acid. Normally has 4 to 7% water in the product.	Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.

7.	Activated carbon	<p>(1) Vegetable matter is mixed with calcium chloride, carbonized and finally the inorganic compounds are leached away.</p> <p>(2) Organic matter is mixed with porous pumice stones and then heated and carbonized to deposit the carbonaceous matter throughout the porous particle.</p> <p>(3) Carbonizing substances like wood, sawdust, coconut shells, fruit pits, coal, lignite and subsequent activation with hot air steam. It is available in granular or pelleted form.</p>	<p>De-colorizing of sugar solutions, chemicals, drugs, water purification, refining of vegetable and animal oils, recovery of gold and silver from cyanide ore-leach solution, recovery of solvent vapor from gas-mixtures, collection of gasoline hydrocarbons from natural gas, fractionation of hydrocarbon gases.</p>
8.	Molecular sieves	<p>These are porous synthetic zeolite crystals, metal alumino-silicates.</p>	<p>Dehydration of gases and liquids, and separation of gas-liquid hydrocarbon mixture.</p>

SIGNIFICANCE OF RESEARCH PROBLEM

Adsorption of heavy metals is an important strategy to develop newer remediation technologies for the sustainable environmental protection. But the efficacy of adsorption of heavy metals under the normal conditions using suitable adsorbent depends on several factors which need to be finely tuned to get efficient adsorption process. In the presence of proper facilitating agents, the adsorption of heavy metals enhanced which will certainly improves the existing heavy metal techniques.

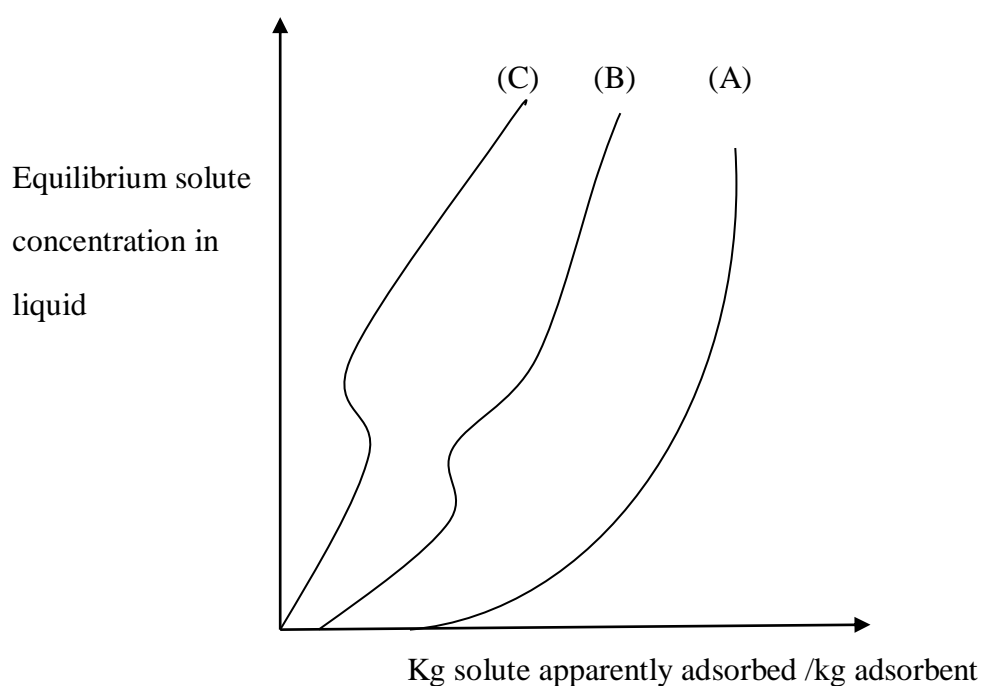
OBJECTIVE OF THE PROJECT

To evaluate the impact of D-Valine as a chelating agent in the adsorption of Fe (III) from aqueous solution by Bentonite as an adsorbent to develop efficient remediation technology using concept of Coordination chemistry.

Chapter-II

ADSORPTION OF SOLUTES FROM DILUTE SOLUTIONS

Both the solvent and the solute are adsorbed whenever a mixture of solute and solvent is adsorbed using an adsorbent. As a result, only relative or apparent solute adsorption can be determined. As a result, treating a known volume of solution of original concentration C with a known weight of adsorbent is standard procedure. Let C^* be the solution's final equilibrium solute concentration. If v is the volume of solution per unit mass of adsorbent (cc/g), and C and C^* are the starting and equilibrium concentrations (g/cc) of the solute, then the apparent adsorption of the solute per unit mass of adsorbent is $v(C - C^*)$, (g/g), neglecting any volume change. This statement is most useful in the case of dilute solutions. The C^* value is determined by the temperature, nature, and properties of the adsorbent when the proportion of the original solvent that can be adsorbed is tiny. The Freundlich adsorption isotherm, $C^* = K[v(C - C^*)]^n$, represents the adsorption phenomena in dilute fluids across a small concentration range. The Freundlich adsorption equation is especially useful in situations where the identification of the solute is unknown, such as the removal of coloring substances from sugar solutions, oils, and other liquids. A spectrophotometer or colorimeter can quickly determine the color composition of the solute. In worked example 2, the interpretation of this data is demonstrated. Adsorption is good if the value of n is high, say 2 to 10. If it's between 1 and 2, it's relatively challenging, and if it's less than 1, it's easy and it indicates poor adsorption characteristics. Freundlich adsorption equation is also useful in such a case where the actual identification of solute is not known, e.g., removal of coloring substance from sugar solutions, oils etc. A typical adsorption isothermal for the adsorption of various adsorbents A, B and C in dilute solution at the same temperature for the same adsorbent is represented in a graph.



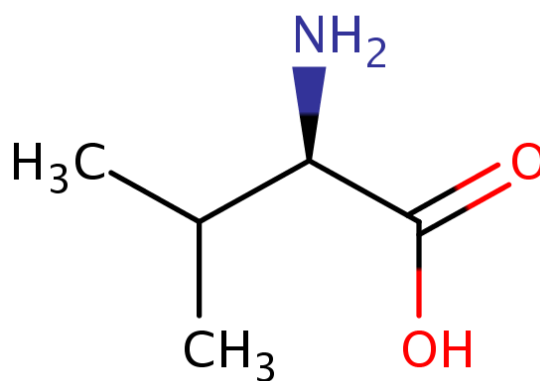
Adsorption isotherms for various adsorbents

METAL COMPLEXES OF AMINO ACIDS

Transition metal amino acid complexes are a large family of coordination complexes containing the conjugate bases of the amino acids, the 2-aminocarboxylates. Amino acids are prevalent in nature, and all of them function as ligands toward the transition metals. Not included in this article are complexes of the amides (including peptide) and ester derivatives of amino acids. Also excluded are the polyamino acids including the chelating agents EDTA and NTA.

Most commonly, amino acids coordinate to metal ions as N,O bidentate ligands, utilizing the amino group and the carboxylate. They are "L-X" ligands. A five-membered chelate ring is formed. The chelate ring is only slightly ruffled at the sp^3 -hybridized carbon and nitrogen centers. For those amino acids containing coordinating substituents, the resulting complexes are more structurally diverse since these substituents can coordinate. Histidine, aspartic acid, methionine, and cysteine sometimes form tridentate N,N,O, N,O,O, S,N,O, and S,N,O complexes, respectively. Using kinetically inert metal ions,

complexes containing monodentate amino acids have been characterized. These complexes exist in either the N or the O linkage isomers. It can be assumed that such monodentate complexes exist transiently for many kinetically labile metal ions (e.g. Zn^{2+}). Mixing simple metal salts with solutions of amino acids near neutral or elevated pH often affords bis- or tris complexes. For metal ions that prefer octahedral coordination, these complexes often adopt the stoichiometry $M(aa)_3$ (aa = amino carboxylate, such as glycinate, $H_2NCH_2CO_2^-$). Complexes of the 3:1 stoichiometry have the formula $[M(O_2CC(R)HNH_2)_3]^z$. Such complexes adopt octahedral coordination geometry. These complexes can exist in facial and meridional isomers, both of which are chiral. The stereochemical possibilities increase when the amino acid ligands are not homochiral. Complexes with the 2:1 stoichiometry are illustrated by copper(II) glycinate $[Cu(O_2CC(R)HNH_2)_2]$, which exists both in anhydrous and pentacoordinate geometries. When the metal is square planar, these complexes can exist as cis and trans isomers. The stereochemical possibilities increase when the amino acid ligands are not homochiral. Homoleptic complexes are also known where the amino carboxylate is tridentate amino acids. One such complex is $Ni(\kappa^3\text{-histidinate})_2$. D-Valine can easily be involved in M-L complex formation due to its functional flexibility. Moreover its water solubility encourages the metal-ligand complex formation under aqueous conditions.



D-Valine

BENTONITE AS ADSORBENT

Because of heavy metals toxicity and non-biodegradable nature, the advent of heavy metals in water is turning into a critical environmental and public fitness concern. A variety of technology

were evolved to do away with poisonous heavy metals from wastewater. The maximum crucial technology for the heavy steel ions elimination from wastewater consist of perception, ion exchange, adsorption, coagulation, evaporation and opposite osmosis. Adsorption on strong matrices has been proven to be an economically viable opportunity method (Abollino et al., 2003¹; Hoda et al., 2009² Kapoor and Vira Raghavan, 1998³). Cheaper Na-bentonite has been observed to be so beneficial for elimination of heavy steel ions from aqueous answers that it has attracted geologists and environmental engineers (Al-Quadbit et al., 2005⁴; Guo et al.,(2009).

The Na-bentonite from Gaomiaozi has been used as boundaries to save you infection of wastewater containing heavy metals. For this cause it's far crucial to take a look at the adsorption of metals of metals via way of means of Na-bentonite so one can offer crucial parameters and essential principle for the knowledge of adsorptive elimination of heavy metals via way of means of Na-bentonite from an aqueous environment. The bivalence ions of copper and nickel are not unusual place observed withinside the commercial wastewater. The bivalence ions of copper and nickel are commonly found in the industrial wastewater. On a Na-montmorillonite turned into studied as feature of answer pH, dosage of Na-bentonite, temperature and make contact with and make contact with time. The aggressive isothermal Adsorption conduct of copper and nickel on Na-bentonite in single-aspect structures and binary-aspect structures has been investigated.



Chapter-III

ATOMIC ABSORPTION SPECTROMETRY

Atomic absorption spectrometry (AAS) is an analytical technique that measures the concentrations of elements. Atomic absorption is so sensitive that it can measure down parts per billion of a gram ($\mu\text{g dm}^{-3}$) in a sample. The technique makes use of the wavelengths of light specifically absorbed by an element. They correspond to the energies needed to promote electrons from one energy level to another, higher, energy level.

Atomic absorption spectrometry has many uses in different areas of chemistry.

Clinical analysis: Analysing metals in biological fluids such as blood and urine.

Environmental analysis: Monitoring our environment- eg finding out the levels of various elements in rivers, seawater, drinking water, air, petrol and drinks such as wine, beer and fruit drinks.

Pharmaceuticals: In some pharmaceutical manufacturing processes, minute quantities of a catalyst used in the process (usually a metal) are sometimes present in the final product. By using AAS the amount of catalyst present can be determined.

Industry: Many raw materials are examined and AAS is widely used to check that the major elements are present and that toxic impurities are lower than specified- eg in concrete, where calcium is a major constituent, the lead level should be low because it is toxic.

Mining: By using AAS the amount of metals such as gold in rocks can be determined to see whether it is worth mining the rocks to extract the gold.

HOW IT WORKS

Atoms of different elements absorb characteristic wavelengths of light. Analysing a sample to see if it contains a particular element means using light from that element. For example with lead, a lamp containing lead emits light from excited lead atoms that produce the right mix of wavelengths to be absorbed by any lead atoms from the sample. In AAS, the sample is atomized- i.e. converted into ground state free atoms in the vapour state- and a beam of electromagnetic radiation emitted from excited lead atoms is passed through the vaporized sample. Some of the radiation is absorbed by the lead atoms in the sample. The greater the number of atoms there is in the vapour, the more radiation is absorbed. The amount of light absorbed is proportional to the number of lead atoms. A calibration curve is constructed by running several samples of known lead concentration under the same conditions as the unknown. The amount the standard absorbs is compared with the calibration curve and this enables the calculation of the lead concentration in the unknown sample.

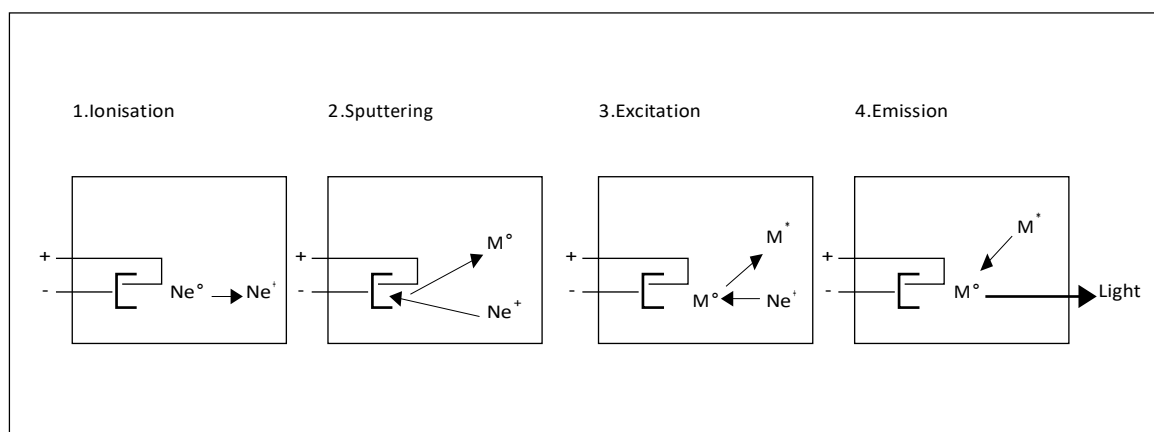
Consequently an atomic absorption spectrometer needs the following three components: a light source; a sample cell to produce gaseous atoms; and a means of measuring the specific light absorbed.

THE LIGHT SOURCE

The common source of light is a 'hollow cathode lamp'. This contains a tungsten anode and a cylindrical hollow cathode made of the element to be determined. These are sealed in a glass tube filled with an inert gas- e.g neon or argon- at a pressure of between 1 Nm^{-2} and 5 Nm^{-2} .

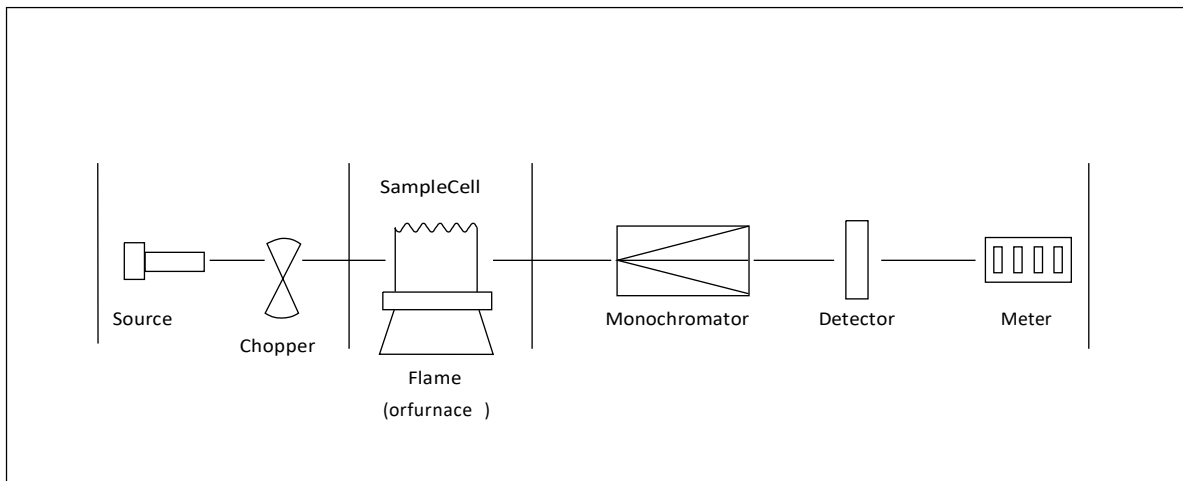


The ionization of some gas atoms occurs by applying a potential difference of about 300-400V between the anode and the cathode. These gaseous ions bombard the cathode and eject metal atoms from the cathode in a process called sputtering. Some sputtered atoms are in excited states and emit radiation characteristic of the metal as they fall back to the ground state – $eg Pb^* \rightarrow Pb + h\nu$. The shape of the cathode concentrates the radiation into a beam which passes through a quartz window, and the shape of the lamp is such that most of the sputtered atoms are redeposited on the cathode. A typical atomic absorption instrument holds several lamps each for a different element. The lamps are housed in a rotating turret so that the correct lamp can be quickly selected.



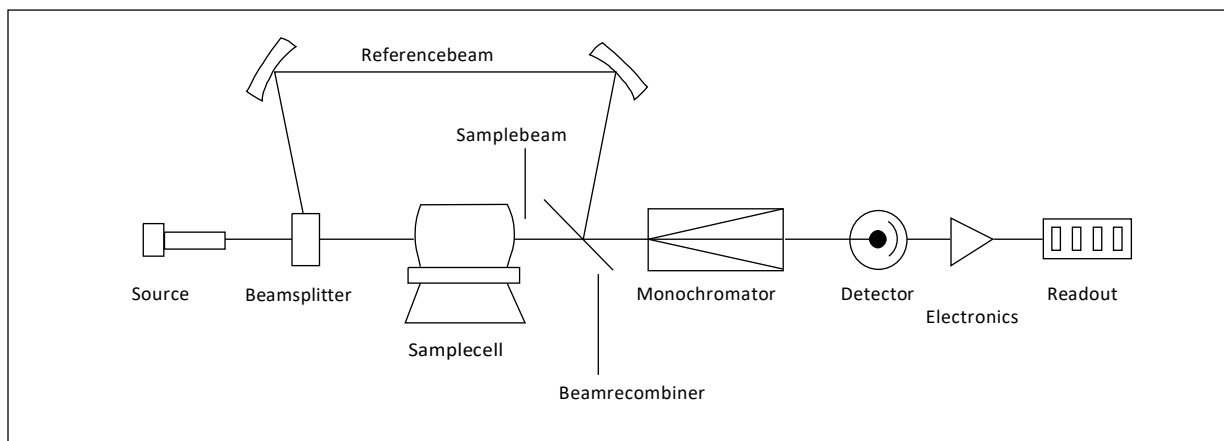
THE OPTICAL SYSTEM AND DETECTOR

A monochromator is used to select the specific wavelength of light –ie spectral line – which is absorbed by the sample, and to exclude other wavelengths. The selection of the specific light allows the determination of the selected element in the presence of others. The light selected by the monochromator is directed onto a detector that is typically a photomultiplier tube. This produces an electrical signal proportional to the light intensity



DOUBLE BEAM SPECTROMETERS

Modern spectrometers incorporate a beam splitter so that one part of the beam passes through the sample cell and the other is the reference. The intensity of the light source may not stay constant during an analysis. If only a single beam is used to pass through the atom cell, a blank reading containing no analyte (substance to be analysed) would have to be taken first, setting the absorbance at zero. If the intensity of the source changes by the time the sample is put in place, the measurement will be inaccurate. In the double beam instrument, there is a constant monitoring between the reference beam and the light source. To ensure that the spectrum does not suffer from loss of sensitivity, the beam splitter is designed so that as high a proportion as possible of the energy of the lamp beam passes through the sample.



ATOMIZATION OF THE SAMPLE

Two systems are commonly used to produce atoms from the sample. Aspiration involves sucking a solution of the sample into a flame; and electrothermal atomization is where a drop of sample is placed into a graphite tube that is then heated electrically.

Some instruments have both atomization systems but share one set of lamps. Once the appropriate lamp has been selected, it is pointed towards one or other atomization system.

FLAME ASPIRATION

Ethyne/air (giving a flame with a temperature of 2200–2400°C) or ethyne/dinitrogen oxide (2600–2800°C) are often used. A flexible capillary tube connects the solution to the nebulizer. At the tip of the capillary, the solution is ‘nebulized’ –ie broken into small drops. The larger drops fall out and drain off while smaller ones vaporize in the flame. Only ca 1% of the sample is nebulized.

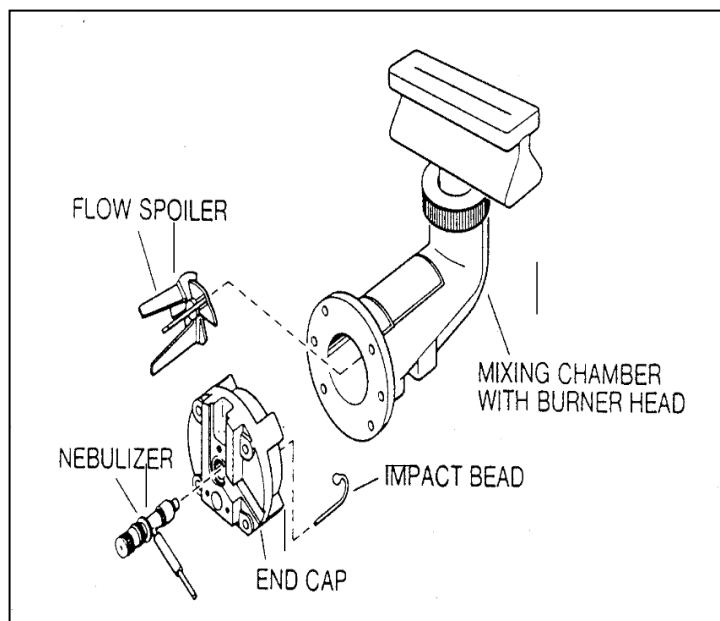


Figure 1

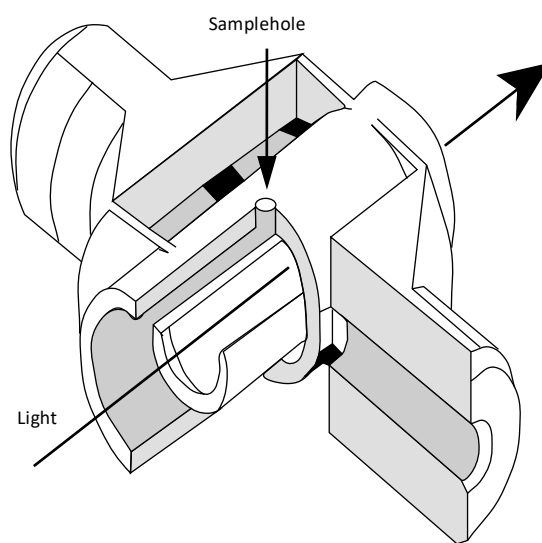


Figure 2

ELECTROTHERMAL ATOMIZATION

25 µl of sample (ca 1/100th of a raindrop) is placed through the sample hole and onto the platform from an automated micropipette and sample changer. The tube is heated electrically by passing a current through it in a pre-programmed series of steps. The details will vary with the sample but typically they

might be 30–40 seconds at 150°C to evaporate the solvent, 30 seconds at 600°C to drive off any volatile organic material and char the sample to ash, and with a very fast heating rate (ca 1500 °C s⁻¹) to 2000–2500°C for 5–10 seconds to vaporise and atomize elements (including the element being analysed). Finally heating the tube to a still higher temperature –ca 2700°C – cleans it ready for the next sample. During this heating cycle the graphite tube is flushed with argon gas to prevent the tube burning away. In electrothermal atomization almost 100% of the sample is atomised. This makes the technique much more sensitive than flame AAS.

SAMPLE PREPARATION

Sample preparation is often simple, and the chemical form of the element is usually unimportant. This is because atomization converts the sample into free atoms irrespective of its initial state. The sample is weighed and made into a solution by suitable dilution. Elements in biological fluids such as urine and blood are often measured simply after a dilution of the original sample.



When making reference solutions of the element under analysis, for calibration, the chemical environment of the sample should be matched as closely as possible –i.e., the analyte should be in the same compound and the same solvent. Teflon containers may be used when analysing very dilute Solutions because elements such as lead are sometimes leached out of glass vessels and can affect the results

BACKGROUND ABSORPTION

It is possible that other atoms or molecules apart from those of the element being determined will absorb or scatter some radiation from the light source. These species could include unvaporised solvent droplets, or compounds of the matrix (chemical species, such as anions, that tend to accompany the metals being analysed) that are not removed completely. This means that there is a background absorption as well as that of the sample.

One way of measuring and correcting this background absorption is to use two light sources, one of which is the hollow cathode lamp appropriate to the element being measured. The second light source is a deuterium lamp.

The deuterium lamp produces broad band radiation, not specific spectral lines as with a hollow cathode lamp. By alternating the measurements of the two light sources – generally at 50 –100 Hz – the total absorption (absorption due to analyte atoms plus background) is measured with the specific light from the hollow cathode lamp and the background absorption is measured with the light from the deuterium lamp. Subtracting the background from the total absorption gives the absorption arising from only analyte atoms.

CALIBRATION

A calibration curve is used to determine the unknown concentration of an element –eg lead – in a solution. The instrument is calibrated using several solutions of known concentrations. A calibration curve is produced which is continually rescaled as more concentrated solutions are used – the more concentrated solutions absorb more radiation up to a certain absorbance. The calibration curve shows the concentration against the amount of radiation absorbed in the given figure. (a) The sample solution is fed into the instrument and the unknown concentration of the element-e.g., lead- is then displayed on the calibration curve given in the below figure. (b)

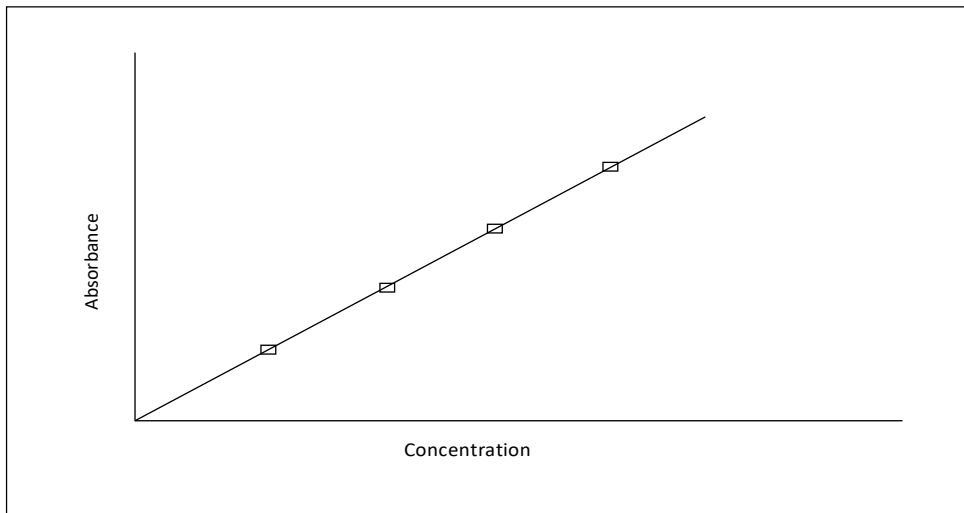


Figure (a)

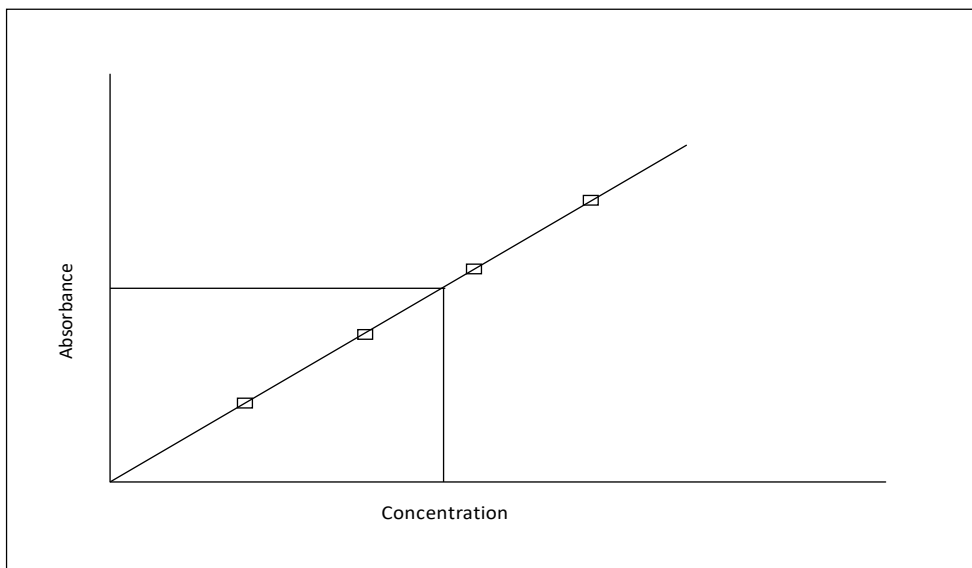


Figure (b)

Chapter-IV

METHODOLOGY

MATERIALS REQUIRED

- Ferric chloride Hexahydrate
- D-Valine
- Bentonite
- Volumetric flask
- Digital Weighing Machine
- Watch glasses
- Hot air oven
- Ultra-pure water (Demineralized)
- 2% of Nitric acid

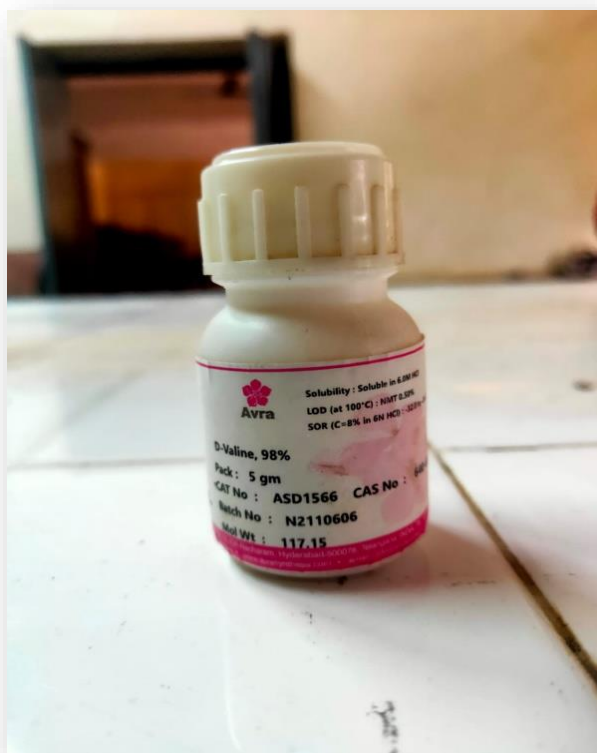
PROCEDURE

1. Using a 250ml Volumetric flask prepare a metal ligand solution by adding 100ppm of Ferric chloride Hexahydrate (MOLYCHEM MCR-11580) and 200ppm of L-Valine (AVRAN2110606). Prepare 250ml solution by adding Ultra-pure water and then keep this system aside for a few hours.
2. Weigh 5 grams of Bentonite (AVRA N2101070) using a Digital weighing machine (Citizen Scales(I) PVT LTD CTG302-300) and take this into a beaker.
3. Now add 100ml of the above prepared metal ligand solution into the beaker and stir the mixture well for 10 minutes using a glass rod.
4. Keep this mixture aside for 48 hours without disturbing it as at this step Ferric is going to be adsorbed on Bentonite in the presence of D-Valine which acts as a chelating agent.
5. After completion of 48 hours take the mixture and filter it off using Whatman Grade 1 filter paper and a funnel.

6. After filtration of the mixture again add Ultra-pure water for 3 times and then filtrate it to obtain pure concentration of Ferric solution which is get adsorbed on Bentonite.
7. Collect the filtered Bentonite powder and place it on a watch glass and keep this in a Hot air Owen at 60 °C for 10 hours to get rid of moisture present in it.
8. Now weigh each 1 gm of Bentonite in glass vials.
9. Now take a beaker and rinse it with ultra-pure water then followed by Nitric acid.
10. Take 0.5 grams of Bentonite sample in the beaker and add 2% of Nitric acid and stir the mixture well for 10-15 minutes.
11. Filter the mixture using Whatman Grade 1 filter paper and again 3 times by using Ultra-pure water to obtain pure concentration of Ferric present in the mixture prepared using the sample.
12. Take this collected sample solution and keep this system under AAS (Thermos Scientific iCE 3300)
13. Calculate the concentration of Ferric adsorbed on Bentonite at different ppm levels. Observe the graph obtained and note down the readings of the result we obtained.
14. Same Experiment carried out without the interference/addition of Ligand i.e. D-Valine for Control Experiment.



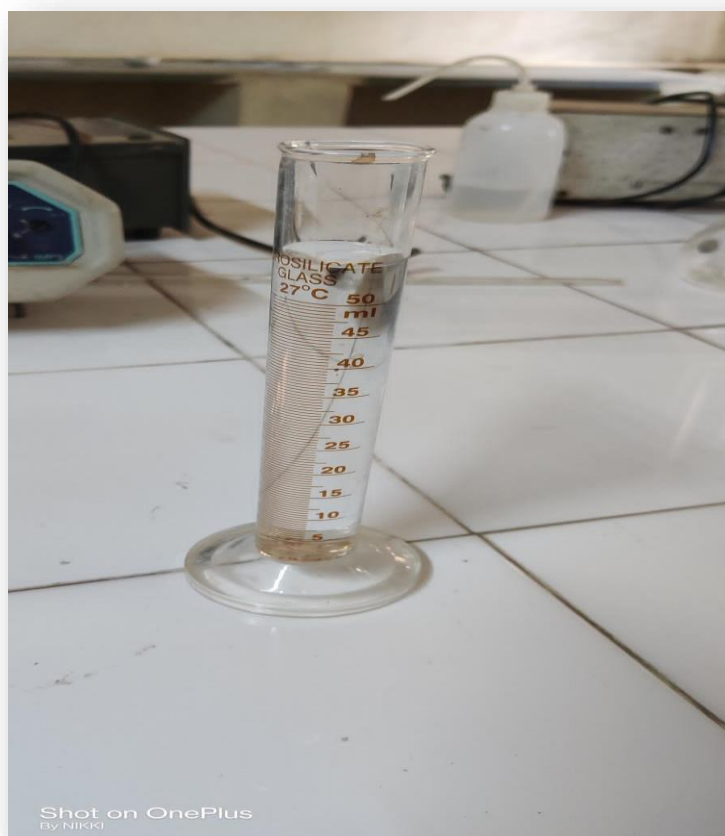
Bentonite Powder



L-VALINE



FERRIC CHLORIDE (HEXAHYDRATE) $\text{FeCl}_3\cdot 6\text{H}_2\text{O}$



Measuring Flask



Watch Glass



Spatula



Digital weighing Machine



Preparing metal ligand solution





5 grams of bentonite added to 100ml of metal ligand solution



**Filtering The Mixture using Whatman grade 1 filter paper and
Again, three times by using Ultra-Pure water**





Hot air oven



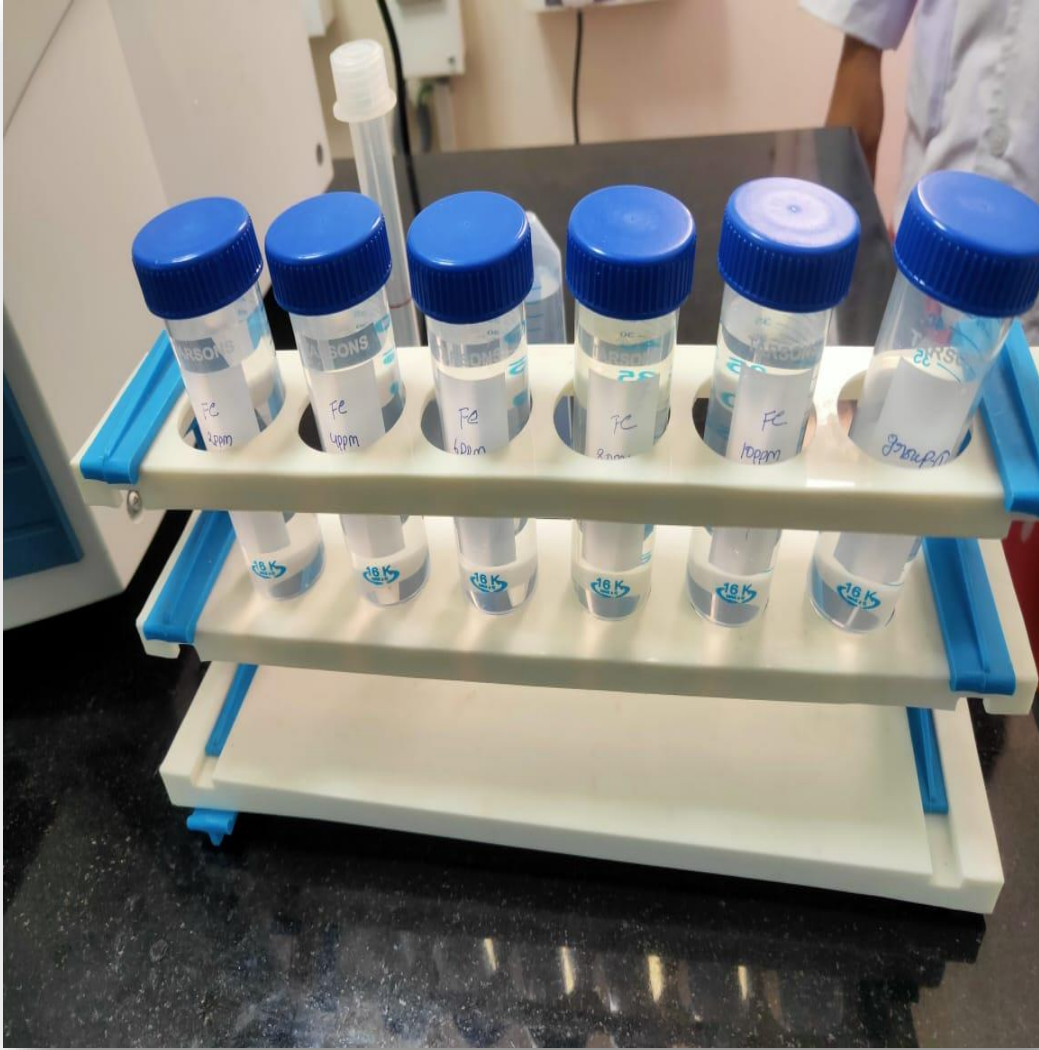
Glass vials



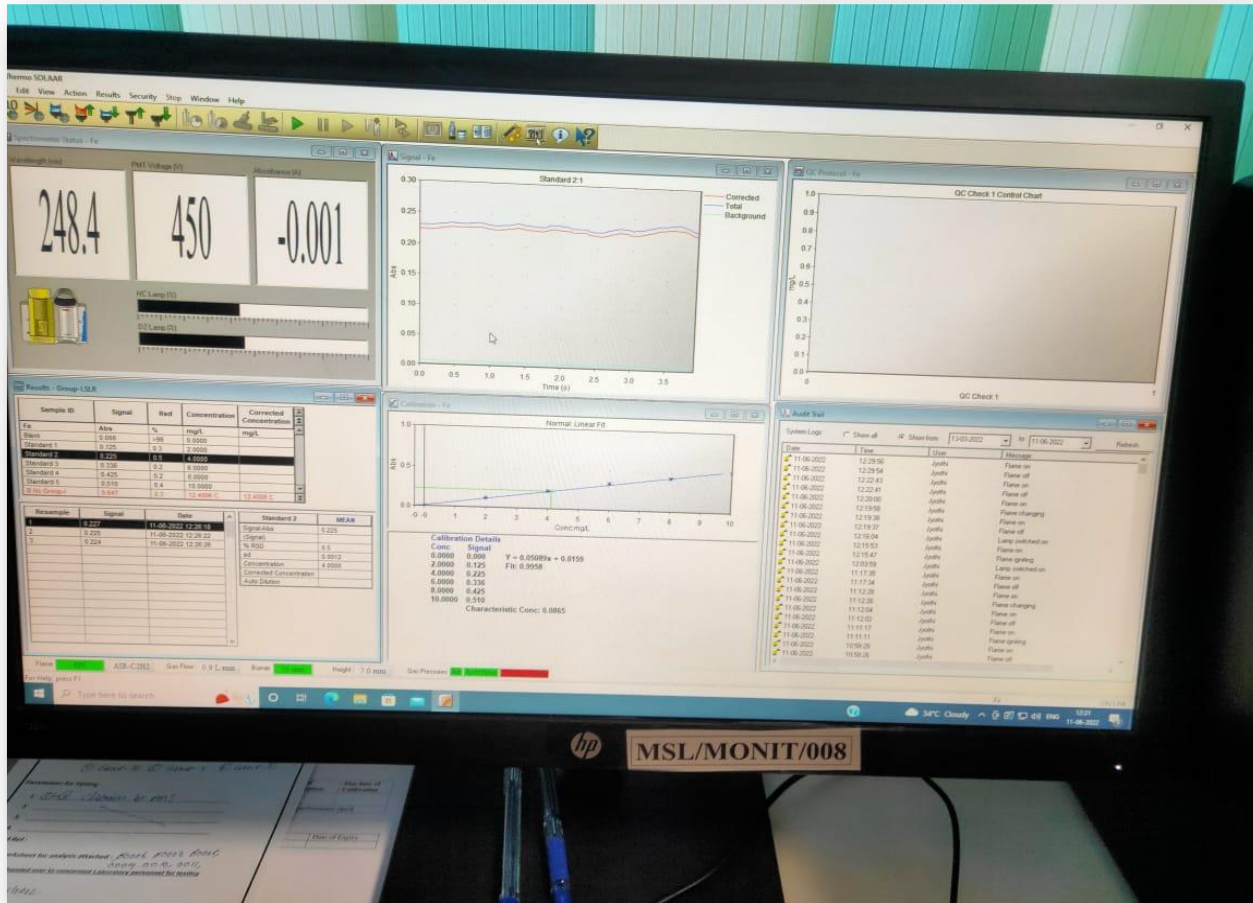
Collected samples



AAS (Atomic Absorption Spectrometry)



Sample solution added to 2% of nitric acid

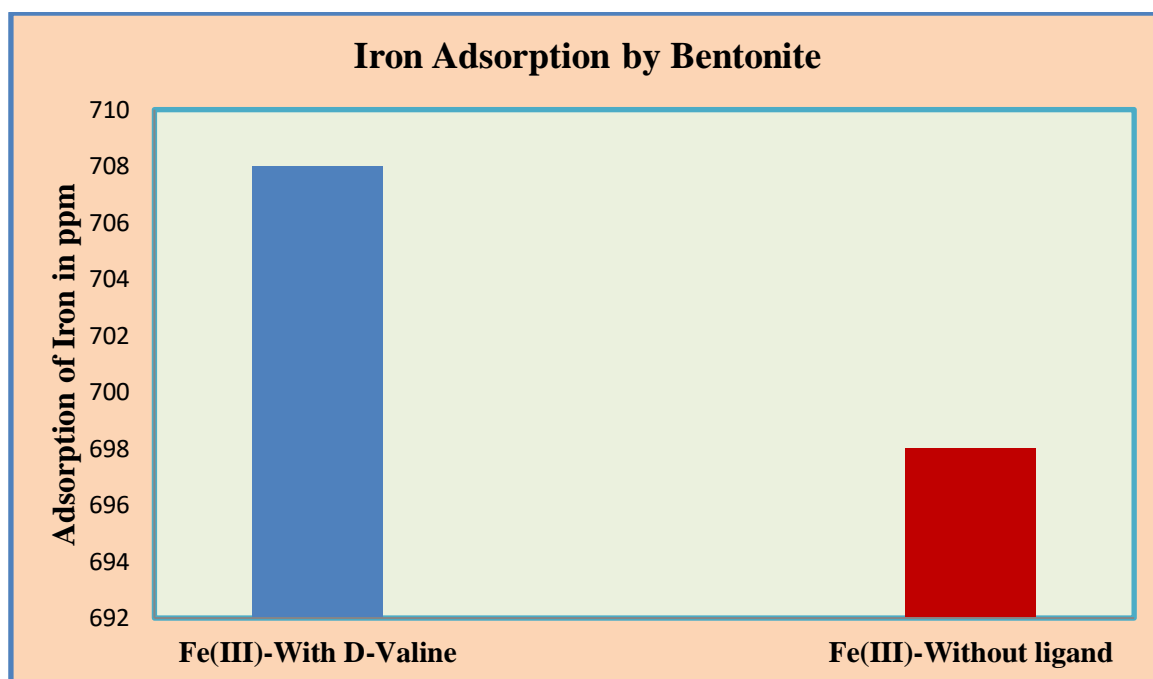


Results obtained on the monitor under AAS Method

Chapter-V

RESULTS AND DISCUSSIONS

Bentonite adsorbs **708.0ppm** of Iron metal from aqueous solution of Fe(III)-D-Valine metal ligand solution. Whereas, Bentonite adsorbs only **698.0ppm** when D-Valine is absent. It is evident from the AAS results, ligand involvement enhanced the metal adsorption by initiating potential chemical interactions between adsorbate and adsorbent. D-Valine firmly coordinates with Fe(III) to form a stable complex in aqueous condition. The complex coordination sphere in the resulted complex facilitates strong interactions with the polar points of Bentonite. From the AAS results, it is conclusive that **1.432%** of adsorption increased in the presence of D-Valine as chelating agent.



Impact of D-Valine on Adsorption of Fe (III) ions from aqueous solution by Bentonite.

Spectrometer Parameters – Fe:

Element : Fe	Measurement mode : Absorbance	
Wavelength : 248.3nm	Band pass : 0.2nm	Lamp current : 75%
Background correction : D2	High Resolution : Off	Optimise Spectrometer Parameters : No
Signal type : continuous	Resamples : Fast	Number of resamples : 3
Measurement time : 4.0secs	Flier mode : No	
Use RSD Test : No		

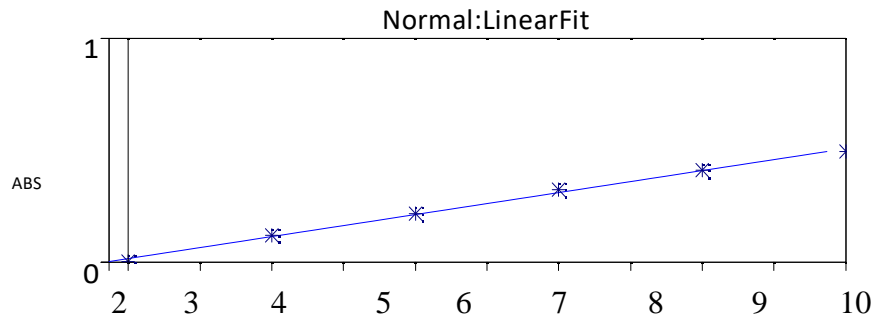
Flame parameters – Fe:

Flame type : Air – C2H2	Fuel Flow : 0.9L/min	Auxiliary Oxidant : Off
Nebuliser Uptake : 4secs	Bunsen Stabilisation : 0mins	Optimise Fuel Flow : No
Burner Height : 7.0mm	Optimise Burner fuel : No	

Calibration Parameters – Fe:

Calibration mode : Normal	Line fit : Linear	Use stored calibration : No
Concentration units : mg/L	Scales units : mg/L	Scaling factor : 1.0000
Acceptable fit : 0.990	Rescale Limits : 10.0%	Failure Action : Flag and Continue
Standard 1 - 2.0000	Standard 4 - 8.0000	
Standard 2 - 4.0000	Standard 5 - 10.0000	
Standard 3 - 6.0000		

Solutions Results–Fe:



$Y = 0.04924x + 0.0141$

Fit: 0.9965

Characteristic Conc.: 0.0894

Sample ID	Signal	RSD	Conc.
	Abs	%	Mg/L
Fe Blank	0	<99	0
1	0	Background: 0.000	
2	0	Background: 0.000	
3	0	Background: 0.000	
Fe Standard 1	0.125	0.3	2
1	0.125	Background: 0.006	
2	0.125	Background: 0.006	
3	0.126	Background: 0.006	
Fe Standard 2	0.225	0.5	4
1	0.227	Background: 0.007	
2	0.225	Background:0.007	

3	0.224	Background:0.007	
Fe Standard 3	0.336	0.2	6
1	0.336	Background: 0.008	
2	0.336	Background: 0.008	
3	0.335	Background: 0.008	
Fe Standard 4	0.425	0.2	8
1	0.426	Background: 0.009	
2	0.425	Background: 0.008	
3	0.425	Background: 0.009	
Fe Standard 5	0.51	0.4	10
1	0.51	Background: 0.009	
2	0.509	Background: 0.009	
3	0.513	Background: 0.009	
Fe(III)-D-Valine-Bentinite-	0.711	0.1	16.6490 C
1	0.709	Background: 0.005	
2	0.713	Background: 0.005	
3	0.712	Background: 0.004	
Fe(III)-Bentonite (Without Ligand)	0.701	0.1	16.4138 C
1	0.700	Background: 0.005	
2	0.702	Background: 0.005	
3	0.701	Background: 0.005	

TEST RESULTS:

S.No.	Test Parameters	Sample	Results
01.	Iron by AAS Analysis: (ppm)	Fe(III)- D-Valine- Bentonite Sample	708.0ppm
02.	Iron by AAS Analysis: (ppm)	Fe(III)-Bentonite (control)	698.0ppm

CONCLUSION

From the current project it is clear that D-Valine as a Chelating agent has played a vital role in adsorption of Fe(III) ions from aqueous solution and increases the adsorption up to **1.432 %** using Bentonite. This aspect will be useful in designing the newer strategies of Heavy metal Remediation techniques using organic bifunctional Chelating Ligands as Facilitating agents in Metal Adsorption processes.

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Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

General Parameters

Method : Iron (Fe)

Operator : Jyothi

Instrument Mode: Flame

Autosampler : None

Dilution: None

Use SFI: No

Valid Method Signatures

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Method Audit Trail

11-06-2022 17:22:18 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:22:33 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:23:24 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Details

Analysis Name: Iron (Fe) 11-06-2022

Spectrometer: ICE 3000 AA01204906 v1.30

Operator Name: Jyothi

Lamp Information

Element(s)

Serial Number

mA Hours

Fe

n/a

n/a

Deuterium Lamp Hours: 68.34

Sequence Table

Shared Standards: Yes

Action	Fe
Calibration	✓
B.No.Group-II	✓
B.No.Group-III	✓
B.No.Group-IV	✓
B.No.Group-V	✓
B.No.Group-VI	✓

Sample Details

Nominal Mass: 1.0000

No.	Sample Id	Sample Mass	Dilution Ratio
1	B.No.Group-II	1.0000	1.0000
2	B.No.Group-III	1.0000	1.0000
3	B.No.Group-IV	1.0000	1.0000
4	B.No.Group-V	1.0000	1.0000
5	B.No.Group-VI	1.0000	1.0000

Valid Analysis Signatures

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

Analysis Audit Trail

11-06-2022 17:30:16 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Record created

11-06-2022 17:38:27 Jyothi(M. Jyothi):DESKTOP-39TDEGC

Error MD147 - Activity manually aborted by user.

11-06-2022 17:38:41 jyothi(M. Jyothi):DESKTOP-39TDEGC

Signed with Reason : Analysed by:

11-06-2022 17:39:33 parjanya(Parjanya):DESKTOP-39TDEGC

Signed with Reason : Approved by:

MART SPECIALITIES LAB LLP.

Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Spectrometer Parameters - Fe

Element: Fe

Measurement Mode: Absorbance

Wavelength: 248.3nm

Bandpass: 0.2nm

Lamp Current: 75%

Background Correction: D2

High Resolution: Off

Optimise Spectrometer Parameters: No

Signal Type: Continuous

Resamples: Fast

Number Of Resamples: 3

Measurement Time: 4.0secs

Flier Mode: No

Use RSD Test: No

Flame Parameters - Fe

Flame Type: Air-C2H2

Fuel Flow: 0.9L/min

Auxiliary Oxidant: Off

Nebuliser Uptake: 4secs

Burner Stabilisation: 0mins

Optimise Fuel Flow: No

Burner Height: 7.0mm

Optimise Burner Height: No

Sampling Parameters - Fe

Sampling: None

Calibration Parameters - Fe

Calibration Mode: Normal

Line Fit: Linear

Use Stored Calibration: No

Concentration Units: mg/L

Scaled Units: mg/L

Scaling Factor: 1.0000

Acceptable Fit: 0.990

Rescale Limit: 10.0%

Failure Action: Flag and Continue

Standard 1	2.0000
Standard 2	4.0000
Standard 3	6.0000

Standard 4	8.0000
Standard 5	10.0000

Element Audit Trail - Fe

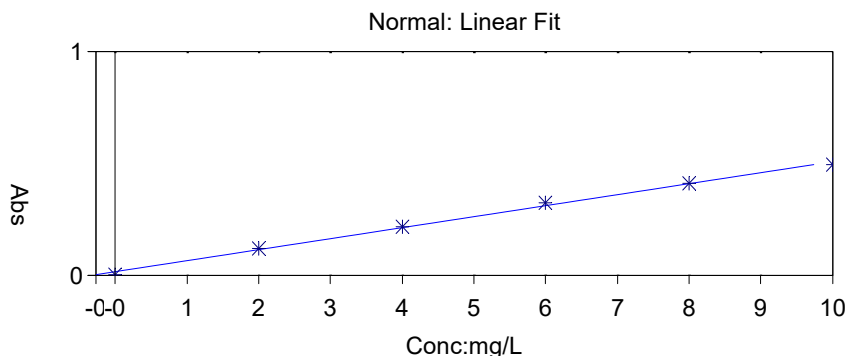
No changes are recorded for this element

Solution Results - Fe

$$Y = 0.04924x + 0.0141$$

Fit: 0.9965

Characteristic Conc: 0.0894



Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Blank	0.001	35.6	0.0000	
1	0.001	Background: -0.003		11-06-2022 17:31:26
2	0.001	Background: -0.003		11-06-2022 17:31:30
3	0.000	Background: -0.003		11-06-2022 17:31:35
Fe Standard 1	0.120	0.3	2.0000	
1	0.120	Background: 0.003		11-06-2022 17:32:05
2	0.119	Background: 0.003		11-06-2022 17:32:09
3	0.120	Background: 0.003		11-06-2022 17:32:13
Fe Standard 2	0.215	0.3	4.0000	
1	0.215	Background: 0.004		11-06-2022 17:32:40
2	0.215	Background: 0.004		11-06-2022 17:32:45
3	0.216	Background: 0.004		11-06-2022 17:32:49
Fe Standard 3	0.322	0.2	6.0000	
1	0.323	Background: 0.005		11-06-2022 17:33:19
2	0.322	Background: 0.005		11-06-2022 17:33:23
3	0.322	Background: 0.005		11-06-2022 17:33:27
Fe Standard 4	0.411	0.3	8.0000	
1	0.410	Background: 0.005		11-06-2022 17:33:59
2	0.412	Background: 0.005		11-06-2022 17:34:03
3	0.412	Background: 0.005		11-06-2022 17:34:07

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Operator Name: Jyothi

Report Date: 11-06-2022 17:40:20

Results File: E:\AAS System Data\2022\JUNE\11 06 2022\TARA 0064 2-6\Iron (Fe)1.SLR

Solution Results - Fe

Sample ID	Signal	Rsd	Conc	Corrected Conc
	Abs	%	mg/L	mg/L
Fe Standard 5	0.493	0.1	10.0000	
1	0.494	Background: 0.005		11-06-2022 17:34:38
2	0.494	Background: 0.005		11-06-2022 17:34:42
3	0.493	Background: 0.006		11-06-2022 17:34:46
Fe B.No.Group-II	0.834	0.1	16.6490 C	16.6490 C
1	0.834	Background: 0.005		11-06-2022 17:35:14
2	0.833	Background: 0.005		11-06-2022 17:35:19
3	0.834	Background: 0.005		11-06-2022 17:35:23
Fe B.No.Group-III	0.759	0.1	15.1286 C	15.1286 C
1	0.758	Background: 0.003		11-06-2022 17:35:52
2	0.760	Background: 0.003		11-06-2022 17:35:56
3	0.758	Background: 0.004		11-06-2022 17:36:00
Fe B.No.Group-IV	0.645	0.3	12.8189 C	12.8189 C
1	0.647	Background: 0.003		11-06-2022 17:36:31
2	0.644	Background: 0.003		11-06-2022 17:36:35
3	0.645	Background: 0.003		11-06-2022 17:36:40
Fe B.No.Group-V	0.809	0.2	16.1488 C	16.1488 C
1	0.808	Background: 0.005		11-06-2022 17:37:11
2	0.809	Background: 0.005		11-06-2022 17:37:15
3	0.811	Background: 0.005		11-06-2022 17:37:20
Fe B.No.Group-VI	0.711	0.3	14.1597 C	14.1597 C
1	0.709	Background: 0.005		11-06-2022 17:37:55
2	0.713	Background: 0.005		11-06-2022 17:37:59
3	0.712	Background: 0.004		11-06-2022 17:38:03

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Tel. : 85007 98350, 81423 98350 & 98481 98350 Mail:martspecialities@gmail.com



DCA Approval No: 05/ML/TS/2020/G

CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-1 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	--

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-I Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Temperature : 25°C±3°C Batch : NA
Room Temperature : 25°C±3°C size
Quantity Received : 4gm
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	620ppm

Authorized Signatory

(Dr.R.Marayya)

MART Specialities Lab. LLP

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Name & Address of the Customer:

Tara Government College
Prashanth Nagar Colony, Balajinagar
Sangareddy Telangana. 502000
Contact Person: Dr. Abhijeet
Contact Number :9502344392

Reference / Report No. : MSL/2022/JUNE/TARA/0064-2
Sample Received Date : 11/06/2022
Report Date : 13/06/2022

DETAILS OF THE SAMPLE

Sample Name : NA
Name of the Manufacturer : NA
Batch no : Group-II Mfg. : NA Exp. : NA
Storage condition : To be stored at room date date
Room Temperature : 25°C±3°C Temperature Batch : NA
Quantity Received : 4gm size
Tests Required : Iron by AAS Analysis.
Method : NA
Analysis Starting Date : 11/06/2022
Analysis Completion Date : 11/06/2022
Mfg. License No. : Not provided
A.R.NO : NA
Remark : Sample analyzed as received

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	832.5ppm

Authorized Signatory

(Dr.R.Marayya)

MART Specialities Lab. LLP

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CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-3 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	---

DETAILS OF THE SAMPLE

Sample Name	: NA	Mfg.	: NA	Exp.	: NA
Name of the Manufacturer	: NA	date		date	
Batch no	: Group-III	Batch		Batch	: NA
Storage condition	: To be stored at room	size		size	
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	756.5ppm

Authorized Signatory

(Dr.R.Marayya)

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-4 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	--

DETAILS OF THE SAMPLE

Sample Name	: NA				
Name of the Manufacturer	: NA				
Batch no	: Group-IV	Mfg. date	: NA	Exp. date	: NA
Storage condition	: To be stored at room Temperature			Batch size	: NA
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	641ppm

Authorized Signatory

(Dr.R.Marayya)

MART Specialities Lab. LLP

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Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-5 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
DETAILS OF THE SAMPLE	
Sample Name : NA	
Name of the Manufacturer : NA	
Batch no : Group-V	Mfg. : NA Exp. : NA
Storage condition : To be stored at room	date : NA
Room Temperature : 25°C±3°C	Batch : NA
Quantity Received : 4gm	size
Tests Required : Iron by AAS Analysis.	
Method : NA	
Analysis Starting Date : 11/06/2022	
Analysis Completion Date : 11/06/2022	
Mfg. License No. : Not provided	
A.R.NO : NA	
Remark : Sample analyzed as received	

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	807.5ppm

Authorized Signatory

(Dr.R.Marayya)

MART Specialities Lab. LLP

Work : Road No. : 03, Plot No.: 31, Ground Floor & 1st Floor, Gajularamaram, ALEAP Industrial Area,
Pragathi Nagar, Medhcal, Medchal-Malkajgiri - 500 055, Telangana, India,
Tel. : 85007 98350, 81423 98350 & 98481 98350 Mail:martspecialities@gmail.com



DCA Approval No: 05/ML/TS/2020/G

CERTIFICATE OF ANALYSIS

MSL/QA/017-03/F07-00

Name & Address of the Customer: Tara Government College Prashanth Nagar Colony, Balajinagar Sangareddy Telangana. 502000 Contact Person: Dr. Abhijeet Contact Number :9502344392	Reference / Report No. : MSL/2022/JUNE/TARA/0064-6 Sample Received Date : 11/06/2022 Report Date : 13/06/2022
---	---

DETAILS OF THE SAMPLE

Sample Name	: NA				
Name of the Manufacturer	: NA				
Batch no	: Group-VI	Mfg. date	: NA	Exp. date	: NA
Storage condition	: To be stored at room Temperature			Batch size	: NA
Room Temperature	: 25°C±3°C				
Quantity Received	: 4gm				
Tests Required	: Iron by AAS Analysis.				
Method	: NA				
Analysis Starting Date	: 11/06/2022				
Analysis Completion Date	: 11/06/2022				
Mfg. License No.	: Not provided				
A.R.NO	: NA				
Remark	: Sample analyzed as received				

Test Results

S.No.	Test Parameter	Result
01.	Iron by AAS Analysis: (ppm)	708ppm

Authorized Signatory

(Dr.R.Marayya)

**Field Visit to Mart Specialities Lab Pvt. Ltd, Hyderabad
For
“Training and Hands-on Experience on Atomic Absorption
Spectroscopy”**



DEPARTMENT OF CHEMISTRY



**TARA GOVERNMENT COLLEGE, SANGAREDDY (A)
2021-22**



DEPARTMENT OF CHEMISTRY
Tara Govt. College, Sangareddy(A)

Field Visit to Mart Specialities Lab Pvt. Ltd, Hyderabad
For
“Training and Hands-on Experience on Atomic Absorption Spectroscopy”

Department of chemistry has organized Field Visit to **MART Specialities Lab Pvt. Ltd., Hyderabad** for the final year students of B.Sc. Chemistry on **11.06.2022** to train the student in **Atomic Absorption Spectroscopy (AAS)** to assess the heavy metal content at ppm levels. **Six (6)** students of B.Sc. Chemistry Final year student were perfectly trained in this programme. **Dr.Abhijit Kantankar**, Head, Department of Chemistry acted as Coordinator of the Filed Visit.

Objective of the Programme:

To provide Scientific and Research knowledge to the students to enhance their research skills to carry out assigned research projects.

Context of the Programme:

Field Visit to Scientific and Research Institutes provides positive effect on both teachers and students in the cognitive and affective aspects. It is one of the most effective and the best way of teaching which provides the elements of scientific inquiry. Even the faculty will have the chance to develop their teaching abilities, including the capacity to make complex subjects understandable to people who aren't academics. Students have a stronger comprehension of the research elements in their field of study as a result of the procedure. Additionally, the positive

experience of taking part in the process influenced their desire to take part in subsequent outreach initiatives. Implementing the Field visit provides a complex experience of learning.

In this regard, Department of chemistry has arranged a Field visit to **MART Specilaities Lab Pvt. Ltd, Hyderabad** for **Real time learning and hands-on training** on Atomic Absorption Spectroscopy with **THERMO Scientific iCE-3000** equipment which is essential to carry out their allotted Research Projects on Metal adsorption studies. This Field Visit was arranged as part of **POST-MoU activity** as MART Specilaities Lab Pvt. Ltd, Hyderabad and Department of Chemistry, Tara Govt. College, Sangareddy(A) reached MoU on 31.12.2021.

Students Trained in the Programme:

S.No.	Name of the Student	Roll Number	Group	Year
1	S. Shirisha	6058-19-578-029	B.Sc.(MCCs)	III
2	Mukthi Kanth Rout	6058-19-578-022	B.Sc.(MCCs)	III
3	N. Shiva Shankar	6058-19-578-025	B.Sc.(MCCs)	III
4	Y. Avinash Reddy	6058-19-578-038	B.Sc.(MCCs)	III
5	T. Chandana	6058-19-578-032	B.Sc.(MCCs)	III
6	K. Dheeraj Kumar	6058-19-578-017	B.Sc.(MCCs)	III

TRAINING MANUAL

Atomic Absorption Spectrometry

Atomic absorption spectrometry (AAS) is an analytical technique that measures the concentrations of elements. Atomic absorption is so sensitive that it can measure down parts per billion of a gram ($\mu\text{g dm}^{-3}$) in a sample. The technique makes use of the wavelengths of light specifically absorbed by an element. They correspond to the energies needed to promote electrons from one energy level to another, higher, energy level.

Atomic absorption spectrometry has many uses in different areas of chemistry.

Clinical analysis: Analysing metals in biological fluids such as blood and urine.

Environmental analysis: Monitoring our environment- eg finding out the levels of various elements in rivers, seawater, drinking water, air, petrol and drinks such as wine, beer and fruit drinks.

Pharmaceuticals: In some pharmaceutical manufacturing processes, minute quantities of a catalyst used in the process (usually a metal) are sometimes present in the final product. By using AAS the amount of catalyst present can be determined.

Industry: Many raw materials are examined and AAS is widely used to check that the major elements are present and that toxic impurities are lower than specified- eg in concrete, where calcium is a major constituent, the lead level should be low because it is toxic.

Mining: By using AAS the amount of metals such as gold in rocks can be determined to see whether it is worth mining the rocks to extract the gold.

How it works

Atoms of different elements absorb characteristic wavelengths of light. Analysing a sample to see if it contains a particular element means using light from that element. For example with lead, a lamp containing lead emits light from excited lead atoms that produce the right mix of wavelengths to be absorbed by any lead atoms from the sample. In AAS, the sample is atomized- i.e. converted into ground state free atoms in the vapour state- and a beam of electromagnetic radiation emitted from excited lead atoms is passed through the vaporized sample. Some of the radiation is absorbed by the lead atoms in the sample. The greater the number of atoms there is in the vapour, the more radiation is absorbed. The amount of light absorbed is proportional to the number of lead atoms. A calibration curve is constructed by running several samples of known lead concentration under the same conditions as the unknown. The amount the standard absorbs is compared with the calibration curve and this enables the calculation of the lead concentration in the unknown sample.

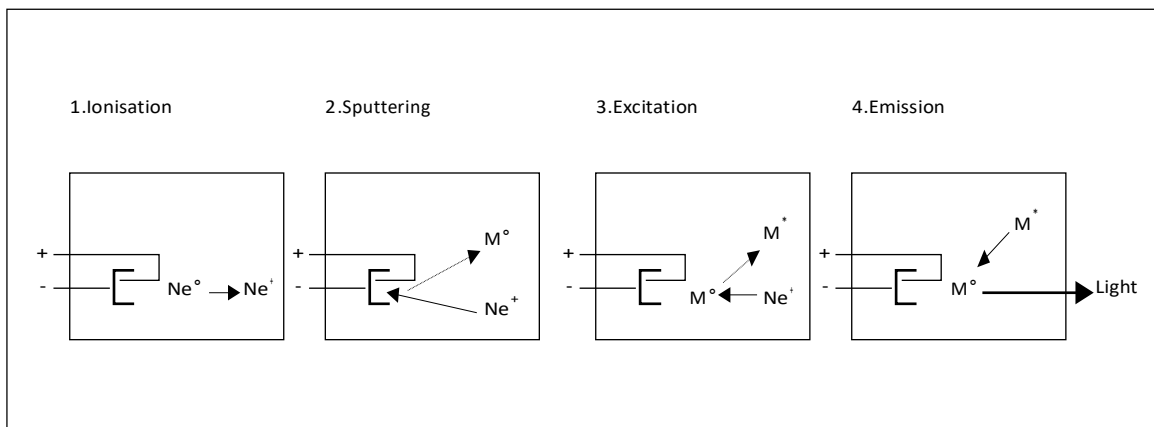
Consequently an atomic absorption spectrometer needs the following three components: a light source; a sample cell to produce gaseous atoms; and a means of measuring the specific light absorbed.

The light source

The common source of light is a 'hollow cathode lamp'. This contains a tungsten anode and a cylindrical hollow cathode made of the element to be determined. These are sealed in a glass tube filled with an inert gas- e.g neon or argon- at a pressure of between 1 Nm^{-2} and 5 Nm^{-2} .

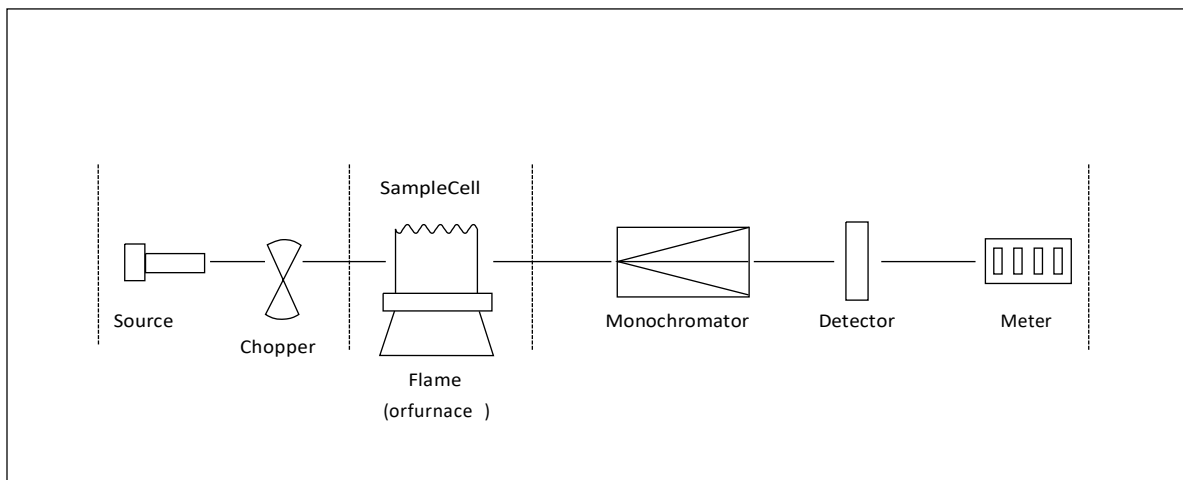


The ionization of some gas atoms occurs by applying a potential difference of about 300-400V between the anode and the cathode. These gaseous ions bombard the cathode and eject metal atoms from the cathode in a process called sputtering. Some sputtered atoms are in excited states and emit radiation characteristic of the metal as they fall back to the ground state – $eg Pb^* \rightarrow Pb + h\nu$. The shape of the cathode concentrates the radiation into a beam which passes through a quartz window, and the shape of the lamp is such that most of the sputtered atoms are redeposited on the cathode. A typical atomic absorption instrument holds several lamps each for a different element. The lamps are housed in a rotating turret so that the correct lamp can be quickly selected.



The optical system and detector

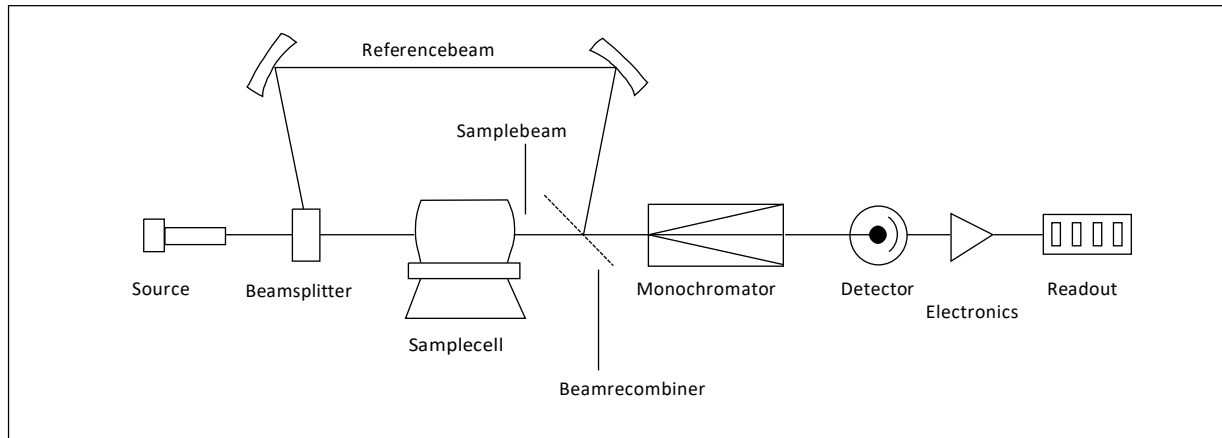
A monochromator is used to select the specific wavelength of light –ie spectral line – which is absorbed by the sample, and to exclude other wavelengths. The selection of the specific light allows the determination of the selected element in the presence of others. The light selected by the monochromator is directed onto a detector that is typically a photomultiplier tube. This produces an electrical signal proportional to the light intensity



Double beam spectrometers

Modern spectrometers incorporate a beam splitter so that one part of the beam passes through the sample cell and the other is the reference. The intensity of the light source may not stay constant during an analysis. If only a single beam is used to pass through the atom cell, a blank reading containing no analyte (substance to be analysed) would have to be taken first, setting the absorbance at zero. If the intensity of the source changes by the time the sample is put in place, the measurement will be inaccurate. In the double beam instrument there is a constant monitoring between the reference beam and the light source. To ensure that the spectrum does

not suffer from loss of sensitivity, the beam splitter is designed so that as high a proportion as possible of the energy of the lamp beam passes through the sample.



Atomisation of the sample

Two systems are commonly used to produce atoms from the sample. Aspiration involves sucking a solution of the sample into a flame; and electrothermal atomisation is where a drop of sample is placed into a graphite tube that is then heated electrically.

Some instruments have both atomisation systems but share one set of lamps. Once the appropriate lamp has been selected, it is pointed towards one or other atomisation system.

Flame aspiration

Ethyne/air (giving a flame with a temperature of 2200–2400°C) or ethyne/dinitrogen oxide (2600– 2800°C) are often used. A flexible capillary tube connects the solution to the nebuliser. At the tip of the capillary, the solution is ‘nebulised’ –ie broken into small drops. The larger drops fall out and drain off while smaller ones vaporise in the flame. Only ca 1% of the sample is nebulised.

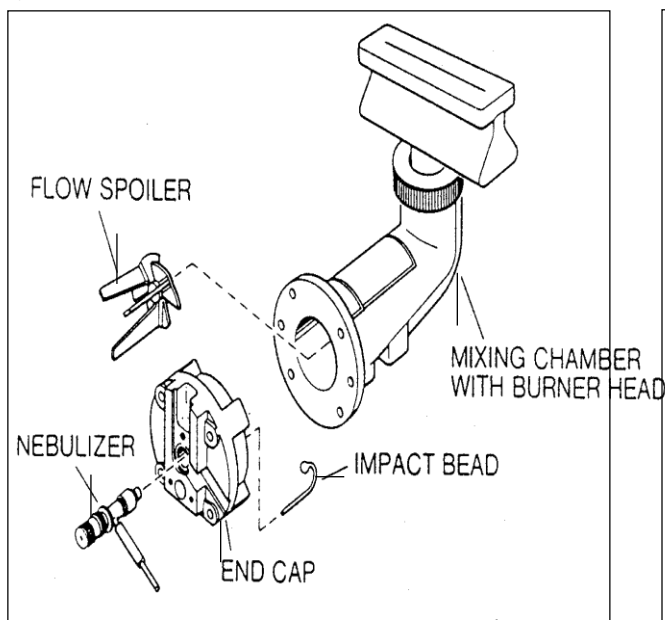


Figure 1

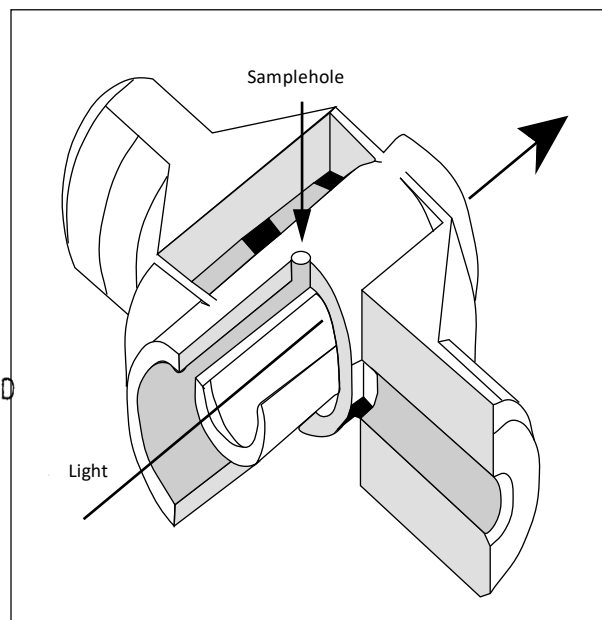


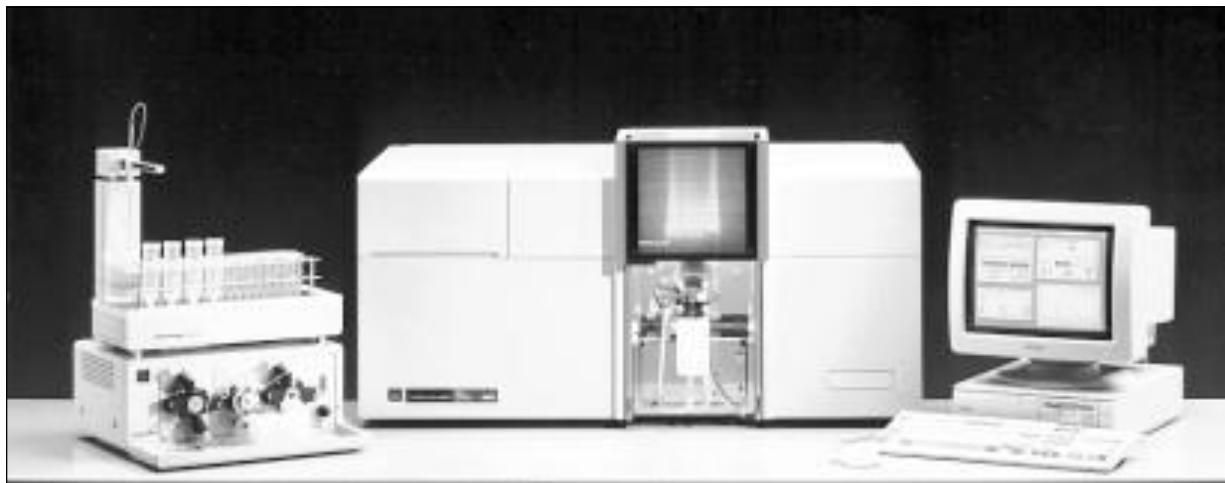
Figure 2

Electro-thermal atomization

25 μl of sample (ca 1/100th of a raindrop) is placed through the sample hole and onto the platform from an automated micropipette and sample changer. The tube is heated electrically by passing a current through it in a pre-programmed series of steps. The details will vary with the sample but typically they might be 30–40 seconds at 150°C to evaporate the solvent, 30 seconds at 600°C to drive off any volatile organic material and char the sample to ash, and with a very fast heating rate (ca 1500 °C s⁻¹) to 2000-2500°C for 5–10 seconds to vaporise and atomise elements (including the element being analysed). Finally heating the tube to a still higher temperature –ca 2700°C – cleans it ready for the next sample. During this heating cycle the graphite tube is flushed with argon gas to prevent the tube burning away. In electrothermal atomisation almost 100% of the sample is atomised. This makes the technique much more sensitive than flame AAS.

Sample preparation

Sample preparation is often simple, and the chemical form of the element is usually unimportant. This is because atomisation converts the sample into free atoms irrespective of its initial state. The sample is weighed and made into a solution by suitable dilution. Elements in biological fluids such as urine and blood are often measured simply after a dilution of the original sample.



When making reference solutions of the element under analysis, for calibration, the chemical environment of the sample should be matched as closely as possible –i.e. the analyte should be in the same compound and the same solvent. Teflon containers may be used when analyzing very dilute solutions because elements such as lead are sometimes leached out of glass vessels and can affect the results

Background absorption

It is possible that other atoms or molecules apart from those of the element being determined will absorb or scatter some radiation from the light source. These species could

include unvaporised solvent droplets, or compounds of the matrix (chemical species, such as anions, that tend to accompany the metals being analysed) that are not removed completely. This means that there is a background absorption as well as that of the sample.

One way of measuring and correcting this background absorption is to use two light sources, one of which is the hollow cathode lamp appropriate to the element being measured. The second light source is a deuterium lamp.

The deuterium lamp produces broad band radiation, not specific spectral lines as with a hollow cathode lamp. By alternating the measurements of the two light sources – generally at 50 –100 Hz – the total absorption (absorption due to analyte atoms plus background) is measured with the specific light from the hollow cathode lamp and the background absorption is measured with the light from the deuterium lamp. Subtracting the background from the total absorption gives the absorption arising from only analyte atoms.

Calibration

A calibration curve is used to determine the unknown concentration of an element –*eg* lead – in a solution. The instrument is calibrated using several solutions of known concentrations. A calibration curve is produced which is continually rescaled as more concentrated solutions are used – the more concentrated solutions absorb more radiation up to a certain absorbance. The calibration curve shows the concentration against the amount of radiation absorbed in the given figure. (a) The sample solution is fed into the instrument and the unknown concentration of the element –*e.g.* lead – is then displayed on the calibration curve given in the below figure. (b)

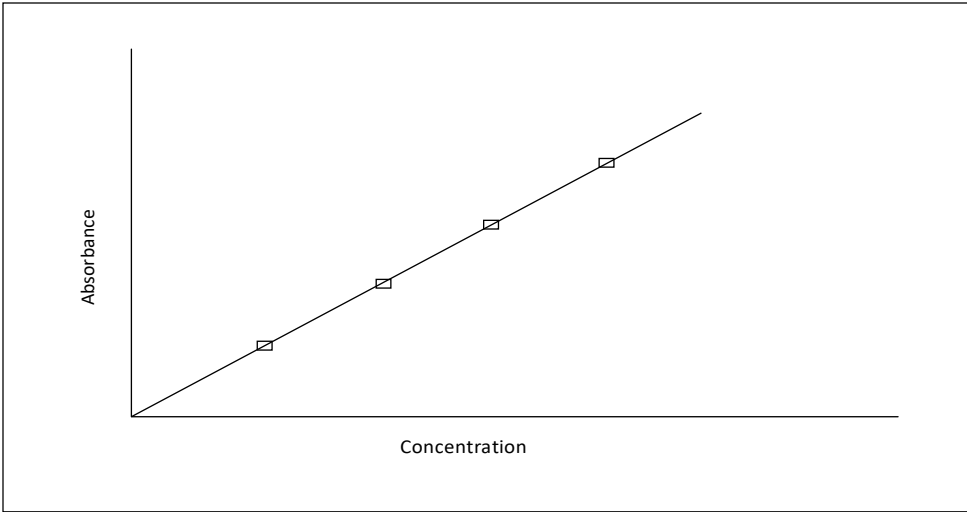


Figure (a)

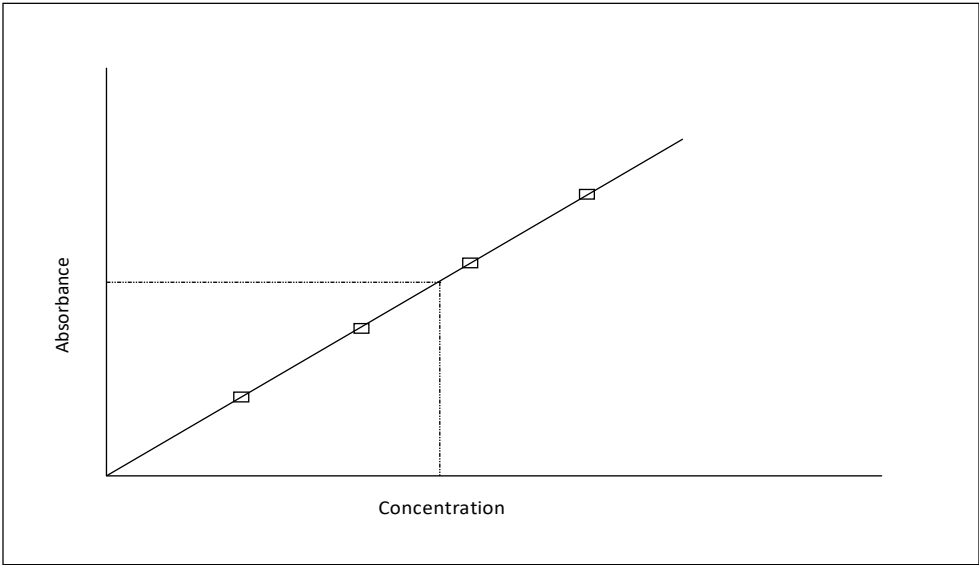


Figure (b)

Interferences and matrix modification Other chemicals that are present in the sample may affect the atomisation process. For example, in flame atomic absorption, phosphate ions may react with calcium ions to form calcium pyrophosphate. This does not dissociate in the flame and therefore results in a low reading for calcium. This problem is avoided by adding different reagents to the sample that may react with the phosphate to give a more volatile compound that is dissociated easily. Lanthanum nitrate solution is added to samples containing calcium to tie up the phosphate and to allow the calcium to be atomised, making the calcium absorbance independent of the amount of phosphate. With electrothermal atomisation, chemical modifiers can be added which react with an interfering substance in the sample to make it more volatile than the analyte compound. This volatile component vaporises at a relatively low temperature and is removed during the low and medium temperature stages of electrothermal atomisation.

COURTESY: *The Education Department, The Royal Society of Chemistry, Burlington House, Piccadilly, London W1J 0BA. (The Royal Society of Chemistry Fine Chemicals and Medicinals Group).*

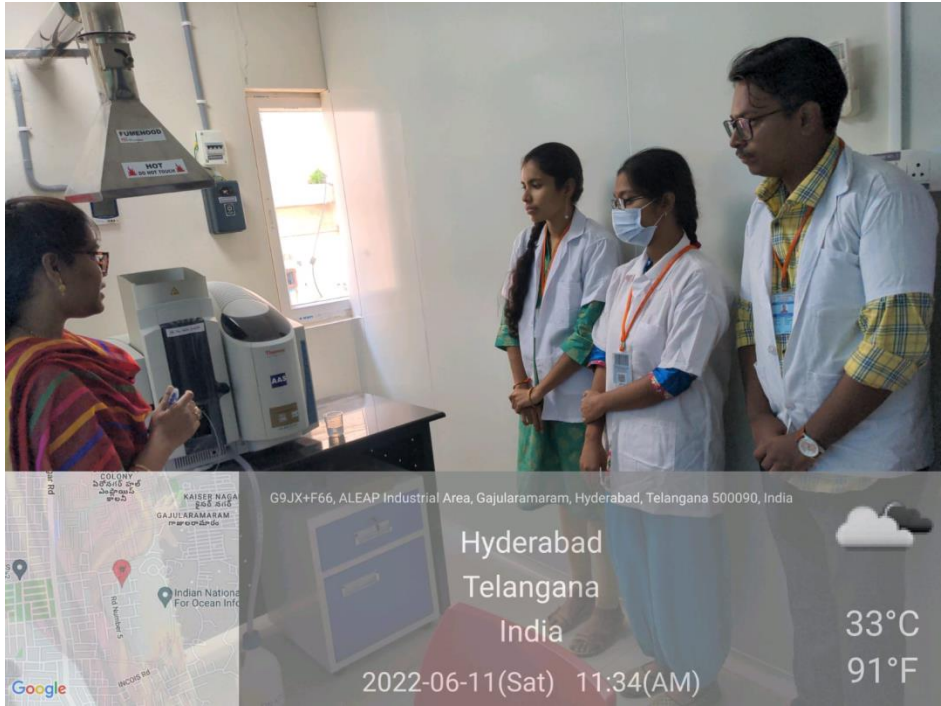


Atomic absorption spectrometer (THERMO Scientific iCE-3000)











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TARA GOVERNMENT DEGREE COLLEGE

SANGAREDDY

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Executive Summary

RTC Buses are the most widely-used form of public transport in the India serving cities as well as suburban and rural areas. They are also the most cost-efficient and flexible form of public transport, When you consider that, most people use private transport whether it maybe Ola , uber ,Autorikshwa or every other private transport due to motives we don't realize when will the bus comes , loss of endurance or to avoid crowd adventure to conquer these problems we are able to inbuilt GPS tracker in each bus to offer the precise place of required bus for passengers and additionally QR scanner based ticket purchase.

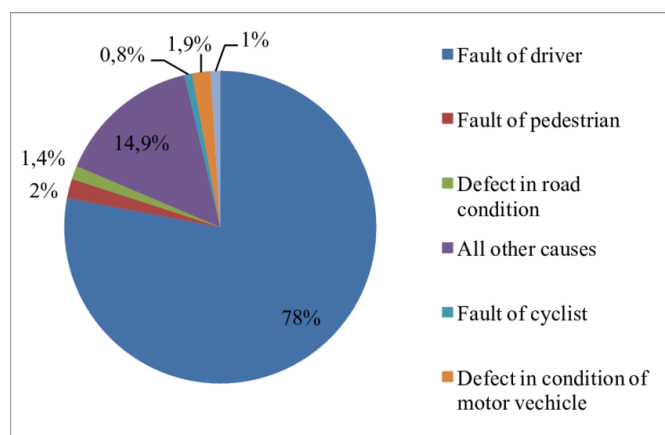
Business Description

To increase the revenues for public transport system ie. RTC buses by imparting beneficial services to passengers.

Many passengers shifting from public transport to private transport and self transport due to they don't realize when will the bus comes .To overcome the issues facing with the aid of passengers through waiting lengthy hours in bus stops for bus , with the help of Gps tracker on each bus to locate the proper location of bus correctly in the Smartphone itself. Additionally the organization provides Qr scanner based ticket purchasing and They might provide brief occupancy of bus on every stop on Google map app or Rtc app itself. No person will pick out non-public shipping in the event that they know while will bus comes.

Mission

Our motive is that passengers should be provided with most cost-efficient and flexible form of public transport with safety. Many accidents on avenue takes place because of self riding automobiles



Services Line

Service Offerings

QR SCANNER BASED TICKET PURCHASE –

The bus conductor will be provided with a QR scanner and passengers will scan and pay to buy a ticket, and give offers and discounts to attract customers. It will be a great move to attract customers in this digital India. Our reason to introduce these QR scanner based ticket purchasing is to remedy the change issues while buying a ticket hence many passengers are using digital currency usually. A few customers might not be familiar with digital money therefore they are able to use traditional method to buy a ticket.

OCCUPANCY OF BUS;

They might provide brief occupancy of bus on every stop on app itself, by that passenger could decide whether to board bus or not.

Market Analysis

Target Market

To draw the passengers who use personal or private transport in place of public transport via offering with low-cost ticket and services. And to create a habit for each passenger to use public delivery in an effort to create an extremely good effect on self-riding fuel consumption and additionally controlling of accident rate due to self-riding through preserve sources including petroleum sustainably.

Competitor Analysis

Ola, uber and a few different personal buses have been taking half of the percentage of transport market in India they're driven with huge marketplace shares due to the services and facilities they're providing.

- **Comparative Strength** – most cost-efficient and flexible form and safety.
- **Comparative Weakness** – fail to provide attractive services to passengers.

Competitor Name	Strength(s)	Weakness(es)
Private buses	services	High ticket price
Taxis	Exact point pickup	High charges
Autorikshaw	Exact drop point	Not safety

Marketing Plan

The cost efficient ticket prices and protection transport itself is tremendous pass to attract passengers.

Financial Considerations

RTC revenue sees 1.5 cr per day according to Times of India ; march 14 2020 statistics .

Startup Costs

When you consider that in Telangana itself their are 9,384 TSRTC buses present on account that every bus have to be in-built with GPS tracking device to offer uninterrupted carrier for the passenger and one unit of GPS tracking device cost almost 1500 rupees .

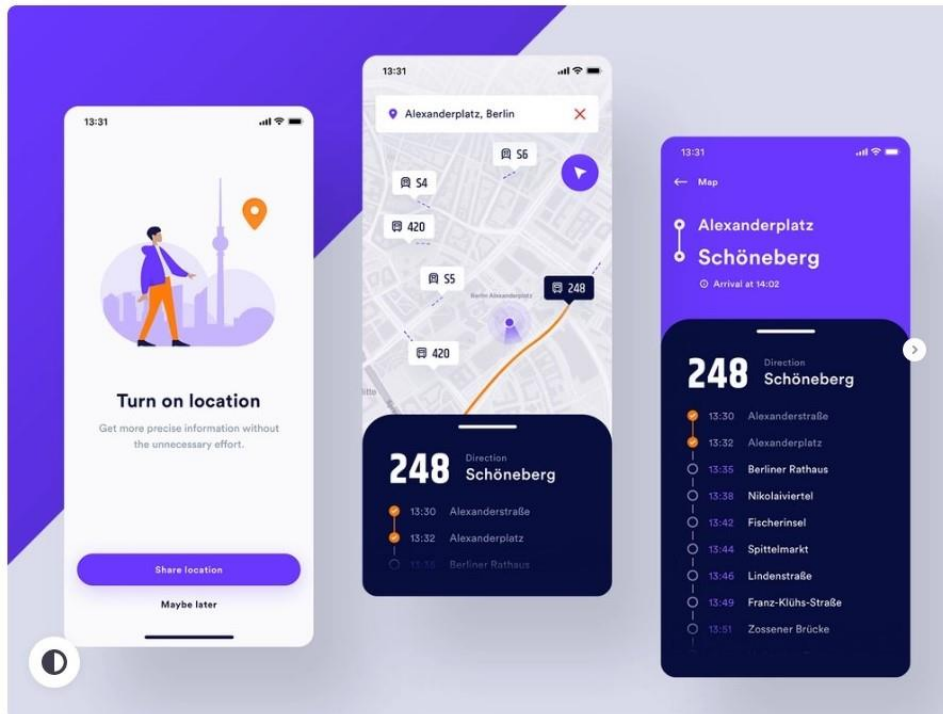
Funding Requirements

To start with it is required 10,00,000 amount to experiment upon the 10 percentage of TSRTC buses to see the result.

Perhaps, the built in of GPS tracking device in every TSRTC bus is more money ingesting process subsequently, these will circuitously generate big revenues to TSRTC through their service to passengers indirectly by shifting private and self transport passengers to public transport . The total project fee is around 1 day revenue of TSRTC.

Appendix

- Floor plans



The above attached image depicts the similar interface of our service in google maps and TSRTC app to locate the precise place of required bus for passengers in smartphone .



**Youth
for Social Impact**

CERTIFICATE OF APPRECIATION

This is to certify that K SREEDHAR of Tara Government College Sangareddy (A) had undergone training and facilitated in implementation of the program, **Youth for Social Impact - 2022** in their college which was organised across the state of Telangana by TSIC, Inqui-lab Foundation and UNICEF.

DR. SHANTA THOUTAM

Chief Innovatin Officer
Government of Telangana



VIVEK PIDDEMPALLY

Co-founder
Inqui-Lab Foundation



MS. MEITAL RUSDIA

Chief, UNICEF office for Andhra Pradesh,
Karnataka and Telangana.





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LETTER OF ASSOCIATION

Ref.No. STIITB/2022/060

Date - 21/09/2022

To,
The Principal,
Tara Government College (Autonomous), Sangareddy,
Prashanth Nagar Colony, Sangareddy Dist. Telangana - 502001.

Your association is highly appreciable. We are happy to announce the continue ASSOCIATION of Knowledge Partner Spoken Tutorial Program, IIT Bombay with **Tara Government College (Autonomous), Sangareddy**. Your College is officially partnered as an **Academic Partner of IIT Bombay Spoken Tutorial (Academic year February 2022-23)**. We appreciate the efforts that College took and trained 494 students in the last semester.

The Program is a part of the National Mission on Education through I CT, MoE, Govt. of India, to spread IT Literacy all over India. We are promoting the learning and usage of Free & Open Source Software (FOSS), through an Audio-Video teaching tool, viz, 'Spoken Tutorial'.

Looking forward to see the same successful working relationship and keen to see **Tara Government College (Autonomous), Sangareddy**. as a model in the matter of introducing the ICT MOOCs, FOSS based training in **Telangana** via ST IIT Bombay.

For and On behalf of
Spoken Tutorials,
Indian Institute of Technology, Bombay

Akanksha Saini



Mrs. Akanksha Saini
National Coordinator
Spoken Tutorial Project, IIT Bombay