

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2020 – 2021 onwards)
B.A/B.COM/BBA/B.SC ENGLISH II YEAR
SEMESTER – III

PAPER – III: ENGLISH

Theory: 3 Hours/Week; Credits: 3 Marks: 100 (Internal: 20; External: 80)

Prescribed Textbook entitled: English for Excellence
Published by Orient BlackSwan

UNIT I: GENDER EQUALITY

1. “Achieving Gender Equality in India: What Works, and What Doesn’t” by Smriti Sharma
2. “They Shut me up in Prose” by Emily Dickinson
3. Prepositions
4. Phrasal Verbs

UNIT II: GENDER ROLES

1. “The Wonder Story of Kalpana Saroj” by Rakhi Chakraborty
2. “The Kitchen” by Vimala
3. Voice
4. Technical Vocabulary

UNIT III: ENDING VIOLENCE AGAINST WOMEN

1. “What is my Name?” by P.Sathyavathi
2. “Voice of the Unwanted Girl” by Sujatha Bhatt
3. Connectives
4. Idioms

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2020 – 2021 onwards)
B.A. ECONOMICS II Year
SEMESTER – III

PAPER – III STATISTICS FOR ECONOMICS
(Discipline Specific Course)

Theory: 5 Hours/Week; Credits: 5 Marks: 100 (Internal: 20; External: 80)

Module– I: Introduction to Statistics

Meaning and Basic Concepts of Statistics – Population and Sample, Frequency Distribution, Cumulative Frequency – Graphic and Diagrammatic Representation of Data –Types of Data: Primary and Secondary Data –Methods of Collecting Data: Census and Sampling Methods (Random, Non-random Sampling Methods)

Module– II: Measures of Central Tendency and Dispersion

Measures of Central Tendency: Mean, Median, Mode, Geometric Mean and Harmonic Mean – Properties of Good Average – Comparison of Different Averages –Measures of Dispersion – Absolute and Relative Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation and Variance

Module– III: Correlation and Regression

Correlation: Meaning and Types – Karl Pearson's Correlation Co-efficient – Spearman's Rank Correlation –Regression: Meaning and Uses of Regression.

Module– IV: Index Numbers

Meaning and Uses – Aspects and Difficulties in the Construction of Index Numbers - Types of Index Numbers –Methods of Index Numbers - Laspayer, Paasche and Fisher.

Module– V: Analysis of Time Series

Meaning and Uses – Components of Time Series Analysis: Secular, Seasonal, Cyclical and Irregular Variations – Methods of Measurement of Secular Trends: Graphic, Semi-Averages, Moving Averages.

Reference Books:

- Allen, RGD : Mathematical Analysis for Economists, Macmillan Press, London.
Bhardwaj RS : Mathematics for Economics and Business, Excel Books, New Delhi
Bose : Mathematics for Economics, Himalaya Publishing, New Delhi
Chiang, AC : Fundamental Methods of Mathematical Economics McGraw Hill,
New Delhi Nagar & Das: Basic Statistics
S.P. Gupta : Statistical Methods, S. Chand & Co.,
G.S. Monga : Mathematics for Economists

TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - III
History of India (1526-1857 CE)
(BA-305) Discipline Specific Course - Paper – 1C
(With Effect from 2020-2021)

- Module-I: Establishment of Mughal Dynasty - Sources - Shershah Sur and His Reforms - Brief Survey of Political History of Mughals - Akbar, Jahangir, Shah Jahan and Aurangzeb - Polity - Administration - Society - Economy – Technological Developments - Religion - Hindu-Muslim Relations - Emergence of Composite Culture - Education - Language and Literature - Art and Architecture - Disintegration of Mughal Empire.
- Module-II: Rise of Regional Powers - Marathas - Shivaji his Military Achievements, and his Administration - The Rise of Peshwas - and their role in Maratha History - The Third Battle of Panipat - The Rise of Sikhs. - Ranjit Singh - Rise of Princeley States - Hyderabad - Avad - Junagarh - Mysore - Kashmir.
- Module-III: Advent of European Powers - Portuguese, Dutch, English and French, Anglo-French Rivalry - Expansion and Consolidation of British Power - Wellesley's Subsidiary Alliance - Dalhousie's Doctrine of Lapse.
- Module-IV: Three Stages of Colonialism - Mercantilism - Free Trade Policies - Finance Capital - e Settlements - Cornwallis and Permanent Revenue Settlement; Thomas Munroe and Ryotwari; Mahalwari System - Changes in the Agrarian Economy and Condition of Peasantry - Famines.
- Module-V: Decline of Rural Cottage Industries and Urban Handicrafts - Growth of Railways, Roads, Communication - Modern Industries - Coal Mines, Textiles, Iron and Steel, etc. - Anti-Colonial Upsurge - 1857 Revolt - Nature, Causes and Results.

Recommended Books:

- A.L. Srivastava, History of India from A.D. 1000 to 1707.
A.R. Desai, Social Background of Indian Nationalism.
Bipan Chandra, A History of Modern India.
Harbans Mukhia, The Mughals.
John F. Richards, The Mughal Empire, CUP, New Delhi, 1995.
R.C. Majumdar (ed.), A History and Culture of India People, Bharatiya Vidya Bhavan Series (Relevant Vols.).
R.C. Majumdar, H.C. Raychaudhuri & K. Datta, An Advanced History of India, Madras, 1995. Satish Chandra, Medieval India, Vol. II.
Sumit Sarkar, Modern India (1885-1947), Macmillan India Ltd., Madras, 1995.
Tarachand, A History of the Freedom Movement in India, Four Volumes.
V.D. Mahajan, History of Medieval India (Sultanate Period and Mughal Period).
V.D. Mahajan, Modern Indian History. Telugu: B. Laxminarayana Rao, Bharatadesa Swathantra Charitra (Part-3), (Trans.), Telugu Academy, 2005.
Bipan Chandra, Adhunik Bharatadesa Charitra (Translation Sahavasi), Hyderabad Book Trust.
B.A. First & Second Year Indian History Text Books (English & Telugu Medium-CBCS) 2016-17.
J. Durga Prasad and Others, Bharatadesa Charitra (1526-1964 A.D.), Telugu Academy, 2006. V. Rama Krishna Reddy, Bharatadesa Charitalo Mukhya Ghattalu, Telugu Academy, 2005.

BA II Year

Semester III : Indian Administration

The Objectives of the Course are:

1. To understand the historical evolution and socio-economic, political, cultural and global context of Indian Administration;
2. To identify the transformative role of Indian Administration;
3. To make out the multi-dimensionality of problems and processes of Indian Administration;
4. To understand the form and substance of Indian Administration; and
5. To appreciate the emerging issues in Indian Administration in the context of changing role of state, market and civil society.

DSC 303 : Union Administration

Unit- I: Historical Background

- a. Evolution of Indian Administration
- b. Indian Administration after Independence: Continuity and Change
- c. Indian Constitutional Moorings and Administration.

Unit- II: Union Administration: Structure and Processes

- a. Political Executive at Central Level
 - i) President
 - ii) Prime Minister
 - iii) Council of Ministers
- b. Central Secretariat and other Offices

Unit-III: Centre-State Relations

- a. Centre-State Administrative Relations
- b. Central Personnel Agencies-All India Services

Unit-IV: Constitutional and Other National Bodies

- a. Union Public Service Commission
- b. (i) Election Commission; (ii) Comptroller and Auditor General of India (C&AG)
- c. NITI Aayog

Unit-V: Public Enterprises in India

- a. Forms of Public Enterprises - Department, Corporation, Company
- b. Performance and Disinvestment

References:

- Bidyut Chakravarty, Prakash Chand (2019), Indian Administration: Evolution and Practise, Sage Publications
- Krishna K.Tummala (1996), Public Administration in India, Allied Publishers Limited.
- Kuldeep Mathur (2019), Recasting Public Administration in India: Reform, Rhetoric, and Neoliberalism, Oxford University Press
- M.Sharma (2004), Indian Administration, Anmol Publishers.
- Meredith Townsend (2019), The Annals of Indian Administration, Volume-3, Creative Media Partners.
- Parmar, A., A Study of Kautilya's Arthashastra, Delhi, Atma Ram & Sons, 1987
- Radha Krishna Sapru (2019), Indian Administration: Foundations of Governance, Sage Publications.
- Ramesh K Arora, Rajni Goyal (2018), Indian Public Administration: Institutions and Issues, New Age International Publishers.
- S.R.Maheswari (2004), Indian Administration, Orient Longman Publishers Limited.
- Siulu Sarkar (2018), Public Administration in India (Second Edition), PHI Learning Private Limited.
- Vaman Govind Kale (2010), Indian Administration, Kessinger Publications.
- P.D. Sharma and B.M. Sharma (2009) Indian Administration: Retrospect and Prospect, Rawat Publications.



KAKATIYA UNIVERSITY - WARANGAL - TELANGANA

Under Graduate Courses (Under CBCS 2020 – 2021 onwards)

B.A. II YEAR SEMESTER - III

SKILL ENHANCEMENT COURSE - I

PAPER – SEC1: PROJECT PLANNING AND REPORT WRITING (SEC – I Common to all Social Sciences courses)

Theory: **2 Hours/Week;** **Credits: 2** **Marks: 50 (Internal: 10; External: 40)**

Unit-I: Project: Meaning – Design/Typology - Project Life Cycle - Project Workplan - Timeframe – Budgeting. Source of Data - Methods and Tools of Data Collection
- Data Classification and Analysis – Drawing Inferences. Project Monitoring and Appraisal/Evaluation.

Unit-II: Report Writing: Purpose, Audience, Format and Deadline; Selecting and Organizing Material - Classifying Writing Notes, Information Sequence – Ordering - Headings. Tones and Styles - Review and Peer Review - Plagiarism – Project Publishing – Checklists/Appendices.

References:

1. Lawrence Nueman - Social Research Methods, Pearson Publications, Delhi
2. David Evans et al (2014): How to Write a Better Thesis, Springer, Berlin.
3. Janathan Anderson, Berry H. Durston and Millicent Poole (1971): Thesis and Assignment Writing, Wiley Eastern Private Limited, New Delhi
4. Kathryn G. Herr & Gary L. Anderson - The Action Research Dissertation: A Guide for Students and Faculty, Sage Publications, New Delhi.
5. John W Creswell -Research Design: Qualitative, Quantitative and Mixed Methods Approaches, Sage Publications.
6. Fred Pycszak – Making Sense of Statistics: A Conceptual Overview, Pycszak Publishing, Glendale, CA
7. Fred Pycszak – Writing Research Reports: A Basic Guide for Students of the Social and Behavioral Sciences, Pycszak Publishing, Glendale, CA
8. Peg Boyle Single - Demystifying Dissertation Writing: A Streamlined Process from Choice of Topic to Final Text, Stylus Publishing, VA, USA



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B.A. II YEAR SEMESTER – III

SKILL ENHANCEMENT COURSE -II

ENTREPRENEURSHIP AND DEVELOPMENT (SEC – II Common to all Social Sciences courses)

Theory:

2 Hours/Week;

Credits: 2

Marks: 50 (Internal: 10; External: 40)

Module-I

Basic Issues of Entrepreneurship and Economic Development

Basic features of Entrepreneurship - Entrepreneurship and its linkages with economic development - Growth of entrepreneurship in India - Role of entrepreneurship in Economic Development and problems of rural entrepreneurship in India.

Module-II

Financial Resources for new ventures of an entrepreneur:

Source of finance - capital structure - Institutional support to enterprises- National Small Industries Board- State Small Industries Development Corporation- District Industrial estates- Indian Experience, Stages of growth, types of growth strategies of expansion, Diversification - joint venture, merger and subcontracting.

References:

1. S.S. Khanka Entrepreneurial Development, S Chand & Company Ltd.
2. David. H. Holt- Entrepreneurship New Venture Criterion
3. Poornima M. Entrepreneurship Development and Small Business Enterprises (2nd Edition Pearson)
4. Datt and Sundaram (Revised by A. Mahjan), Indian Economy, 70th Edition, S Chand.

KAKATIYA UNIVERSITY

Under Graduate Courses (Under CBCS 2020 – 2021 onwards)

B.A. / B.Sc. Life Science II Year Computer Applications

SEMESTER – III

RELATIONAL DATA BASE MANAGEMENT SYSTEMS

Theory: 4 Hours/Week; Credits: 4 Marks: 100 (Internal: 20; External: 80)

Practical: 3 Hours/Week Credits: 1 Marks: 25

Unit-I

Basic Concepts: Database Management System, File based system, Advantages of DBMS over file based system, Database Approach, Logical DBMS Architecture, Three level architecture of DBMS or logical DBMS architecture, Need for three level architecture, Physical DBMS Architecture, Database Administrator (DBA) Functions & Role, Data files indices and Data Dictionary, Types of Database.

Relational and ER Models: Data Models, Relational Model, Domains, Tuple and Relation, Super keys, Candidate keys, Primary keys and foreign key for the Relations, Relational Constraints, Domain Constraint, Key Constraint, Integrity Constraint, Update Operations and Dealing with Constraint Violations, Relational Operations, Entity Relationship (ER) Model, Entities, Attributes, Relationships, More about Entities and Relationships, Defining Relationship for College Database, E-R Diagram, Conversion of E-R Diagram to Relational Database.

Unit-II

Database Integrity And Normalization: Relational Database Integrity, The Keys, Referential Integrity, Entity Integrity, Redundancy and Associated Problems – Single Valued Dependencies – Normalization, Rules of Data Normalization, The First Normal Form, The Second Normal Form, The Third Normal Form, Boyce Codd Normal Form, Attribute Preservation, Lossless, join Decomposition Dependency Preservation.

File Organization: Physical Database Design Issues, Storage of Database on Hard Disks, File Organization and Its Types, Heap files (Unordered files), Sequential File Organization – Indexed (Indexed Sequential) File Organization, Hashed File Organization, Types of Indexes, Index and Tree Structure.

Unit-III

Structures Query Language (SQL): Meaning – SQL commands, Data Definition Language, Data Manipulation Language – Data Control Language, Transaction Control Language Queries using Order by, Where, Group by, Nested Queries. Joins – Views – Sequences, Indexes and Synonyms, Table Handling.

Advanced SQL: Accessing SQL from a Programming Language, Functions and Procedures, Triggers, Recursive Queries.

Unit-IV

Transactions and Concurrency Management: Transactions, Concurrent Transactions, Locking Protocol, Serializable Schedules – Locks Two Phase Locking (2PL), Deadlock and its Prevention, Optimistic Concurrency Control.

Database Recovery and Security: Database Recovery meaning, Kinds of failures – Failure Controlling methods, Database errors, Backup & Recovery Techniques, Security & Integrity.

Text Book: Database Systems: R.Elmasri & S.B. Navathe, Pearson.

References:

1. Introduction to Database Management System: ISRD Group, McGraw Hill.
2. Database Management System: R.Ramakrishnan & J.Gehrke, McGraw Hill.
3. Modern Database Management: J.A.Hoffer, V.Rames & H.Topi, Pearson.

KAKATIYA UNIVERSITY

Under Graduate Courses (Under CBCS 2020 – 2021 onwards)

B.A. / B.Sc. Life Science II Year Computer Applications

SEMESTER – III

RELATIONAL DATA BASE MANAGEMENT SYSTEMS - LAB

Practical

3 Hours/Week

1 Credit Marks: 25

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

1. Create a database having two tables with the specified fields, to computerize a library system of a University College.

Library Books (Accession number, Title, Author, Department, Purchase Date, Price),

Issued Books (Accession number, Borrower)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) Delete the record of book titled “Database System Concepts”.
- c) Change the Department of the book titled “Discrete Maths” to “CS”.
- d) List all books that belong to “CS” department.
- e) List all books that belong to “CS” department and are written by author “Navathe”.
- f) List all computer (Department=“CS”) that have been issued.
- g) List all books which have a price less than 500 or purchased between “01/01/1999” and “01/01/2004”.

2. Create a database having three tables to store the details of students of Computer Department in your college.

Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks (rounded off to whole number) in percentage at 10 + 2, Phone number)

Paper Details (Paper code, Name of the Paper)

Student’s Academic and Attendance details (College roll number, Paper Code, Attendance, Marks in home examination).

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper2.
- c) List all students who live in “Warangal” and have marks greater than 60 in paper1.
- d) Find the total attendance and total marks obtained by each student.
- e) List the name of student who has got the highest marks in paper2.

3. Create the following tables and answer the queries given below:

Customer (Cust ID, email, Name, Phone, Referrer ID)

Bicycle (Bicycle ID, Date Purchased, Color, Cust ID, Model No)

Bicycle Model (Model No, Manufacturer, Style) Service

(Start Date, Bicycle ID, End Date)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) List all the customers who have the bicycles manufactured by manufacturer "Honda".
- c) List the bicycles purchased by the customers who have been referred by Customer "C1".
- d) List the manufacturer of red colored bicycles.
- e) List the models of the bicycles given for service.

4. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Employee (Person Name, Street, City)

Works (Person_Name, Company_Name, Salary)

Company (Company_Name, City)

Manages (Person_Name, Manager_Name)

- a) Identify primary and foreign keys.
- b) Alter table employee, add a column "email" of type varchar(20).
- c) Find the name of all managers who work for both Samba Bank and NCB Bank.
- d) Find the names, street address and cities of residence and salary of all employees who work for "Samba Bank" and earn more than \$10,000.
- f) Find the names of all employees who live in the same city as the company for which they work.
- f) Find the highest salary, lowest salary and average salary paid by each company.
- g) Find the sum of salary and number of employees in each company.
- h) Find the name of the company that pays highest salary.

5. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Suppliers (SNo, Sname, Status, SCity)

Parts (PNo, Pname, Colour, Weight, City)

Project (JNo, Jname, Jcity)

Shipment (Sno, Pno, Jno, Qunatity)

- a) Identify primary and foreign keys.
- b) Get supplier numbers for suppliers in Paris with status>20.
- c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.
- d) Get suppliers names for suppliers who do not supply part P2.
- e) For each shipment get full shipment details, including total shipment weights.
- f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.
- g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.
- h) Get the names of cities that store more than five red parts.
- i) Get full details of parts supplied by a supplier in Hyderabad.
- j) Get part numbers for part supplied by a supplier in Warangal to a project in

Chennai.

- k) Get the total number of project supplied by a supplier (say, S1).
- l) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1).

6. Write a PL/SQL Program to demonstrate Procedure.
7. Write a PL/SQL Program to demonstrate Function.
8. Write a PL/SQL program to Handle Exceptions.
9. Write a PL/SQL Program to perform a set of DML Operations.
10. Create a View using PL/SQL program.
11. Write a PL/SQL Program on Statement Level Trigger.
12. Write a PL/SQL Program on Row Level Trigger.

Kakatiya University, Warangal
Faculty of Commerce & Business Management,.

B.Com. III Semester - Paper SEC1 (a): PRINCIPLES OF INSURANCE

Objectives: To make Students to learn Principles of Insurance.

UNIT I: RISK MANAGEMENT AND INSURANCE:

Risk Management -Types of Risks - Actual and Consequential Losses - Management of Risks - Different Classes of Insurance - Importance of Insurance - Management of Risk by Individuals and Insurers - Fixing of Premiums – Reinsurance - Role of Insurance in Economic Development and Social Security - Constituents of Insurance Market - Operations of Insurance Companies - Operations of Intermediaries - Specialist Insurance Companies - Role of Regulators - Common and specific terms in Life and Non-Life Insurance - Understanding Insurance Customers - Customer Behavior at Purchase Point - Customer Behavior when Claim Occurs - Importance of Ethical Behavior

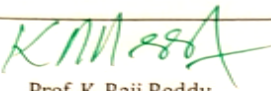
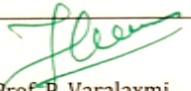







UNIT II: INSURANCE CONTRACT AND INSURANCE PRODUCTS:

Insurance Contract Terms - Principles of Insurance: Principle of Insurable Interest, Principle of Indemnity, Principle of Subrogation, Principle of Contribution, Relevant Information Disclosure, Principle of utmost Good Faith, Relevance of Proximate Cause - Life Insurance Products: Risk of Dying Early - Risk of Living too Long - Products offered - Term Plans - Pure Endowment Plans - Combinations of Plans - Traditional Products - Linked Policies - Features of Annuities and Group Policies - General Insurance Products: Risks faced by Owner of Assets - Exposure to Perils - Features of Products Covering Fire and Allied Perils - Products covering Marine and Transit Risks - Products covering Financial Losses due to Accidents - Products covering Financial Losses due to Hospitalization - Products Covering Miscellaneous Risks

SUGGESTED READINGS:

1. Principles of Insurance : A Publication of the Insurance Institute of India
2. Principles of Insurance : Telugu Academy, Hyderabad
3. Guide to Risk Management : Sagar Sanyal
4. Principles of Insurance : Dr V Padmavathi, Dr V Jayalakshmi - PBP
5. Insurance and Risk Management: P.K. Gupta
6. Insurance Theory and Practice : Tripathi PHI
7. Principles of Insurance Management: Neelam C Gulati, Excel Books

Suggested Websites: 1) www.irda.gov.in 2) www.policyholder.gov.in
3) www.irdaindia.org.in

 Prof. K. Raji Reddy	 Prof. P. Varalaxmi	 Dr. K. Rajender
 Dr. S. Narasimha Chary	 Mr. M. Somaiah	 Dr. S. Narayana Swamy
 Dr. Ramavath Ravi	 Dr. D. Thiruvengala Chary	 Dr. G. Shashidhar Rao

Kakatiya University, Warangal
Faculty of Commerce & Business Management,.

B.Com. III Semester - Paper SEC1 (b): FOUNDATION OF DIGITAL MARKETING

Objective: To make students to understand Foundation of digital marketing.

UNIT I: DIGITAL MARKETING FOUNDATIONS:

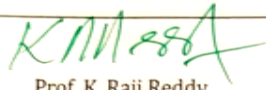
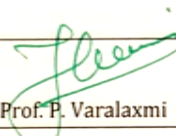


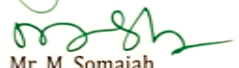



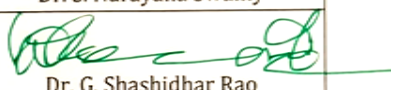
Digital Marketing Strategy - Exploring Digital Marketing - Starting with the Website - Foundations of Analytics - Search Engine Optimization - Search and Display Marketing - Social Media Marketing - Video Marketing – Advantages & Limitations of Digital Marketing.

UNIT II: ONLINE MARKETING, MOBILE MARKETING FOUNDATIONS:

Online marketing tools and setup – E-Marketing: Segmentation, personalization and mobile marketing - Content marketing: Blogs for content marketing - Content marketing for staying relevant - Newsletters for content marketing.

SUGGESTED READINGS:

1. The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns by Ian Dodson, Wiley
2. Fundamentals of Digital Marketing by Puneet Singh Bhatia, Pearson
3. Foundations of Digital Marketing: Dr. K.V. Nagaraj.K Usha Rani - PBP
4. Digital Marketing by Vandana Ahuja, Oxford
5. Digital Marketing by Seema Gupta, McGraw Hill
6. Digital Marketing For Dummies by Ryan Deiss and Russ Henneberry

 Prof. K. Raji Reddy	 Prof. P. Varalaxmi	 Dr. K. Rajender
 Dr. S. Narasimha Chary	 Mr. M. Somaiah	 Dr. S. Narayana Swamy
 Dr. Ramavath Ravi	 Dr. D. Thiruvengala Chary	 Dr. G. Shashidhar Rao

Kakatiya University, Warangal
Faculty of Commerce & Business Management,.

B.Com. III Semester - Paper SEC1 (c) FUNDAMENTALS OF BUSINESS ANALYTICS

Objective: To make students to learn Fundamentals of Business Analytics.

UNIT I: USING DATA TO DRIVE BUSINESS DECISIONS:


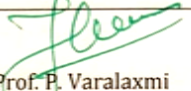







Need for data-driven decision making: Solving the business problem using Analytics - Overview of the Business Analytics cycle - Hierarchy of information user -The complete Business Analytics professional: Understanding Business Analyst roles and responsibilities - Identify the Popular Business Analytics Tools.

UNIT II: DATA ANALYTICS USING EXCEL:

Basics of Excel: Organizing data with Excel - Performing simple computations and aggregations using Excel - Working with Summing and other Reporting functions in Excel - Working with pivot tables and charts - Using Excel for Data Analytics: Power Query - Power Pivot - Power view - Power Map - Building tips - Display tips - Keyboard shortcuts - Mouse shortcuts - Standardized layouts - Understanding table based and spreadsheet-based layouts - Best practices Setting data rules and Cleaning data - Format as table - Data cleansing techniques using External Data - Searching and Combining Data with Power Query: Getting started with Power Query - Know the Environment tabs and toolbars - Access new or existing reports - Importing and combining data from databases, web, files - Splitting and aggregating data - Query data from SQL - Working in the Select Part of an SQL Query - Managing SQL commands - Managing Tables - Discovering and Analyzing Data with Power Pivot: Database concepts - Loading Data into Power Pivot - Using Power Query and Power map add-ins - Designing Pivot Table reports - Filtering data - Creating Custom functions and formulas - Formatting Pivot Tables - Managing Power Pivot Data - Setting Connection properties - Managing Data sources - Configuring Pivot Table Options

SUGGESTED READINGS:

1. Fundamentals of Business Analytics, 2nd Edition; R N Prasad; Wiley
2. Business Analysis with Microsoft Excel and Power BI, 5th edition; Conrad G. Carlberg; Pearson
3. Monetizing Your Data: A Guide to Turning Data into Profit-Driving Strategies and Solutions; Andrew Roman Wells, Kathy Williams Chiang; Wiley
4. Excel Data Analysis: Your visual blueprint for creating and analyzing data, charts and PivotTables, 3rd Edition; Denise Etheridge; Wiley
5. Microsoft Excel 2019 Formulas and Functions (Business Skills), 1st Edition; Paul McFedries; Microsoft
6. Excel Statistics: A Quick Guide, 3rd edition; Neil J. Salkind; Sage Publications
7. Microsoft Excel 2019: For Beginners; J. Davidson
8. Microsoft Excel 2019: Learn Excel Basics with Quick Examples; James Jackson

 Prof. K. Raji Reddy	 Prof. P. Varalaxmi	 Dr. K. Rajender
 Dr. S. Narasimha Chary	 Mr. M. Somaiah	 Dr. S. Narayana Swamy
 Dr. Ramavath Ravi	 Dr. D. Thiruvengala Chary	 Dr. G. Shashidhar Rao

Kakatiya University, Warangal

Faculty of Commerce & Business Management,

B.Com. III Semester - Paper SEC2 (a): PRACTICE OF LIFE INSURANCE

Objective: To make students to learn Practice of Life Insurance.

UNIT-I: INTRODUCTION TO LIFE INSURANCE AND TYPES OF LIFE INSURANCE

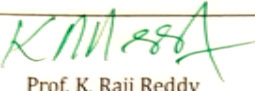
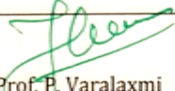







POLICIES AND PREMIUM CALCULATION: Meaning evolution, growth and principles of Life Insurance –Life Insurance Organizations in India – Competition and Regulation of Life Insurance - Types of Life Insurance Policies – Term, Whole Life, Endowment, Unit Linked and with or without Profit Policies – Customer Evaluation – Policy Evaluation – Group and Pension Insurance Policies – Special features of Group Insurance/Super Annuation Schemes – Group Gratuity Schemes. Computation of Premiums - Meaning of Premium, its calculation- Rebates – Mode of Rebates – Large sum assured Rebates – Premium Loading – Rider Premiums – Computation of Benefits – Surrender value – Paid up value.

UNIT-II: SETTLEMENT OF CLAIMS RISK & UNDERWRITTINGS AND FINANCIAL

PLANNING & TAX SAVING: Settlement of claims: Intimation Procedure, documents and settlement procedures - Underwriting: The need for underwriting – Guiding principles of Underwriting – Factors affecting Insurability – Methods of Life Classification – Laws affecting Underwriting - Financial Planning and taxation: Savings – Insurance vis-à-vis- Investment in the Units Mutual Funds, Capital Markets – Life Insurance in Individual Financial Planning – Implications in IT treatment.

SUGGESTED READINGS:

1. Practice of Life Insurance: Insurance Institute of India, Mumbai.
2. Insurance and Risk Management: P.K.Gupta, Himalaya Publishing House, Mumbai.
3. Fundamentals of Life Insurance Theories and Applications: Kanika Mishra, Prentice Hall
4. Principles of Life Insurance – Dr. V. Padmavathi, Dr. V. Jayalakshmi - PBP
5. Managing Life Insurance: Kutty, S.K., Prentice Hall of India: New Delhi
6. Life and Health Insurance: Black, Jr. Kenneth and Harold Skipper Jr., Prentice Hall, Inc., England.
7. Life Insurance: Principles and Practice: K.C. Mishra and C.S. Kumar, Cengage Learning, New Delhi.
8. Life Insurance in India: Sadhak, Respose Books, New Delhi.

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B.Com. III Semester - Paper SEC2 (b): WEB DESIGN AND ANALYTICS

Objective: To make students to understand the Fundamentals of Web design and Analytics.

UNIT I: WEB DESIGN AND OPTIMIZING CONVERSION RATES:

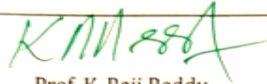
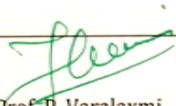







Exploring and learning web design – Understanding Conversion rate optimization (CRO) – Setting CRO – Understanding target audience – Optimization champion

UNIT II: GOOGLE ANALYTICS:

Getting started with Google Analytics – Core concepts – Additional interface features – Using reports – Audience reports – Acquisition reports – Social reports – Behavior reports – Track events – Conversion reports – Additional features

SUGGESTED READINGS:

1. The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns by Ian Dodson, Wiley
2. Fundamentals of Digital Marketing by Puneet Singh Bhatia, Pearson
3. Digital Marketing by Vandana Ahuja, Oxford
4. Digital Marketing by Seema Gupta, McGraw Hill
5. Digital Marketing For Dummies by Ryan Deiss and Russ Henneberry
6. Don't Make Me Think Revisited: A Common Sense Approach to Web Usability By Steve Krug
7. Web Analytics 2.0 – Avinash Kaushik
8. Successful Analytics by Brian Clifton
9. Math and Stats for Web Analytics and Conversion Optimization by Himanshu Sharma

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B.Com. III Semester - Paper SEC2 (c): APPLICATION OF BUSINESS ANALYTICS

Objective: To make students to understand the Application of Business analytics.

UNIT I: STATISTICS USING EXCEL:

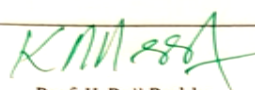
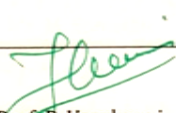
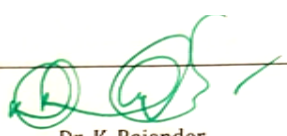

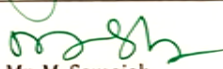




Descriptive statistics using Excel: Describe data using charts and basic statistical measures – Histograms - Pareto charts – Boxplots - Tree map and Sunburst charts - Inferential Statistics using Excel: Correlation and Regression - Probability distribution – Sampling techniques – Hypothesis testing

UNIT II: GETTING STARTED WITH R:

Introduction to R and R Studio components: Read datasets into R - Export data from R - Manipulate and Process Data in R - Use functions and packages in R - Demonstrate with a Case Study to perform basic analytics using R

SUGGESTED READINGS:

1. Microsoft Business Intelligence Tools for Excel Analysis; Michael Alexander, Jared Decker, Bernard Wehbe; Wiley
2. Business Analysis with Microsoft Excel and Power BI, 5th edition; Conrad G. Carlberg; Pearson
3. Excel Data Analysis: Your visual blueprint for creating and analyzing data, charts and PivotTables, 3rd Edition; Denise Etheridge; Wiley
4. Microsoft Excel 2019 Formulas and Functions (Business Skills), 1st Edition; Paul McFedries; Microsoft
5. Microsoft Excel Data Analysis for Dummies, 3rd edition; Stephen L. Nelson, E. C. Nelson; Wiley
6. Data Analytics with R; Bharti Motwani; Wiley

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B.Com. III Semester - Paper DSC 301: ADVANCED ACCOUNTING

Objective: To acquire accounting knowledge of partnership firms and joint stock companies

UNIT-I: PARTNERSHIP ACCOUNTS-I:

Meaning - Partnership Deed - Capital Accounts (Fixed and Fluctuating) - Admission of a Partner - Retirement and Death of a Partner (Excluding Joint Life Policy)(Including problems)

UNIT-II: PARTNERSHIP ACCOUNTS-II:

Dissolution of Partnership - Insolvency of a Partner (excluding Insolvency of all partners) - Sale to a Company (Including problems)

UNIT-III: ISSUE OF SHARES, DEBENTURES, UNDERWRITING AND BONUS SHARES:

Issue of Shares at par, premium and discount - Pro-rata allotment - Forfeiture and Re-issue of Shares - Issue of Debentures with Conditions of Redemption - Underwriting: Meaning - Conditions - Bonus Shares: Meaning - SEBI Guidelines for Issue of Bonus Shares - Accounting of Bonus Shares (Including problems)

UNIT-IV: COMPANY FINAL ACCOUNTS AND PROFIT PRIOR TO INCORPORATION:

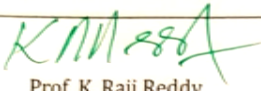
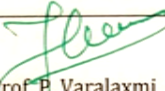







Companies Act, 2013: Structure - General Instructions for preparation of Balance Sheet and Statement of Profit and Loss - Part-I: Form of Balance Sheet - Part-II: Statement of Profit and Loss - Preparation of Final Accounts of Companies - Profits Prior to Incorporation - Accounting treatment (Including problems)

UNIT-V: VALUATION OF GOODWILL AND SHARES:

Valuation of Goodwill: Need - Methods: Average Profits method, Super Profits method and Capitalization Method -Valuation of Shares: Need - Net Assets method, Yield method and Fair Value Method. (Including problems)

SUGGESTED READINGS:

1. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
2. Advanced Accountancy: Shukla and Grewal, S.Chand & Co.
3. Advanced Accountancy: R.L.Gupta&Radhaswamy, Sultan Chand & Sons.
4. Advanced Accountancy (Vol-II): S.N.Maheshwari&V.L.Maheswari, Vikas.
5. Advanced Accountancy: Dr. G. Yogeshwaran, Julia Allen - PBP
6. Accountancy-III: Tulasian, Tata McGraw Hill Co.
7. Advanced Accountancy: Arulanandam; Himalaya.
8. Accountancy-III: S.P. Jain & K.L Narang, Kalyani Publishers.

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B.Com. III Semester - Paper DSC 302: BUSINESS STATISTICS -I

Objective: To inculcate analytical and computational ability among the students.

UNIT-I: INTRODUCTION:

Origin and Development of Statistics - Definition - Importance and Scope - Limitations of Statistics - Distrust of Statistics.

Statistical Investigation: Planning of statistical investigation - Census and Sampling methods - Collection of primary and secondary data - Statistical errors and approximation - classification and Tabulation of data - Frequency distribution

UNIT - II: DIAGRAMMATIC AND GRAPHIC PRESENTATION:

Diagrammatic presentation: One Dimensional and Two Dimensional Diagrams - Pictograms - Cartograms - Graphic presentation: Technique of Construction of Graphs - Graphs of Frequency Distribution - Graphs of Time Series or Histograms

UNIT-III: MEASURES OF CENTRAL TENDENCY:

Introduction -Significance - Arithmetic Mean - Geometric Mean - Harmonic Mean – Mode - Median - Quartiles and Percentiles - Simple and Weighted Averages - Uses and Limitations of different Averages

UNIT-IV: MEASURES OF DISPERSION, SKEWNESS AND KURTOSIS:

Measures of Dispersion: Significance - Characteristics - Absolute and Relative Measures – Range - Quartile Deviation - Mean Deviation- Standard Deviation - Coefficient of Variation


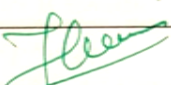





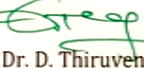

Measures of Skewness - Karl Pearson's Coefficient of Skewness - Bowley's Coefficient of Skewness - Kelly's Measure of Skewness - Kurtosis: Mesokurtosis, Platy kurtosis and Leptokurtosis

UNIT-V: CORRELATION:

Meaning -Types - Correlation and Causation - Methods: Scatter Diagram - Karl Person's Coefficient of Correlation - Probable Error and Interpretation of Coefficient of Correlation - Rank Correlation - Concurrent Deviation Method

SUGGESTED READINGS:

1. Statistics for Management: Levin & Rubin, Pearson
2. Fundamentals of Statistics: Gupta S.C, Himalaya
3. Statistics: E. Narayanan Nadar, PHI Learning
4. Business Statstics –I: Dr. Obul Reddy, Dr. D. Shridevi - PBP
5. Business Statistics: Dr. J. K. Thukral, Taxmann Publications
6. Business Statistics: K. Alagar, Tata McGraw Hill
7. Fundamentals of Statistical: S. P Gupta, Sultan Chand
8. Business Statistics: J. K. Sharma, Vikas Publishers
9. Business Statistics: S. L Aggarwal, S. L. Bhardwaj, Kalyani Publications

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B.Com. III Semester - Paper DSC 303: FINANCIAL INSTITUTIONS & MARKETS

Objective: To familiarize with various Financial Institutions and Markets.

UNIT-I: INDIAN FINANCIAL SYSTEM:

Components - Functions - Flow of Funds Matrix - Financial System and Economic Development - Recent Developments in Indian Financial System - Weaknesses of Indian Financial System

UNIT-II: FINANCIAL INSTITUTIONS:

Commercial Banking: Types - Functions - Lending by Commercial Banks - Recent Developments - Merchant Banking – functions - Venture Capital – objectives - Private Equity - role in start-ups - Hire purchase and leasing - Non-banking Finance Companies: Types - Functions

UNIT-III: MONEY MARKET:

Functions of Money Market - Organization of Money Market - Dealers - Money Market Instruments - RBI - Functions - Role of RBI in Money Market - LAF (Liquidity Adjustment Facility), MSF (Marginal Standing Facility), Repo, and Reverse Repo.

UNIT-IV: DEBT MARKET:

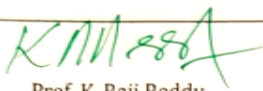
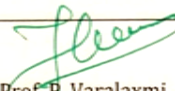


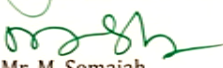


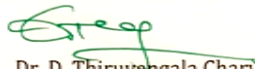

Evolution of Debt Markets in India - Instruments and Players in Debt Market: Government Securities - PSU Bonds - Corporate Bonds - Securities Trading Corporation of India - Primary Dealers in Government Securities - Bonds: Features of Bonds - Types of Bonds - Bond Ratings.

UNIT-V: EQUITY MARKET:

Meaning - Development of Equity Market in India - Primary Market: IPO and FPO - Methods of IPO - Role of Merchant Bankers in Fixing the Price - Red Herring Prospectus – Sweat Equity - ESOP - Rights Issue - Secondary Market: Meaning and Functions of Stock Exchanges - Evolution and Growth of Stock Exchanges - Stock Exchanges in India - Recent Developments in Indian Stock Exchanges - Stock Market Indices - SEBI: Objectives and Functions

SUGGESTED READINGS:

- 1) Bhole, L.M., Financial Markets and Institutions. Tata McGraw Hill Publishing Company, New Delhi, India.
- 2) Prof. Prashanta Athma, Financial Institutions and Markets: PBP
- 3) Gordon & Natarajan, Financial Markets and Services. Himalaya Publishing House, New Delhi, India.
- 4) Khan and Jain, Financial Services, Tata McGraw Hill, New Delhi, India.
- 5) Khan, M.Y., Indian Financial System -Theory and Practice. Vikas Publishing House, New Delhi, India.

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Hours Per Week: 7 (3T+4P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective: to acquire basic conceptual background necessary to design and develop simple database system, Relational database mode, ER model and distributed databases, and to write good queries using a standard query language called SQL.

UNIT-I: BASIC CONCEPTS: Database Management System - File based system - Advantages of DBMS over file based system - Database Approach - Logical DBMS Architecture - Three level architecture of DBMS or logical DBMS architecture - Need for three level architecture - Physical DBMS Architecture - Database Administrator (DBA) Functions & Role - Data files indices and Data Dictionary -Types of Database. Relational and ER Models: Data Models - Relational Model – Domains - Tuple and Relation - Super keys - Candidate keys - Primary keys and foreign key for the Relations - Relational Constraints - Domain Constraint - Key Constraint - Integrity Constraint - Update Operations and Dealing with Constraint Violations - Relational Operations - Entity Relationship (ER) Model – Entities – Attributes – Relationships - More about Entities and Relationships - Defining Relationship for College Database - E-R Diagram - Conversion of E-R Diagram to Relational Database.

UNIT-II: DATABASE INTEGRITY AND NORMALISATION: Relational Database Integrity - TheKeys - Referential Integrity - Entity Integrity - Redundancy and Associated Problems – Single Valued Dependencies – Normalisation - Rules of Data Normalisation - The First Normal Form -The Second Normal Form - The Third Normal Form - Boyce Codd Normal Form - Attribute Preservation - Lossless-join Decomposition - Dependency Preservation. File Organisation : Physical Database Design Issues - Storage of Database on Hard Disks - File Organisation and Its Types - Heap files (Unordered files) - Sequential File Organisation - Indexed (Indexed Sequential) File Organisation - Hashed File Organisation

- Types of Indexes - Index and Tree Structure - Multi-key File Organisation - Need for Multiple Access Paths - Multi-list File Organisation - Inverted File Organisation.

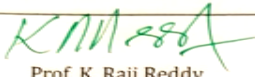
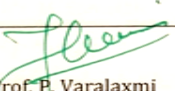





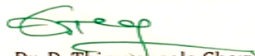

UNIT-III: STRUCTURES QUERY LANGUAGE (SQL): Meaning–SQL commands – Data Definition Language - Data Manipulation Language - Data Control Language - Transaction Control Language - Queries using Order by – Where - Group by - Nested Queries. Joins – Views – Sequences - Indexes and Synonyms - Table Handling.

UNIT-IV: TRANSACTIONS AND CONCURRENCY MANAGEMENT: Transactions – Concurrent Transactions - Locking Protocol - Serialisable Schedules - Locks Two Phase Locking (2PL) - Deadlock and its Prevention - Optimistic Concurrency Control. Database Recovery and Security: Database Recovery meaning - Kinds of failures - Failure controlling methods - Database errors - Backup & Recovery Techniques - Security & Integrity - Database Security - Authorization.

UNIT-V: DISTRIBUTED AND CLIENT SERVER DATABASES: Need for Distributed Database Systems - Structure of Distributed Database - Advantages and Disadvantages of DDBMS - Advantages of Data Distribution - Disadvantages of Data Distribution - Data Replication - Data Fragmentation. Client Server Databases: Emergence of Client Server Architecture - Need for Client Server Computing - Structure of Client Server Systems & its advantages.

ADVANCED TOPICS: Overview: Parallel Database - Multimedia Database - Mobile Database - Web Database - Multidimensional Database. Data Warehouse - OLTP Vs OLAP - NoSQL Database. **LAB:** SQL QUERIES BASED ON VARIOUS COMMANDS.

SUGGESTED READINGS: 1) Database Systems: R.Elmasri & S.B. Navathe, Pearson.; 2) Introduction to Database Management System: ISRD Group, McGraw Hill.; 3) Database Management System: R.Ramakrishnan & J.Gehrke, McGrawHill.; 4) Modern Database Management: J.A.Hoffer, V.Rames & H.Topi, Pearson.; 5) Database System Concepts: Silberschatz, Korth & Sudarshan, McGrawHill. 6) Simplified Approach to DBMS: Parteek Bhaia, Kalyani Publishers.

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KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2020 – 2021 onwards)
B.A./B.COM/BBA/B.SC ENGLISH II YEAR
SEMESTER – III

PAPER – III: ENGLISH

Theory: 3 Hours/Week; Credits: 3 Marks: 100 (Internal: 20; External: 80)

Prescribed Textbook entitled: English for Excellence
Published by Orient BlackSwan

UNIT I: GENDER EQUALITY

1. “Achieving Gender Equality in India: What Works, and What Doesn’t” by Smriti Sharma
2. “They Shut me up in Prose” by Emily Dickinson
3. Prepositions
4. Phrasal Verbs

UNIT II: GENDER ROLES

1. “The Wonder Story of Kalpana Saroj” by Rakhi Chakraborty
2. “The Kitchen” by Vimala
3. Voice
4. Technical Vocabulary

UNIT III: ENDING VIOLENCE AGAINST WOMEN

1. “What is my Name?” by P.Sathyavathi
2. “Voice of the Unwanted Girl” by Sujatha Bhatt
3. Connectives
4. Idioms

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2020 – 2021 onwards)
B.Sc. BOTANY II Year
SEMESTER – III

PLANT ANATOMY AND EMBRYOLOGY

Theory:	4 Hours/Week;	Credits: 4	Marks: 100 (Internal: 20; External: 80)
Practical:	3 Hours/Week	Credits: 1	Marks: 25

UNIT – I

Meristems: Types, histological organization of shoot and root apices and theories.

1. Tissues and Tissue Systems: Simple, complex and special tissues.
2. Leaf: Ontogeny, diversity of internal structure; stomata and epidermal outgrowths.

UNIT –II

4. Stem and root anatomy: Vascular cambium - Formation and function.
5. Anomalous secondary growth of Stem -*Achyranthes*, *Boerhaavia*, *Bignonia*, *Dracaena*; Root— *Beta vulgaris*.
6. Wood structure: General account. Study of local timbers — Teak (*Tectona grandis*), Rosewood, (*Dalbergia latefolia*), Red sanders, (*Pterocarpus santalinus*) Nallamaddi (*Terminalia tomentosa*) and Neem (*Azadirachta indica*).

UNIT-III

7. History and importance of Embryology.
8. Another structure, Microsporogenesis and development of male gametophyte.
9. Ovule structure and types; Megasporogenesis; types and development of female gametophyte.

UNIT- IV

10. Pollen morphology, pollination and fertilization, Pollination Types, Pollen - pistil interaction, Double fertilization.
11. Seed - structure appendages and dispersal mechanisms.
12. Endosperm - Development and types. Embryo - development and types; Polyembryony and Apomixis -- an outline.

References:

1. Bhattacharya et. al. 2007. A textbook of Palynology, Central, New Delhi.
2. Bhojwani, S. S. and S. P. Bhatnagar. 2000. The Embryology of Angiosperms (4th Ed.), Vikas Publishing House, Delhi.
3. M.R.Saxena- A textbook of Palynology.
4. Vashista- A textbook of Anatomy.
5. P.K.K.Nair- A textbook of Palynology.
6. Esau, K. 1971. Anatomy of Seed Plants. John Wiley and Son, USA.
7. Johri, B. M. 1984. Embryology of Angiosperms. Springer-Verlag, Berlin.
8. Kapil, R. P. 1986. Pollination Biology. Inter India Publishers, New Delhi.
9. Maheswari, P. 1971. An Introduction to Embryology of Angiosperms. McGraw Hill Book Co., London.
10. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press

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B.Sc. BOTANY II Year
SEMESTER – III

PLANT ANATOMY AND EMBRYOLOGY
PRACTICAL

1. Demonstration of double stain technique.
2. Preparation of double stained Permanent slides
Primary structure: Root - *Cicer*, *Canna*; Stem — *Tridax*, *Sorghum*
Secondary structure: Root — *Tridax* sp.; Stem — *Pongarnia*
Anomalous secondary structure:
Stem: *Achyranthes*, *Boerhavia*, *Bignonia*, *Dracaena*
Root: *Beta vulgaris*
3. Stomatal types using epidermal peels (Dicots).
4. Structure of anther and microsporogenesis using permanent slides.
5. Structure of pollen grains using whole mounts - *Hibiscus*, *Acacia* and Grass).
6. Pollen viability test using Evans Blue — *Hibiscus*
7. Study of ovule types and developmental stages of embryo sac.
8. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot embryos using permanent slides.
9. Isolation and mounting of embryo (using *Cymopsis* / *Senna* / *Crotalaria*)

B.Sc. Geology- II Year
Semester – III
Paper – III - Petrology
(DSC-3)

(4 hrs/week)

Credits-4 (60 hours)

Unit-I:

Nature and scope of petrology – Definition of rock, classification of rocks into igneous, sedimentary and metamorphic. distinguishing features of three types of rocks.

Igneous Rocks - Classification into plutonic, hypabyssal and volcanic rocks; extrusive and intrusive igneous forms – lava flows, intrusions, sills, laccolith, bysmalith, lopolith, dykes, ring dykes, cone sheets, volcanic necks, phacoliths and batholiths; structures – vesicular, amygdaloidal, blocky lava, ropy lava, pillow, flow, jointing and sheet structures. columnar and prismatic structures. textures - definition of texture, micro-structure, devitrification – allotrimorphic, hypidiomorphic, panidiomorphic, porphyritic, poikilitic, ophitic, intergranular, intersertal trachytic graphic and micrographic textures; reaction structures – corona, myrmekitic, orbicular, spherulitic, pelitic.

Unit-II:

Classification of igneous rocks based on – mineralogical, chemical, geological occurrence and texture; cipw and tyrell tabular classification.

Descriptive Study of following rock types- Granite, granodiorite, syenite, nepheline syenite, diorite porphyry, pegmatite, aplite, gabbro, anorthosite, peridotite, pyroxenite, dUnite, dolerite, rhyolite, obsidian, trachyte, andesite and basalt.

Composition and constitution of magma – crystallization of magma, uni-component, bi-component, eutectic and solid solutions; origin of igneous rocks – Bowen's reaction principle, differentiation and assimilation.

Unit-III:

Sedimentary Rocks: Sources of sediments – mechanical and chemical weathering, modes of transportation, stratification. sedimentary structures, types of bedding, surface marks, deformed bedding solution structures.

Classification of Sedimentary Rocks: Clastic – rudaceous, arenaceous, argillaceous and non-clastic - calcareous, carbonaceous, ferruginous, phosphatic, evaporites. descriptive study of the following sedimentary rocks – conglomerate, breccia, sandstone, grit, arkose, greywacke, shale, limestone, shelly limestone.

Unit-IV:

Metamorphic Rocks: definition of metamorphism, agents of metamorphism, types of metamorphism, grades and zones of metamorphism. structures of metamorphic rocks – cataclastic, maculose, schistose, granulose and gneissose. textures of metamorphic rocks - crystalloblastic, palimpsest, xenoblastic, idioblastic. concept of metamorphic facies, definition of anatexis and palingenesis. descriptive study of the following metamorphic rocks. gneiss, schist, slate, phyllite, quartzite, marble, eclogite, amphibolites, migmatite, charanockite and khondalite.

B.Sc. Geology- II Year
Semester – III
Paper – III - Petrology Practicals
(DSC-3)

(3 hrs/week)

45 hours (credits-1)

1. Megascopic identification of igneous rocks - granite, syenite, diorite, gabbro, dolerite, rhyolite, basalt, pegmatite.
2. Megascopic identification of sedimentary rocks - conglomerate, breccia, sandstone, grit, arkose, greywacke, shale, limestone, shelly limestone,
3. Megascopic identification of metamorphic rocks - gneiss, schist, quartzite, marble, charnockite and khondalite.
4. Microscopic identification of igneous rocks - granite, syenite, diorite, gabbro, dolerite, rhyolite, basalt, pegmatite,
5. Microscopic identification of sedimentary rocks - sandstone, limestone, grit, shale,
6. Microscopic identification of metamorphic rocks - schist, gneiss, quartzite, marble, charnockite and khondalite.

Text book:

1. The Principles of Petrology, G.W. Tyrrell.

Reference books:

1. Petrology - W.T.Huang.
2. Petrology for students - S.R.Nockolds Knox, Chinnar.
3. A Text book of Sedimentary Petrology – Verma & Prasad.
4. Metamorphic Petrology – Turner Verhoogen.

Practical Model Paper

FACULTY OF SCIENCE
B.Sc. (CBCS) - II Year Practical Examination
GEOLOGY
Semester-III : Paper III
(Petrology)
(DSC-3)

Time: 2 Hours

Credits : 1
Max.Marks:25

- 1) Identify the given megascopic rock samples 1-8 and write their mineralogy, texture, structure, mode of occurrence and origin. (8x2=16 M)
- 2) Identify the given thin sections 9-10 of rocks under the microscope and write their essential and accessory minerals and add a note on petrogenesis. (2x2=4 M)
- 3) Record & Viva (5M)


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KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2020–2021 onwards)
B.Sc. MICROBIOLOGY II Year
SEMESTER – III

MEDICAL MICROBIOLOGY & BASICS OF IMMUNOLOGY
(PAPER – III: Discipline Specific Course)

Theory: 4 Hours/Week; Credits: 4 Marks: 100 (Internal: 20; External: 80)
Practical: 3 Hours/Week Credits: 1 Marks: 25

UNIT – I: MEDICAL BACTERIOLOGY

1. History of Medical Microbiology. Normal flora of human body.
2. Host pathogen interactions. Bacterial toxins, virulence and attenuation. Antimicrobial resistance. Air-borne diseases –Tuberculosis. Food and water-borne diseases - Cholera, Typhoid.
3. Contact diseases - Syphilis, Gonorrhoea. General account of nosocomial infections.

UNIT – II: MEDICAL VIROLOGY AND PARASITOLOGY

1. Air borne diseases – Influenza. Food and water-borne diseases – Poliomyelitis, Amoebiasis.
2. Insect-borne diseases - Malaria, Dengue fever. Zoonotic diseases – Rabies
3. Viral diseases - Hepatitis B, HIV, SARS, MERS;

UNIT-III: INTRODUCTION OF IMMUNOLOGY

1. History of Immunology, Cells and Organs of the immune system – Primary and Secondary lymphoid organs. Function of B and T lymphocytes. Natural Killer cells, Polymorphonuclear cells.
2. Structure and Classification of Antigens, Factors affecting antigenicity. Antibodies: Basic structure, Types of properties and functions of immunoglobulins
3. Types of Immunity: Innate and Acquired Immunity, Humoral and cell-mediated immune response.

UNIT-IV: IMMUNOLOGICAL DISORDERS AND AG-AB REACTIONS

1. Types of hyper sensitivity reactions – Immediate and delayed. Systemic and Localized autoimmune disorders. Complement pathways - Classical and Alternative pathways.
2. Types of antigen-antibody reactions – Agglutinations, Precipitation, Neutralization, Blood groups.
3. Complement fixation Test. Labeled antibody based techniques – ELISA, RIA and immunofluorescence; Polyclonal and Monoclonal antibodies production and application.

References:

1. Ananthanarayan R. and Paniker C.K.J. (2009) Textbook of Microbiology. 8th edition, University Press Publication
2. Brooks G.F., Carroll K.C., Butel J.S., Morse S.A. and Mietzner, T.A. (2013) Jawetz, Melnick and Adelberg's Medical Microbiology. 26th edition. McGraw Hill Publication
3. Goering R., Dockrell H., Zuckerman M. and Wakelin D. (2007) Mims' Medical Microbiology. 4th edition. Elsevier
4. Willey JM, Sherwood LM, and Woolverton CJ. (2013) Prescott, Harley and Klein's Microbiology. 9th edition. McGraw Hill Higher Education
5. Madigan MT, Martinko JM, Dunlap PV and Clark DP. (2014). Brock Biology of Microorganisms. 14th edition. Pearson International Edition.

6. Abbas AK, Lichtman AH, Pillai S. (2007). Cellular and Molecular Immunology. 6th edition Saunders Publication, Philadelphia.
7. Delves P, Martin S, Burton D, Roitt IM. (2006). Roitt's Essential Immunology. 11th edition Wiley-Blackwell Scientific Publication, Oxford.
8. Goldsby RA, Kindt TJ, Osborne BA. (2007). Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.
9. Murphy K, Travers P, Walport M. (2008). Janeway's Immunobiology. 7th edition Garland Science Publishers, New York.
10. Peakman M, and Vergani D. (2009). Basic and Clinical Immunology. 2nd edition Churchill Livingstone Publishers, Edinburgh

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2020 – 2021 onwards)
B.Sc. MICROBIOLOGY II Year
SEMESTER – III

MEDICAL MICROBIOLOGY & BASICS OF IMMUNOLOGY PRACTICAL
(PAPER – III: Discipline Specific Course)

Practical: 3 Hours/Week Credits: 1 Marks: 25

1. Enumeration of RBC and WBC
2. Estimation of blood haemoglobin.
3. Determination of blood groups and Rh typing.
4. Isolation and identification of medically important bacteria by cultural, microscopic and biochemical tests.
5. Antibiotic sensitivity testing – disc diffusion method.
6. Parasites – Malarial parasite, *Entamoeba* (study of permanent slides).
7. Tests for disinfectant (Phenol coefficient).
8. Typing of human blood groups-slide agglutination
9. Estimation of hemoglobin content of human blood
10. Preparation of blood smear and different blood cell count
11. RBC count
12. WBC count
13. Differential staining of WBC by Leishman's stain
14. Widal-slide agglutination test
15. RPR card test for syphilis
16. Tridot test
17. Tube flocculation test

PAPER – III: ELECTROMAGNETIC THEORY

Theory:	4 Hours/Week;	Credits: 4	Marks: 100 (Internal: 20; External: 80)
Practical:	3 Hours/Week	Credits: 1	Marks: 25

UNIT I

Electrostatics

Electric Field:- Concept of electric field lines and electric flux, Gauss's law (Integral and differential forms), application to linear, plane and spherical charge distributions, Conservative nature of electric field 'E', Irrotational field. Electric potential: Concept of electric potential, relation between electric potential and electric field, potential energy of a system of charges, Energy density in an electric field, Calculation of potential from electric field for a spherical charge distribution.

UNIT II

Magnetostatics

Concept of magnetic field 'B' and magnetic flux, Biot-Savart's law, 'B' due to a straight current carrying conductor, Force on a point charge in a magnetic field, Properties of B, curl and divergence of B, solenoidal field, Integral form of Ampere's law, Applications of Ampere's law: field due to straight, circular and solenoidal currents. Energy stored in magnetic field. Magnetic energy in terms of current and inductance, Magnetic force between two current carrying conductors, Magnetic field intensity, Ballistic Galvanometer: Torque on a current loop in a uniform magnetic field, working principle of B.G., current and charge sensitivity, electromagnetic damping, critical damping resistance.

UNIT III:

Electromagnetic Induction and Electromagnetic waves

Faraday's laws of induction (differential and integral form), Lenz's law, self and mutual Induction, Continuity equation, modification of Ampere's law, displacement current, Maxwell equations, Maxwell's equations in vacuum and dielectric medium, boundary conditions, plane wave equation: transverse nature of EM waves, velocity of light in vacuum and in medium, Poynting's theorem.

UNIT IV:

Varying and alternating currents

Growth and decay of currents in LR, CR and LCR circuits - Critical damping, Alternating current, relation between current and voltage in pure R, C and L-vector diagrams - Power in ac circuits. LCR series and parallel resonant circuit-Q-factor, AC & DC motors-single phase, three phase (basics only).

Network Theorems

Passive elements, Power sources, Active elements, Network models: T and π Transformations, Superposition theorem, Thevenin's theorem, Norton's theorem. Reciprocity theorem and Maximum power transfer theorem (Simple problems).

Suggested Books:

1. Fundamentals of electricity and magnetism By Arthur F. Kip (McGraw-Hill, 1968)
2. Electricity and magnetism by J. H. Fewkes & John Yarwood. Vol. I (Oxford Univ. Press, 1991).
3. Introduction to Electrodynamics, 3rd edition, by David J. Griffiths, (Benjamin Cummings, 1998).
4. Electricity and magnetism By Edward M. Purcell (McGraw-Hill Education, 1986)
5. Electricity and magnetism. By D C Tayal (Himalaya Publishing House, 1988)
6. Electromagnetics by Joseph A. Edminister 2nd ed. (New Delhi: Tata McGraw Hill, 2006).





**PAPER – III: ELECTROMAGNETIC THEORY
PRACTICALS**

1. To verify the Thevenin's Theorem
2. To verify Norton Theorem
3. To verify Superposition Theorem
4. To verify maximum power transfer theorem.
5. To determine a small resistance by Carey Foster's bridge.
6. To determine the (a) current sensitivity, (b) charge sensitivity, and (c) CDR of a B.G.
7. To determine high resistance by leakage method.
8. To determine the ratio of two capacitances by De Sauty's bridge.
9. To determine self-inductance of a coil by Anderson's bridge using AC.
10. To determine self-inductance of a coil by Rayleigh's method.
11. To determine coefficient of Mutual inductance by absolute method.

Note: Minimum of eight experiments should be performed.

Maximum of 15 students per batch and maximum of three students per experiment should be allotted in the regular practical class of three hours per week.

Suggested Books:

1. B. L. Worsnop and H. T. Flint Advanced Practical Physics, Asia Publishing House, New Delhi.
2. Indu Prakash and Ramakrishna, A Text Book of Practical Physics, Kitab Mahal





KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS 2019 - 2022)
B.Sc. ZOOLOGY II Year
SEMESTER – III

ANIMAL PHYSIOLOGY AND ANIMAL BEHAVIOUR

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

UNIT – I

1.1 Digestion

- 1.1.1 **Enzymes:** Definition, Classification, Inhibition, Regulation
- 1.1.2 Digestion of Carbohydrates, Proteins, Lipids and Cellulose
- 1.1.3 Absorption and Assimilation of digested food
- 1.1.4 Role of Gastrointestinal hormones in digestion

1.2 Excretion, Homeostasis and Osmoregulation

- 1.2.1 Classification of Animals on the basis of excretory products: Ammonotelic, Ureotelic, and Uricotelic; Structure and function of Nephron
- 1.2.2 Urine formation and Counter current mechanism
- 1.2.3 Concept and Mechanism of Homeostasis
 - a) Hormone regulation of Blood Glucose levels in Human being
 - b) Water and Ionic Regulation by Marine and Fresh water Animals
 - c) Thermo regulation in Human being
- 1.2.4 Osmoregulation in Marine, Fresh and Brackish water Animals

UNIT – II

2.1 Respiration

- 2.1.1 Definition of Respiration, Respiration mechanism, External, Internal and Cellular Respiration.
- 2.1.2 Respiratory Pigments; Transport of Oxygen, Oxygen dissociation curves, and Bohr's Effect;
- 2.1.3 Transport of Carbon dioxide, Chloride shift
- 2.1.4 Regulation of Respiration; Nervous and Chemical Mechanism

2.2 Circulation

- 2.2.1 Types of Circulation Open and Closed; Structure of Mammalian Heart
- 2.2.2 Types of Hearts: Myogenic and Neurogenic
- 2.2.3 Heart functions - Conduction and Regulation of Heart beat, Regulation of Heart rate; ECG
- 2.2.4 Tachycardia and Bradycardia; Blood Clotting mechanism

UNIT – III

3.1 Muscle Contraction

- 3.1.1 Types of Muscles
- 3.1.2 Ultra structure of skeletal muscle fibre
- 3.1.3 Mechanism and Chemical changes during Muscle Contraction (Sliding filament theory)
- 3.1.4 Twitch Tetanus summation and Treppe fatigue

3.2 Nerve Impulse

3.2.1 Structure of Neuron

3.2.2 Nerve impulse - Resting potential, Threshold potential and Action potential, Conduction of Nerve impulse

3.2.3 Transmission of Nerve impulse

3.2.4 Synapse and Synaptic transmission; Neurotransmitters-EPSP, IPSP

3.3 Endocrine System

3.3.1 Endocrine glands - Structure, secretions and functions of Pituitary gland

3.3.2 Thyroid, Parathyroid, Adrenal glands and Pancreas

3.3.3 Hormone action and Concept of Secondary messengers

3.3.4 Male and Female Hormones; Hormonal control of Menstrual cycle in human beings

UNIT – IV

4.1 Animal Behaviour

4.1.1 Types of Behaviour- Innate and Acquired; Instinctive and Motivated behaviour

4.1.2 Taxes, Reflexes, Tropisms

4.2 Learning and Memory

4.2.1 **Types of Learning:** Trial and Error Learning, Imprinting, Habituation

4.2.2 **Conditioning:** Classical Conditioning; Instrumental conditioning, Examples of Conditioning, Pavlov's Experiment

4.3 Social Behaviour and Communication

4.3.1 Social behaviour of insects (Dance language of honey bees) Colonial Existence of Bees and Termites; Pheromones

4.4 Biological Rhythms

4.4.1 Biological Clocks, Circadian Rhythms; solar and lunar Rhythms; Circannual Rhythms

Suggested Readings:

1. **Gerard J. Tortora and Sandra Reynolds Garbowski** *Principles of Anatomy and Physiology*, Tenth Ed., John Wiley & Sons
2. **Arthur C. Guyton MD**, *A Text Book of Medical Physiology*, Eleventh ed., John E. Hall, Harcourt Asia Ltd.
3. **William F. Ganong**, *A Review of Medical Physiology*, 22 ed, McGraw Hill, 2005
4. **Sherwood, Klandrof, Yanc**, *Animal Physiology*, Thompson Brooks/Coole, 2005.
5. **Sherwood, Klandrof, Yanc**, *Human Physiology*, Thompson Brooks/Coole, 2005.
6. **Knut Schmidt-Nielson**, *Animal Physiology*, 5th edition, Cambridge Low Price Edition.
7. **Roger Eckert and Randal**, *Animal Physiology*, 4th ed, Freeman Co, New York.
8. **Singh. H.R**, *Text Book of Animal Physiology and Biochemistry*
9. **Nagabhushanam**, *Comparative Animal Physiology*
10. **Veer Bal Rastogi**, *Text Book of Animal Physiology*
11. **Dasmann**, "Wild Life Biology"
12. **Reena Mathur**, "Animal Behaviour"
13. **Alocock**, "Animal Behaviour- an Evolutionary Approach"

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS 2019 - 2022)
B.Sc. ZOOLOGY II Year
SEMESTER – III

ANIMAL PHYSIOLOGY AND ANIMAL BEHAVIOUR
(PRACTICAL)

Instruction: 3 hrs per week

No. of Credits: 1

1. Qualitative tests for identification of carbohydrates, proteins and fats
2. Qualitative tests for identification of ammonia, urea and uric acid
(Nitrogenous excretory products)
3. Zonation of gut in Cockroaches
4. Study on effect of pH and Temperature on salivary amylase activity
5. Study of permanent histological sections of mammalian endocrinal glands: Pituitary, Thyroid, Pancreas, Adrenal gland
6. Estimation of Haemoglobin by Sahli's method
7. Estimation of Blood Clotting time
8. Estimation of total protein by Biuret's method
9. Estimation of unit metabolism of fish

- **Laboratory Record work shall be submitted at the time of practical examination**
- **Computer aided techniques should be adopted as per UGC guide lines.**

Suggested manuals:

Tortora, G.J. and Derrickson, B.H. (2009).*Principles of Anatomy and Physiology*, XII Edition, John Wiley & Sons, Inc.

Widmaier, E.P., Raff, H. and Strang, K.T. (2008) *Vander's Human Physiology*, XI Edition., McGraw Hill

Guyton, A.C. and Hall, J.E. (2011). *Textbook of Medical Physiology*, XII Edition, Harcourt Asia Pvt. Ltd/ W.B. Saunders Company

Berg, J. M., Tymoczko, J. L. and Stryer, L. (2006).*Biochemistry*.VI Edition. W.H Freeman and Co.

Nelson, D. L., Cox, M. M. and Lehninger, A.L. (2009).*Principles of Biochemistry*. IV Edition. W.H. Freeman and Co.

Murray, R.K., Granner, D.K., Mayes, P.A. and Rodwell, V.W. (2009).

Harper's Illustrated Biochemistry. XXVIII Edition. Lange Medical Books/Mc Graw3Hill.

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS AY: 2020-2021 on words)
B.Sc. STATISTICS
II Year: Semester-III

DSC-3/Paper-3: STATISTICAL METHODS AND THEORY OF ESTIMATION

[4 HPW:: 4 Credits :: 100 Marks (External:80, Internal:20)]

Unit-I

Bi-variate data, Scattered diagram, Principle of least squares, fitting of straight line, quadratic and power curves. Concept of correlation, computation of Karl-Pearson correlation coefficient for grouped and ungrouped data and its properties, Correlation ratio, Spearman's rank correlation coefficient and its properties. Simple linear regression, correlation versus regression, properties of regression coefficients, their relation with correlation coefficient.

Unit-II

Concepts of partial and multiple correlation coefficients (only for three variables), Analysis of categorical data, their independence, Association and partial association of attributes, various measures of association, Yule's for two way data, coefficient of contingency (Pearson and Tcherprow), coefficient of colligation.

Unit-III

Concepts of Population, Parameter, Random sample, Statistic, Sampling distribution and Standard error, Standard error of sample means and that of sample proportions, Exact sampling distributions: Statement and properties of χ^2 , t and F distributions and their inter-relationships. Independence of sample mean and variance in random sampling from normal distribution. Point estimation of a parameter, concept of bias and mean square error of an estimate. Criteria of a good estimator: consistency, unbiasedness, efficiency and sufficiency with examples.

Unit – IV

Statement of Neyman's Factorization theorem, derivations of sufficient statistics in case of Binomial, Poisson, Normal and Exponential (one parameter only) distributions, Estimation by the method of moments(MOM), Maximum likelihood estimation (MLE), Asymptotic properties of MLE (Statements without proofs), Concept of interval estimation, Confidence intervals of the parameters of normal population by Pivot method.

References:

1. Goon AM, Gupta MK, Das Gupta B : Outlines of Statistics , Vol-II,
The World Press Pvt. Ltd., Kolkata.
2. V. K. Kapoor and S. C. Gupta: Fundamentals of Mathematical Statistics,
Sultan Chand & Sons, New Delhi.
3. Hogg and Craig : Introduction to Mathematical statistics. Prentice Hall
4. Parimal Mukhopadhyay : Mathematical Statistics, New Central Book agency.
5. V. K. Rohatgi and A. K. Md. Ehsanes Saleh : An introduction to probability and statistics,
Wiley series.

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS AY: 2020-2021 on words)
B.Sc. STATISTICS
II Year: Semester-III

Practical-3: STATISTICAL METHODS AND THEORY OF ESTIMATION

(3 HPW, Credits 1 and Marks 25)

Part-A (Using Calculator)

1. Generation of random samples from Uniform (0,1), Uniform (a,b), Normal and Poisson and Exponential Distributions.
2. Fitting of straight line and parabola by the method of least squares.
3. Fitting of power curves of the type $y = a x^b$, $y = a b^x$ and $y = a e^{bx}$ by the method of least squares.
4. Computation of Yule's coefficient of association and Pearson's, Tcherprows coefficient of contingency.
5. Computation of correlation coefficient and regression lines for ungrouped data.
6. Computation of correlation coefficient, forming regression lines for ungrouped data.
7. Computation of correlation coefficient, forming regression lines for grouped data.
8. Computation of multiple and partial correlation coefficients.
9. Computation of correlation ratio

Part-B (Using MS-Excel)

10. Simulation of random samples from Uniform (0,1), Uniform (a,b), Exponential, Normal and Poisson distributions using MS Excel.
11. Fitting of straight line and parabola by the method of least squares using MS Excel.
12. Fitting of power curves of the type $y = a x^b$, $y = a b^x$ and $y = a e^{bx}$ by the method of least squares using MS Excel.
13. Computation of correlation coefficient, forming regression lines using MS Excel.
14. Computation of multiple and partial correlation coefficients using MS Excel.

Question Papers Pattern

(A) Final Examination:

KAKATIYA UNIVERSITY
B.Sc. (STATISTICS)
Theory Question Paper Pattern
Academic Years: 2019-2022

Time: 3 hours]

[Max. Marks: 80

Section - A

Answer ALL questions. All questions carry equal marks. (4Qx12m=48)

Q1. (a)

[OR] From Unit-I

Q1. (b)

Q2. (a)

[OR] From Unit-II

Q2. (b)

Q3. (a)

[OR] From Unit-III

Q3. (b)

Q4. (a)

[OR] From Unit-IV

Q4. (b)

Section - B

Answer any EIGHT questions. All questions carry equal marks. (8Qx4m=32)

Q5 }
Q6 }
Q7 }

From Unit-I

Q8 }
Q9 }
Q10 }

From Unit-II

Q11 }
Q12 }
Q13 }

From Unit-III

Q14 }
Q15 }
Q16 }

From Unit-IV

KAKATIYA UNIVERSITY
B.Sc. (STATISTICS)
Practical Question Paper Pattern
Academic Years: 2019-2022

Time: 2 hours]

[Max. Marks: 25

[Practical:15, Record:5, Viva:5]

Note: Solve any THREE problems choosing at least one from each Section

Section-A (Solve Using Calculator)

Problem. 1 }
Problem. 2 } From Part-I of Question Bank
Problem. 3 }

Section - B (Solve Using Computer Programs)

Problem. 4 }
Problem. 5 } From Part-2 of Question Bank

(B) Internal Examinations:

- 1 Two Internal exams are to be conducted and best of two internal marks is considered.
- 2 First internal exam is to be conducted after completion of Unit-I & II.
- 3 Second internal exam is to be conducted after completion of Unit-III & IV.
- 4 Internal Examination duration: 1 hr 30 min.
- 5 Internal Theory QP consists of 20 marks.
- 6 10 Short questions are to be given (5Q from each of 2 Completed units).
- 7 All TEN questions are to be answered (10QX2m=20m).

Prof A Rajendra Prasad
Chairperson, BOS in Statistics, KU

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS AY: 2020-2021 on words)
B.Sc. STATISTICS
II Year: Semester-III

DSC-3/Paper-3: STATISTICAL METHODS AND THEORY OF ESTIMATION

[4 HPW:: 4 Credits :: 100 Marks (External:80, Internal:20)]

Unit-I

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Unit-II

Concepts of partial and multiple correlation coefficients (only for three variables), Analysis of categorical data, their independence, Association and partial association of attributes, various measures of association, Yule's for two way data, coefficient of contingency (Pearson and Tcherprow), coefficient of colligation.

Unit-III

Concepts of Population, Parameter, Random sample, Statistic, Sampling distribution and Standard error, Standard error of sample means and that of sample proportions, Exact sampling distributions: Statement and properties of χ^2 , t and F distributions and their inter-relationships. Independence of sample mean and variance in random sampling from normal distribution. Point estimation of a parameter, concept of bias and mean square error of an estimate. Criteria of a good estimator: consistency, unbiasedness, efficiency and sufficiency with examples.

Unit – IV

Statement of Neyman's Factorization theorem, derivations of sufficient statistics in case of Binomial, Poisson, Normal and Exponential (one parameter only) distributions, Estimation by the method of moments(MOM), Maximum likelihood estimation (MLE), Asymptotic properties of MLE (Statements without proofs), Concept of interval estimation, Confidence intervals of the parameters of normal population by Pivot method.

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1. Goon AM, Gupta MK, Das Gupta B : Outlines of Statistics , Vol-II,
The World Press Pvt. Ltd., Kolkata.
2. V. K. Kapoor and S. C. Gupta: Fundamentals of Mathematical Statistics,
Sultan Chand & Sons, New Delhi.
3. Hogg and Craig : Introduction to Mathematical statistics. Prentice Hall
4. Parimal Mukhopadhyay : Mathematical Statistics, New Central Book agency.
5. V. K. Rohatgi and A. K. Md. Ehsanes Saleh : An introduction to probability and statistics,
Wiley series.

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS AY: 2020-2021 on words)
B.Sc. STATISTICS
II Year: Semester-III

Practical-3: STATISTICAL METHODS AND THEORY OF ESTIMATION

(3 HPW, Credits 1 and Marks 25)

Part-A (Using Calculator)

1. Generation of random samples from Uniform (0,1), Uniform (a,b), Normal and Poisson and Exponential Distributions.
2. Fitting of straight line and parabola by the method of least squares.
3. Fitting of power curves of the type $y = a x^b$, $y = a b^x$ and $y = a e^{bx}$ by the method of least squares.
4. Computation of Yule's coefficient of association and Pearson's, Tcherprows coefficient of contingency.
5. Computation of correlation coefficient and regression lines for ungrouped data.
6. Computation of correlation coefficient, forming regression lines for ungrouped data.
7. Computation of correlation coefficient, forming regression lines for grouped data.
8. Computation of multiple and partial correlation coefficients.
9. Computation of correlation ratio

Part-B (Using MS-Excel)

10. Simulation of random samples from Uniform (0,1), Uniform (a,b), Exponential, Normal and Poisson distributions using MS Excel.
11. Fitting of straight line and parabola by the method of least squares using MS Excel.
12. Fitting of power curves of the type $y = a x^b$, $y = a b^x$ and $y = a e^{bx}$ by the method of least squares using MS Excel.
13. Computation of correlation coefficient, forming regression lines using MS Excel.
14. Computation of multiple and partial correlation coefficients using MS Excel.

Question Papers Pattern

(A) Final Examination:

KAKATIYA UNIVERSITY
B.Sc. (STATISTICS)
Theory Question Paper Pattern
Academic Years: 2019-2022

Time: 3 hours]

[Max. Marks: 80

Section - A

Answer ALL questions. All questions carry equal marks. (4Qx12m=48)

Q1. (a)

[OR] From Unit-I

Q1. (b)

Q2. (a)

[OR] From Unit-II

Q2. (b)

Q3. (a)

[OR] From Unit-III

Q3. (b)

Q4. (a)

[OR] From Unit-IV

Q4. (b)

Section - B

Answer any EIGHT questions. All questions carry equal marks. (8Qx4m=32)

Q5 }
Q6 }
Q7 }

From Unit-I

Q8 }
Q9 }
Q10 }

From Unit-II

Q11 }
Q12 }
Q13 }

From Unit-III

Q14 }
Q15 }
Q16 }

From Unit-IV

KAKATIYA UNIVERSITY
B.Sc. (STATISTICS)
Practical Question Paper Pattern
Academic Years: 2019-2022

Time: 2 hours]

[Max. Marks: 25

[Practical:15, Record:5, Viva:5]

Note: Solve any THREE problems choosing at least one from each Section

Section-A (Solve Using Calculator)

Problem. 1 }
Problem. 2 } From Part-I of Question Bank
Problem. 3 }

Section - B (Solve Using Computer Programs)

Problem. 4 }
Problem. 5 } From Part-2 of Question Bank

(B) Internal Examinations:

- 1 Two Internal exams are to be conducted and best of two internal marks is considered.
- 2 First internal exam is to be conducted after completion of Unit-I & II.
- 3 Second internal exam is to be conducted after completion of Unit-III & IV.
- 4 Internal Examination duration: 1 hr 30 min.
- 5 Internal Theory QP consists of 20 marks.
- 6 10 Short questions are to be given (5Q from each of 2 Completed units).
- 7 All TEN questions are to be answered (10QX2m=20m).

Prof A Rajendra Prasad
Chairperson, BOS in Statistics, KU

Biotechnology
B.Sc- II Year, Semester – III
Core Course DSC-3

MOLECULAR BIOLOGY AND r-DNA TECHNOLOGY

UNIT-I

- 1.1. Transcription in prokaryotes: Enzymatic Synthesis of RNA, Basic features of RNA synthesis, E.coli RNA polymerase, Classes of RNA molecules.
- 1.2. Transcription mechanism in prokaryotes – Promoter, initiation, elongation, proof reading and Rho dependent and Rho independent termination.
- 1.3. Transcription in Eukaryotes : Polymerases of eukaryotes, Promoters of eukaryotes.
- 1.4. Synthesis of hn RNA and post transcriptional modifications
- 1.5. The Genetic Code, properties of genetic code, Wobble hypothesis.
- 1.6. Translation mechanism in prokaryotes and eukaryotes.

UNIT-II

- 2.1. Regulation in Prokaryotes: General aspects of Regulation.
- 2.2. Transcription level regulation – positive, negative regulation.
- 2.3. Auto and co-ordinated regulation.
- 2.4. Operon concept – lac, trp, operons.
- 2.5. Translation regulation in Eukaryotic and prokaryotic organism.
- 2.6. Inhibitors of Protein synthesis – antibiotics and other inhibitors.


UNIT-III


- 3.1. Enzymes used in gene cloning: Restriction Endonucleases, Ligases, Phosphatases, Methylases, Kinases.
- 3.2. Cloning vehicles, plasmids, cosmids, phage vectors.
- 3.3. Construction of genomic and cDNA libraries.
- 3.4. Identification of cloned genes – Colony hybridisation.
- 3.5. Expression vectors: Bacterial vectors.
- 3.6. Yeast vectors.

UNIT-IV

- 4.1. Principle, Methodology and application of PCR technology.
- 4.2. Variations of PCR.
- 4.3. DNA fingerprinting technique and its application in forensic medicine.
- 4.4. Principles involved in blotting techniques - Southern, Northern and Western.
- 4.5. Genome sequencing: Sanger model of sequencing.
- 4.6. Applications of r-DNA technology in medicine.




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Board of Studies in Biotechnology
Kakatiya University
Warangal - 506 009 (A.P.) INDIA



KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2019–2022)
B.Sc. CHEMISTRY II Year
SEMESTER – III

Paper-III
Chemistry - III

Unit-I (Inorganic Chemistry)

15 h (1 hr/week)

S3-I-1: Chemistry of f-block elements:

5 h

Chemistry of Lanthanides: Position in periodic table, Electronic structure, oxidation state, ionic and atomic radii- lanthanide contraction- cause and consequences, anomalous behavior of post lanthanides-complexation- type of donor ligands preferred. Magnetic properties- paramagnetism. Colour and spectra, f-f transitions –occurrence and separation– ion exchange method, solvent extraction.

Chemistry of actinides- general features – electronic configuration, oxidation state, actinide contraction, colour and complex formation. Comparison with lanthanides.

S3-I-2: Coordination Compounds-I

6 h

Simple inorganic molecules and coordination complexes. Nomenclature – IUPAC rules, 1. Coordination number, coordination geometries of metal ions, types of ligands. 2. Brief review of Werner's theory, Sidgwick's electronic interpretation and EAN rule and their limitations. (Valence bond theory (VBT) – postulates and application to (a) tetrahedral complexes $[\text{Ni}(\text{NH}_3)_4]^{2+}$, $[\text{NiCl}_4]^{2-}$ and $[\text{Ni}(\text{CO})_4]$ (b) Square planar complexes $[\text{Ni}(\text{CN})_4]^{2-}$, $[\text{Cu}(\text{NH}_3)_4]^{2+}$, $[\text{PtCl}_4]^{2-}$ (c) Octahedral complexes $[\text{Fe}(\text{CN})_6]^{4-}$, $[\text{Fe}(\text{CN})_6]^{3-}$, $[\text{FeF}_6]^{4-}$, $[\text{Co}(\text{NH}_3)_6]^{3+}$, $[\text{CoF}_6]^{3-}$. Limitations of VBT. 3. Isomerism in coordination compounds, stereo isomerism – (a) geometrical isomerism in (i) square planar meta l complexes of the type $[\text{MA}_2\text{B}_2]$, $[\text{MA}_2\text{BC}]$, $[\text{M}(\text{AB})_2]$, $[\text{MABCD}]$. (ii) Octahedral metal complexes of the type $[\text{MA}_4\text{B}_2]$, $[\text{M}(\text{AA})_2\text{B}_2]$, $[\text{MA}_3\text{B}_3]$ using suitable examples, (b) Optical isomerism in (i). tetrahedral complexes $[\text{MABCD}]$, (ii). Octahedral complexes $[\text{M}(\text{AA})_2\text{B}_2]$, $[\text{M}(\text{AA})_3]$ using suitable examples. Structural isomerism: ionization, linkage, coordination ligand isomerism using suitable examples.

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S3-I-3: Metal carbonyls and Organometallic Chemistry**4 h**

Metal carbonyls: Preparation and properties of $\text{Ni}(\text{CO})_4$. Structural features of $\text{Ni}(\text{CO})_4$, $\text{Fe}(\text{CO})_5$, $\text{Fe}_2(\text{CO})_9$, $\text{Fe}_3(\text{CO})_{12}$ and $\text{Cr}(\text{CO})_6$ - 18 valence electron rule.

Definition, nomenclature and classification of organometallic compounds. Methods of preparation, properties and applications of alkyl and aryl compounds of Li, Mg & Al.

Unit - II (Organic Chemistry)**15h(1 hr/week)****S3-O-1: Carboxylic acids and derivatives****5 h**

Preparation: a) Hydrolysis of Nitriles, amides and esters. b) Carbonation of Grignard reagents. Special methods of preparation of Aromatic Acids - Oxidation of Arenes. Physical properties - hydrogen bonding, dimeric association. Chemical properties - Reactions involving H, OH and COOH groups - salt formation, anhydride formation, Acid halide formation, Esterification (mechanism) & Amide formation. Reduction of acid to the corresponding primary alcohol - via ester or acid chloride. Degradation of carboxylic acids by Huns Diecker reaction, Schmidt reaction (Decarboxylation). Arndt - Eistert synthesis, Halogenation by Hell - Volhard - Zelensky reaction. Carboxylic acid Derivatives - Hydrolysis and Amonolysis of acid halides, Acid anhydrides and esters (mechanism of ester hydrolysis by base and acid). Hydrolysis and dehydration of amides.

S3-O-2: Nitrohydrocarbons**3 h**

Preparation of Nitroalkanes. Reactivity - halogenation, reaction with HNO_2 (Nitrous acid), Nef reaction, reduction. Aromatic Nitrohydrocarbons: Preparation of Nitrobenzene by Nitration. Physical properties, chemical reactivity - Reduction of Nitrobenzenes in different media.

S3-O-3: Amines, Cyanides and Isocyanides**7 h**

Amines: classification into 1° , 2° , 3° Amines and Quarternary ammonium compounds. Preparative methods - Ammonolysis of alkyl halides, Gabriel synthesis, Hoffman's bromamide reaction (mechanism). Reduction of Amides and Schmidt reaction. Physical properties. Use of amine salts as phase transfer catalysts. Chemical Properties: a) Alkylation b) Acylation c) Carbylamine reaction d) Hinsberg separation. Reaction with Nitrous acid of 1° , 2° , 3° (Aliphatic and aromatic amines). Electrophilic substitutions of Aromatic amines - Bromination and Nitration, oxidation of aryl and 3° Amines, diazotisation. Diazonium salts: Preparation with mechanism. Synthetic importance - a) Replacement of diazonium group by - OH, X (Cl) - Sandmeyer and Gatterman reaction, by fluorine (Schiemann's reaction), by iodine, CN, NO_2 , H and aryl groups. Coupling Reaction of diazonium salts. i) with phenols ii) with anilines. Reduction to phenyl hydrazines.

Cyanides and isocyanides: Structure. Preparation of cyanides from a) Alkyl halides b) from amides c) from aldoximes. Preparation of isocyanides from Alkyl halides and Amines. Properties of cyanides and isocyanides, a) hydrolysis b) addition of Grignard reagent iii)

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reduction iv) oxidation.

Unit III (Physical Chemistry)

15 h (1 hr/week)

S3-P-1: Thermodynamics -I

10 h

A brief review of - Energy, work and heat units, mechanical equivalent of heat, definition of system, surroundings. First law of thermodynamics statement- various forms mathematical expression. Thermodynamic quantities- extensive properties and intensive properties, state function and path functions. Energy as a state function and exact differential. Work of expansion and heat absorbed as path function.

Expression for work of expansion, sign convention problems on first law. Heat changes at constant pressure and heat changes at constant volume. Enthalpy. Heat capacities at constant pressure and constant volume. Derivation of $C_p - C_v = R$. Isothermal adiabatic processes. Reversible and irreversible processes. Reversible change and maximum work. Derivation of expression for maximum work for isothermal reversible process. Problems. Internal energy of an ideal gas. Joules experiment. Joule-Thompson coefficient. Adiabatic changes in ideal gas, derivation of equation, $PV^\gamma = \text{constant}$. P-V curves for isothermal and adiabatic processes. Heat of a reaction at constant volume and at constant pressure, relation between ΔH and ΔV .

Variation of heat of reaction with temperature. Kirchhoff's equation and problems. Limitations of first law and need for second law. Statement of second law of thermodynamics. Cyclic process. Heat engine, Carnot's theorem, Carnot's cycle. Derivation of efficiency of heat engine. Problems. Thermodynamic scale of temperature.

S3-P-2: Thermodynamics-II

5 h

Entropy: Definition from Carnot's cycle. Entropy as a state function. Entropy as a measure of disorder. Sign of entropy change for spontaneous and non-spontaneous processes & equilibrium processes. Entropy changes in i). Reversible isothermal process, ii). Reversible adiabatic process, iii). Phase change, iv). Reversible change of state of an ideal gas. Problems. Entropy of mixing of ideal gases. Free energy Gibbs function (G) and Helmholtz's function (A) as thermodynamic quantities. Concept of maximum work and maximum ΔG as Criteria for spontaneity. Derivation of equation $\Delta G = \Delta H - T\Delta S$. Significance of the equation. Gibbs equations and Maxwell relations. Variation of G with P, V and T.

Unit - IV (General Chemistry)

15 h (1 hr/week)

S3-G-1 Evaluation of analytical data

4 h

Significant figures, accuracy and precision. Errors-classification of errors- determinate and indeterminate errors, absolute and relative errors. Problems based on mean, median, range, standard deviation

S3-G-2: Carbanions-I

5 h

Introduction, acidic nature of α -hydrogens and tautomerism in carbonyl compounds, nitro hydrocarbons, ethyl acetoacetate, diethyl malonate. Terminal alkynes. Stability of carbanions Reactions : Aldol reaction, Perkin reaction, Benzoin condensation, haloform reaction, conversion of smaller alkynes to higher alkynes.

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S3-G-3: Phase Rule

6 h

Statement and meaning of the terms – Phase, Component and Degrees of freedom, Gibb's Phase rule, phase equilibria of one component system – water system. Phase equilibria of two-component system – Solid-Liquid equilibria, simple eutectic –Pb-Ag system, desilverisation of lead. Solid solutions – compound with congruent melting point – Mg-Zn system and incongruent melting point – NaCl-H₂O system.

References

General reference: B.Sc II Year Chemistry : Semester III, Telugu Academy publication, Hyd
Unit- I

1. Analytical chemistry by G. L. David Krupadanam, D. Vijaya Prasad, K. Varaprasada Rao, K.L.N. Reddy and C. Sudhakar
2. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications(1996).
3. Concise Inorganic Chemistry by J.D. Lee 3rd edn Van Nostrand Reinhold Company(1977)
4. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L. Gaus 3rd edn Wiley Publishers (2001).
5. Inorganic Chemistry Principles of structure and reactivity by James E.Huhey, E.A. Keiter and R.L. Keiter 4th edn. (2006)
6. Chemistry of the elements by N.N.Greenwood and A. Earnshaw Pergamon Press(1989).
7. Inorganic Chemistry by Shriver and Atkins 3rd edn Oxford Press (1999).
8. Textbook of Inorganic Chemistry by R Gopalan(Universities Press(2012)
9. College Practical chemistry by V K Ahluwalia, Sunitha Dhingra and Adarsh Gulati Universities Press (India) Limited(2012)

Unit- II

1. Text book of organic chemistry by Soni. Sultan Chand & Sons; Twenty Ninth edition (2012)
2. General Organic chemistry by Sachin Kumar Ghosh. New Age Publishers Pvt Ltd (2008).
3. Text book of organic chemistry by Morrison and Boyd. Person(2009)
4. Text book of organic chemistry by Graham Solomons. Wiley(2015)
5. Text book of organic chemistry by Bruice Yuranis Powla. (2012)
6. Text book of organic chemistry by C N pillai CRC Press (2012)
7. Organic Chemistry by L. G. Wade Jr.
8. Organic Chemistry by M. Jones, Jr
9. Organic Chemistry by John McMurry.

Unit III

1. Principles of physical chemistry by Prutton and Marron. The MacmillanCompany; 4th Edn.(1970)
2. Text Book of Physical Chemistry by Soni and Dharmahara. Sulthan Chand and Sons.(2011)
3. Text Book of Physical Chemistry by Puri and Sharma. S. Nagin chand and Co.(2017)
4. Text Book of Physical Chemistry by K. L. Kapoor. (2012)
5. Colloidal and surface chemistry , M. Satake, Y. Hayashi, Y.Mido, S.A.Iqbal and M.S.sethi, Discovery Publishing Pvt.Ltd (2014)
7. Material science by Kakani & Kakani, New Age International(2016)
8. Physical Chemistry by Ira Levine (Author) McGraw-Hill Education; 6 edition (May 9, 2008)

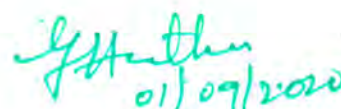
Unit IV

1. Text book of organic chemistry by Morrison and Boyd, Person(2009)


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2. Text book of organic chemistry by Graham solomons, Wiley(2015)
3. Text book of organic chemistry by Sony, Sultan Chand & Sons; 29th edition (2012)
4. Text book of organic chemistry by Bruice yuranis Powla, (2012)
5. General Organic chemistry by Sachin kumar Ghosh, New Age Publishers Pvt Ltd (2008)

Laboratory Course

Paper III (Organic Synthesis)

45 h (3h/week)

1. Synthesis of Organic compounds:

Acetylation: Acetylation of salicylic acid, Benzoylation of Aniline.

Aromatic electrophilic substitution: Nitration: Preparation of nitro benzene and m-dinitro benzene.

Halogenation: Preparation of p-bromo acetanilide, Preparation of 2,4,6-tribromo phenol

Oxidation: Preparation of benzoic acid from benzyl chloride.

Esterification: Preparation of n-butyl acetate from acetic acid.

Methylation: Preparation of - naphthyl methyl ether.

Condensation: Preparation of benzilidine aniline and Benzaldehyde and aniline.

Diazotisation: Azocoupling of β -Naphthol.

2. Microwave assisted synthesis of Asprin – DEMO (demonstration only)

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KAKATIYA UNIVERSITY

Under Graduate Courses (Under CBCS 2020 – 2021 onwards)

B.A. / B.Sc. Life Science II Year Computer Applications

SEMESTER – III

RELATIONAL DATA BASE MANAGEMENT SYSTEMS

Theory: 4 Hours/Week; Credits: 4 Marks: 100 (Internal: 20; External: 80)

Practical: 3 Hours/Week Credits: 1 Marks: 25

Unit-I

Basic Concepts: Database Management System, File based system, Advantages of DBMS over file based system, Database Approach, Logical DBMS Architecture, Three level architecture of DBMS or logical DBMS architecture, Need for three level architecture, Physical DBMS Architecture, Database Administrator (DBA) Functions & Role, Data files indices and Data Dictionary, Types of Database.

Relational and ER Models: Data Models, Relational Model, Domains, Tuple and Relation, Super keys, Candidate keys, Primary keys and foreign key for the Relations, Relational Constraints, Domain Constraint, Key Constraint, Integrity Constraint, Update Operations and Dealing with Constraint Violations, Relational Operations, Entity Relationship (ER) Model, Entities, Attributes, Relationships, More about Entities and Relationships, Defining Relationship for College Database, E-R Diagram, Conversion of E-R Diagram to Relational Database.

Unit-II

Database Integrity And Normalization: Relational Database Integrity, The Keys, Referential Integrity, Entity Integrity, Redundancy and Associated Problems – Single Valued Dependencies – Normalization, Rules of Data Normalization, The First Normal Form, The Second Normal Form, The Third Normal Form, Boyce Codd Normal Form, Attribute Preservation, Lossless, join Decomposition Dependency Preservation.

File Organization: Physical Database Design Issues, Storage of Database on Hard Disks, File Organization and Its Types, Heap files (Unordered files), Sequential File Organization – Indexed (Indexed Sequential) File Organization, Hashed File Organization, Types of Indexes, Index and Tree Structure.

Unit-III

Structures Query Language (SQL): Meaning – SQL commands, Data Definition Language, Data Manipulation Language – Data Control Language, Transaction Control Language Queries using Order by, Where, Group by, Nested Queries. Joins – Views – Sequences, Indexes and Synonyms, Table Handling.

Advanced SQL: Accessing SQL from a Programming Language, Functions and Procedures, Triggers, Recursive Queries.

Unit-IV

Transactions and Concurrency Management: Transactions, Concurrent Transactions, Locking Protocol, Serializable Schedules – Locks Two Phase Locking (2PL), Deadlock and its Prevention, Optimistic Concurrency Control.

Database Recovery and Security: Database Recovery meaning, Kinds of failures – Failure Controlling methods, Database errors, Backup & Recovery Techniques, Security & Integrity.

Text Book: Database Systems: R.Elmasri & S.B. Navathe, Pearson.

References:

1. Introduction to Database Management System: ISRD Group, McGraw Hill.
2. Database Management System: R.Ramakrishnan & J.Gehrke, McGraw Hill.
3. Modern Database Management: J.A.Hoffer, V.Rames & H.Topi, Pearson.

KAKATIYA UNIVERSITY

Under Graduate Courses (Under CBCS 2020 – 2021 onwards)

B.A. / B.Sc. Life Science II Year Computer Applications

SEMESTER – III

RELATIONAL DATA BASE MANAGEMENT SYSTEMS - LAB

Practical

3 Hours/Week

1 Credit Marks: 25

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

1. Create a database having two tables with the specified fields, to computerize a library system of a University College.

Library Books (Accession number, Title, Author, Department, Purchase Date, Price),

Issued Books (Accession number, Borrower)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) Delete the record of book titled “Database System Concepts”.
- c) Change the Department of the book titled “Discrete Maths” to “CS”.
- d) List all books that belong to “CS” department.
- e) List all books that belong to “CS” department and are written by author “Navathe”.
- f) List all computer (Department=“CS”) that have been issued.
- g) List all books which have a price less than 500 or purchased between “01/01/1999” and “01/01/2004”.

2. Create a database having three tables to store the details of students of Computer Department in your college.

Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks (rounded off to whole number) in percentage at 10 + 2, Phone number)

Paper Details (Paper code, Name of the Paper)

Student’s Academic and Attendance details (College roll number, Paper Code, Attendance, Marks in home examination).

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper2.
- c) List all students who live in “Warangal” and have marks greater than 60 in paper1.
- d) Find the total attendance and total marks obtained by each student.
- e) List the name of student who has got the highest marks in paper2.

3. Create the following tables and answer the queries given below:

Customer (Cust ID, email, Name, Phone, Referrer ID)

Bicycle (Bicycle ID, Date Purchased, Color, Cust ID, Model No)

Bicycle Model (Model No, Manufacturer, Style) Service

(Start Date, Bicycle ID, End Date)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) List all the customers who have the bicycles manufactured by manufacturer "Honda".
- c) List the bicycles purchased by the customers who have been referred by Customer "C1".
- d) List the manufacturer of red colored bicycles.
- e) List the models of the bicycles given for service.

4. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Employee (Person Name, Street, City)

Works (Person_Name, Company_Name, Salary)

Company (Company_Name, City)

Manages (Person_Name, Manager_Name)

- a) Identify primary and foreign keys.
- b) Alter table employee, add a column "email" of type varchar(20).
- c) Find the name of all managers who work for both Samba Bank and NCB Bank.
- d) Find the names, street address and cities of residence and salary of all employees who work for "Samba Bank" and earn more than \$10,000.
- f) Find the names of all employees who live in the same city as the company for which they work.
- f) Find the highest salary, lowest salary and average salary paid by each company.
- g) Find the sum of salary and number of employees in each company.
- h) Find the name of the company that pays highest salary.

5. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Suppliers (SNo, Sname, Status, SCity)

Parts (PNo, Pname, Colour, Weight, City)

Project (JNo, Jname, Jcity)

Shipment (Sno, Pno, Jno, Qunatity)

- a) Identify primary and foreign keys.
- b) Get supplier numbers for suppliers in Paris with status>20.
- c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.
- d) Get suppliers names for suppliers who do not supply part P2.
- e) For each shipment get full shipment details, including total shipment weights.
- f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.
- g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.
- h) Get the names of cities that store more than five red parts.
- i) Get full details of parts supplied by a supplier in Hyderabad.
- j) Get part numbers for part supplied by a supplier in Warangal to a project in

Chennai.

- k) Get the total number of project supplied by a supplier (say, S1).
- l) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1).

6. Write a PL/SQL Program to demonstrate Procedure.
7. Write a PL/SQL Program to demonstrate Function.
8. Write a PL/SQL program to Handle Exceptions.
9. Write a PL/SQL Program to perform a set of DML Operations.
10. Create a View using PL/SQL program.
11. Write a PL/SQL Program on Statement Level Trigger.
12. Write a PL/SQL Program on Row Level Trigger.

KAKATIYA UNIVERSITY

Under Graduate Courses (Under CBCS 2020–2021 onwards)

B.Sc. Computer Science II Year SEMESTER – III

DATA STRUCTURES USING C++

Theory: 4 Hours/Week; **Credits:** 4 **Marks:** 100 (Internal: 20; External: 80)
Practical: 3 Hours/Week **Credits:** 1 **Marks:** 25

Unit - I

Basic data Structure: Introduction to Data Structures, Types of Data Structures, and Introduction to Algorithms, Pseudo code, and Relationship among data, data structures, and algorithms, Implementation of data structures, Analysis of Algorithms.

Stacks: Concept of Stacks and Queues, Stacks, Stack Abstract Data Type, Representation of Stacks Using Sequential Organization (Arrays), Multiple Stacks, Applications of Stack, Expression Evaluation and Conversion, Polish notation and expression conversion, Processing of Function Calls, Reversing a String with a Stack, Recursion.

Unit - II

Recursion: Introduction, Recurrence, Use of Stack in Recursion, Variants of Recursion, Recursive Functions, Iteration versus Recursion.

Queues: Concept of Queues, Queue as Abstract Data Type, Realization of Queues Using Arrays, Circular Queue, Multi-queues, Dequeue, Priority Queue, Applications of Queues,

Linked Lists: Introduction, Linked List, Linked List Abstract Data Type, Linked List Variants, Doubly Linked List, Circular Linked List, Representation of Sparse Matrix Using Linked List, Linked Stack, Linked Queue.

Unit - III

Trees: Introduction, Types of Trees, Binary Tree, Binary Tree Abstract Data Type, Realization of a Binary Tree, Insertion of a Node in Binary Tree, Binary Tree Traversal, Other Tree Operations, Binary Search Tree, Threaded Binary Tree, Applications of Binary Trees.

Searching and Sorting: Search Techniques-Linear Search, Binary Search, Sorting Techniques- Selection Sort, Bubble Sort, Insertion Sort, Merge Sort, Quick Sort, Comparison of All Sorting Methods, Search

Trees: Symbol Table, Optimal Binary Search Tree, AVL Tree (Height-balanced Tree).

Unit - IV

Graphs: Introduction, Representation of Graphs, Graph Traversal – Depth First Search, Breadth First Search, Spanning Tree, Prim's Algorithm, Kruskal's Algorithm.

Hashing: Introduction, Key Terms and Issues, Hash Functions, Collision Resolution Strategies, Hash Table Overflow, Extendible Hashing

Heaps: Basic Concepts, Implementation of Heap, Heap as Abstract Data Type, Heap Sort, Heap Applications.

Text books:

1. Varsha H. Patil "Data structures using C++" Oxford University press, 2012
2. M.T. Goodrich, R. Tamassia and D. Mount, Data Structures and Algorithms in C++, John Wiley and Sons, Inc., 2011.

References:

1. Adam Drozdek "Data structures and algorithm in C++" Second edition, 2001
2. T.H. Cormen, C.E. Leiserson, R.L. Rivest and C. Stein, Introduction to Algorithms, 2nd Ed., Prentice-Hall of India, 2006.
3. Robert L. Kruse and A.J. Ryba, Data Structures and Program Design in C++, PrenticeHall, Inc., NJ, 1998.
4. B. Stroustrup, The C++ Programming Language, Addison Wesley, 2004
5. D.E. Knuth, Fundamental Algorithms (Vol. I), Addison Wesley, 1997

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS 2020–2021 onwards)
B.Sc. Computer Science II Year
SEMESTER – III

DATA STRUCTURES USING C++ LAB
Practical 3 Hours/Week 1 Credit Marks: 25

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Write C++ programs to implement the following using an array
 - a) Stack ADT
 - b) Queue ADT
 2. Write a C++ program to implement Circular queue using array.
 3. Write C++ programs to implement the following using a single linked list.
 - a) Stack ADT
 - b) Queue ADT
 4. Write a C++ program to implement Circular queue using Single linked list.
 5. Write a C++ program to implement the double ended queue ADT using double linked list.
 6. Write a C++ program to solve tower of Hanoi problem recursively
 7. Write C++ program to perform the following operations:
 - a) Insert an element into a binary search tree.
 - b) Delete an element from binary search tree.
 - c) Search for a key in a binary search tree.
 8. Write C++ programs for the implementation tree traversal technique BFS.
 9. Write a C++ program that uses recursive functions to traverse a binary search tree.
 - a) Pre-order
 - b) In-order
 - c) Post-order
 10. Write a C++ program to find height of a tree.
 - 11 Write a C++ program to find MIN and MAX element of a BST.
 - 12 Write a C++ program to find Inorder Successor of a given node.
 13. Write C++ programs to perform the following operations on B-Trees and AVL Trees.
 - a) Insertion
 - b) Deletion
 - 14 Write C++ programs for sorting a given list of elements in ascending order using the following sorting methods.
 - a) Quick sort
 - b) Merge sort
 15. Write a C++ program to find optimal ordering of matrix multiplication.
 16. Write a C++ program that uses dynamic programming algorithm to solve the optimal binary search tree problem
 17. Write a C++ program to implement Hash Table
 18. Write C++ programs to perform the following on Heap
 - a) Build Heap
 - b) Insertion
 - c) Deletion
 19. Write C++ programs to perform following operations on Skip List
 - a) Insertion
 - b) Deletion
 20. Write a C++ Program to Create a Graph using Adjacency Matrix Representation.
 21. Write a C++ program to implement graph traversal techniques
 - a) BFS
 - b) DFS
 22. Write a C++ program to Heap sort using tree structure.

KAKATIYA UNIVERSITY
B.Sc. PROGRAMME
Under CBCS System wef A.Y: 2020-21
Second Year : : Semester- III

BS-302 / SEC-2: BIO STATISTICS

[2 HPW, #Credits: 2, Marks: 50 (Internal:10, External:40)]

Unit-I

Descriptive and Relational Statistics: Data collection and tabulation, Graphical representation of data, Measures of central tendency (Mean, Median and Mode) with simple applications, Measures of dispersion (Range, Quartile Deviation, Mean Deviation, Standard Deviation, Standard error and Coefficient of variation) with simple applications, Concept of Skewness and Kurtosis.

Concept of correlation, computation of Karl-Pearson correlation coefficient, Spearman' s rank correlation coefficient and Simple linear regression with simple applications,

Unit-II

Probability and Inferential Statistics: Basic concepts and Basic terms of probability, Mathematical, Statistical and Axiomatic definitions of probability Conditional probability and independence of events, Addition and multiplication theorems (Statements only) with simple applications. Statements and applications of Binomial, Poisson and Normal distributions.

Concepts of Population, Sample, Parameter, Statistic, Null and Alternative hypotheses, Critical region, two types of errors, Level of significance. Tests of significance based on goodness of fit, means, variances using χ^2 test, t-test, F-test and analysis of variance (ANOVA).

References:

1. Irfan Ali Khan and Atiya Khanum: Fundamentals of Bio Statistics, Ukaaz Publications, HYD.
2. V. K. Kapoor and S. C. Gupta: Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi.
3. V. K. Kapoor and S. C. Gupta: Statistical Methods, Sultan Chand & Sons, New Delhi.

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA

B.Sc. Programme under CBCS

With effect from the A.Y: 2019

Skill Enhancement Course- I

II Year

(Common to all Science Courses)

SEMESTER – III

FUNDAMENTALS OF NANO TECHNOLOGY

Theory: 2 Hours/Week; Credits: 2 Marks: 50 (Internal: 10; External: 40)

UNIT I:

Background to Nanotechnology:

Scientific revolution, molecular and atomic size, emergence of Nanotechnology, Challenges in Nanotechnology, Carbon age :(new forms of carbon graphene sheet to CNT)

Nucleation:

Macroscopic to microscopic crystals and nanocrystals, large surface to volume ratio, top-down and bottom-up approaches, self-assembly process, grain bounda volume in nanocrystals, defects in nanocrystals, surface effects on the properties.

UNIT- II:

Nano materials and properties:

Types of Nanostructure: one dimensional (1D), two dimensional (2D), three dimensional (3D) Nanostructured materials, Quantum dots, Quantum wire, Quantum sheet structures.

Carbon nanotubes (CNT), Metals (Au, Ag), Metal oxides(TiO₂,Zno), semiconductors (Si, Ge, CdS, ZnSe), Ceramics and composites, Biological system, DNA, RNA, Lipids, Size dependent properties, mechanical, physical and chemical properties.

Applications of Nanomaterials:

Molecular electronics and nano electronics, Quantum electronic devices, CNT based transistor and Field emission Display, biological applications, Biochemical sensor, Membrane based water purification.

Reference books:

1. Nanotechnology: Basic science and emerging technologies, M.Wilson, K.Kannangara, G. Smith, Overseas Press India PVT.LTD,NEW DELHI:
2. The chemistry of Nanomaterials: Synthesis, properties & applications. C.N.R.Rao, A.Muller, Wiley
3. Nano structures and Nano materials: Synthesis, properties and applications by Guozhong Cao, Imperial College press.
4. Hari Singh Nalwa, Handbook of nanostructured materials &nanotechnology optical properties.
5. Nano fabrication towards biomedical applications, C.S.S.R.Kumar, Wiley-VCH Verlag GmbH & Co, Weinheim.



Mrs. G. Manjula, Chairperson, BoS



Prof. B. Venkatram Reddy, HoD