GIRRAJ GOVT COLLEGE (A), NIZAMABAD

(COLLEGE WITH POTENTIAL FOR EXCELLENCE)

B.O.S-2020-2021

DEPARTMENT OF COMPUTER SCIENCE
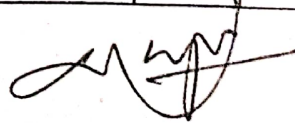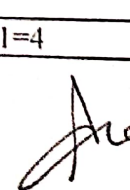
GIRRAJ GOVERNMENT COLLEGE (A), NIZAMABAD
DEPARTMENT OF COMPUTERS SCIENCE
BSC COMPUTER SCIENCE
CBCS (With effect from 2019-20)

Semester -I			
Course Title	H/Week		Credits
	Th	Pr	
Programming in C	4	3	4+1 = 5
Semester –II			
Programming in C++	4	3	4+1 = 5
Semester –III			
Data Structures using C++	4	3	4+1 = 5
Semester –IV			
Data Base Management Systems	4	3	4+1 = 5
Semester –V			
Programming in Java	4	3	4+1 = 5
Semester –VI			
Web Technologies	4	3	4+1 = 5

AECC

Semester -I	Hours/Week	Credits
	Th	
Fundamentals of Computer	2	2
Semester -II	Hour/Week	
Office Automation	2	2

SEC		
Semester -III		
Python –I (Sec –I)	2	2
Ci Lab –I (Sec –II)	2	2
Semester -IV		
Python –II (Sec –III)	2	2
Ci Lab –II (Sec –IV)	2	2

Generic Elective (GE)		
Semester -IV		
Information Technologies	4	4

Project/Optional			
Information Security and	Thr	pr	3+1=4

Present: Sri **Dr. E.Laxminarayana**

<u>Lr. No.</u>   / GGC-Nzb. / Comp. Sc / BOS – 2020-2021 / Dated   -02-2021

Sub.: constitution Board of studies members for the Dept.of Computer Science- Girraj Govt. College (A), Nizamabad.
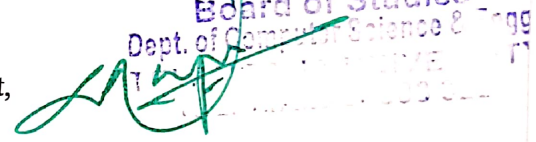
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ORDERS:

The following persons from Telangana University,Girraj govt.College are included as members for the Board of Studies in the department of computer science,Girraj Govt College(A),Nizamabad .The constitution of the BOS Members from this academic year i.e. 2018-19 .

1. Dr. Md.Atheeq Sultan Ghori   Asst.Prof.Comp.Science Dept &
Chair person B.O.S.,(University Nominee)
Telangana University,
Dichpally,Nizamabad.

2. Sri N. Raja   Lecturer in Physics &
Chairman B.O.S.,Comp.Sci Department,
Girraj Govt.College(A),Nizamabad.

3. Sri N. Ramesh Goud   HOD of History & Executive Member & Chairman B.O.S.-B.A.(CA)
Girraj Govt.College(A),Nizamabad.

4. Sri V.Subhash   Lecturer & HOD of Comp.Sci
Goutami Degree & PG College, Nizamabad.

5. All staff members Of the Dept. Of Computer Science.

Copy to

1. Chairperson BOS,Telangana University,Nizamabad

2. Chairperson BOS,Girraj.Govt. College(A),Nizamabad.

3.Individual

4. All Members ,Dept .of.Comp.Sci

PRINCIPAL
Girraj Govt. College (Autonomous)
Nizamabad

DEPARTMENT OF COMPUTER SCIENCE
Girraj Govt. College (Autonomous)
B.Sc.(Computer Science)- II Year III Semester
CBCS (With effect from 2020-2021)
Paper-III: Data Structures using C++

Code: 3333/ccs.

Max. Marks: 70(Theory)

Theory   4Hrs/Week

Practical   2Hrs/Week

Unit – I

Fundamental Concepts:
Introduction to Data Structures, Types of Data Structures, and Introduction to Algorithms, Pseudo code Flow Chart, Analysis of Algorithms.
Linear data Structure using Arrays:1-D Array,2-Array, N-D Arrays pros and cons of Arrays
Stacks: Concept, primitive operations of Stacks using arrays and Abstract data type Representation Stacks, Applications of Stack, Expression Conversion of Infix Expression to postfix Expression, Evaluating the postfix Expression Processing of function call, Reversing a String with a Stack.

Unit - II

Recursion: Introduction, Use of Stack in Recursion, Variants of Recursion, Recursive Functions, Iteration versus Recursion.
Queues: Concept of Queues, Queue as Abstract Data Type, 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, Single Linked List, Doubly Linked List, Circular Linked List, Applications of Linked list

Unit - III

Trees: Introduction, Types of Trees ,Binary Tree, Implementation of Binary Tree Insertion of a Node in Binary Tree. Binary Tree Traversals , Applications of Binary Trees.
Graphs: Introduction Representation of Graphs, GraphTraversals: DepthFirstSearch, BreadthFirstSearch

Unit – IV:

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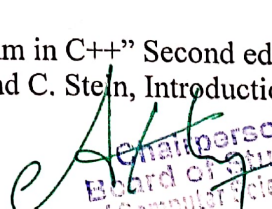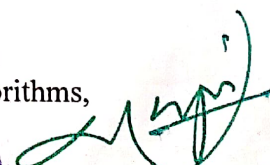Comparison of All Sorting Techniques.

Text books:
1. Varsha H. Patil "Data structures using C++" Oxford University press,2012
2. M.T.Goodrich,R.TamassiaandD.Mount,DataStructuresandAlgorithmsinC++, 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.

GIRRAJ GOVERNMENT COLLEGE (A), NIZAMABAD
DEPARTMENT OF COMPUTER SCIENCE
BSC COMPUTER SCIENCE
SEMESTER-III
Paper-III: Data Structures using C++
CBCS (With effect from 2020-2021)

Time: 1Hr   Internal Examination   Max.Marks:30

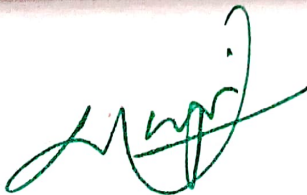**I. Multiple Choice Questions**   Marks: 10x1=10
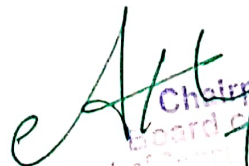
1   to   10

II. Fill in the Blanks   Marks: 15x1=15

11   to   25

III. Assignment: Marks: 05

GIRRAJ GOVERNMENT COLLEGE (A), NIZAMABAD
DEPARTMENT OF COMPUTER SCIENCE
BSC COMPUTER SCIENCE
SEMESTER-III
Paper-III: Data Structures using C++
CBCS (With effect from 2020-2021)

Time: 3:00 Hrs   External Examination   Max.Marks:-70

PART- A

Marks: 6x5=30

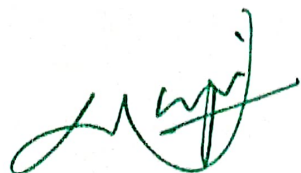**I. Answer any Six of the following Questions.**

Q. 1 & 2	from	.Unit-I
Q. 3 & 4	from	.Unit-II
Q. 5 & 6	from	.Unit-III
Q. 7 & 8	from	.Unit-IV

PART-B

Marks: 4x10=40

II Answer any All the Questions.

Q. 9   (a or b) from unit- I
Q. 10   (a or b) from unit- II
Q. 11   (a or b) from unit- III
Q. 12   (a or b) from unit- IV

Max. Marks: 70(Theory)

Theory   **4Hrs/Week**

Practical   **2Hrs/Week**

Unit – I

Introduction to Databases: Introduction, Traditional File-Based Systems, Database Approach, Roles in the Database Environment, Advantages and Disadvantages of DBMSs, The Three-Level ANSI-SPARC Architecture, Database Languages, Data Models, Functions of a DBMS, Components of a DBMS.

Relational Model: Introduction, Terminology, Integrity Constraints, Views.

The Relational Algebra: Unary Operations, Set Operations, Join Operations, Division Operation, Aggregation and Grouping Operations.

Unit – II

SQL: Introduction,SQl Datatypes, Database languages:DDL,DML,TCL,DCL,operators of sql-Quieries,wild card characters,working with null values,column Aliasing ,column constraints ,clauses: where, order by, group by, having clause.

Joins: Types of joins,functions of SQL,Nested queries, sub queries,ANY and ALL, set operators,EXISTS,NOT EXIST , views, Index, clusters, sequences.

PL/SQL: Structure of pl/sql, Database programs, Conditional statements, Loops, Cursiors, Exceptional handlings,Sub programs: stored procedures, stored functions, Triggers.

Unit – III

Entity–Relationship Modeling: Entity Types, Relationship Types, Attributes, Keys, Strong and Weak Entity Types, Attributes on Relationships, Structural Constraints, Problems with ER Models–Fan Traps, Chasm Traps.

Enhanced Entity–Relationship Modeling: Specialization/Generalization, Aggregation, Composition. Functional–Dependencies: Anomalies, Partial Functional Dependency, Transitive Functional Dependency,Multi Valued Dependency, Join Dependency.

Normalization: The Purpose of Normalization, How Normalization Supports Database Design, Data Redundancy and Update Anomalies, Functional Dependencies in brief, The Process of Normalization,1NF, 2NF, 3NF, BCNF. The Database Design Methodology for Relational Databases(Appendix–D).

Unit – IV

Transaction Management: Transaction Support–Properties of Transactions, Database Architecture, Concurrency Control–The Need for Concurrency Control, Serializability and Recoverability, Locking Methods, Deadlock, Time Stamping Methods, Multi-version Timestamp Ordering, Optimistic Techniques, Granularity of Data Items.

Database Recovery–The Need for Recovery, Transactions and Recovery, Recovery Facilities, Recovery Techniques, Nested Transaction Model.

Security: Database Security–Threats, Computer-Based Controls–Authorization, Access Controls, Views.

Backup and Recovery, Integrity, Encryption, RAID.

Textbook: Thomas M. Connolly, Carolyn E. Begg, *Database Systems–A Practical Approach to Design,*

References: 1. *Implementation, and Management (6e)*Sharon Allen, Evan Terry, *Beginning Relational Data Modeling*

2. Jeffrey A. Hoffer, V. Ramesh, HeikkiTopi, *Modern Database Management* Raghu Ramakrishnan, Johannes Gehrke, *Database Management Systems*

GIRRAJ GOVERNMENT COLLEGE (A), NIZAMABAD
DEPARTMENT OF COMPUTERSCIENCE APPLICATIONS
BSC COMPUTERSCIENCE
SEMESTER-IV
Paper-IV: Database Management Systems
CBCS (With effect from 2020-2021)

Time: 3:00 Hrs	External Examination	Max .Marks:-70

PART- A

Marks: 6x5=30

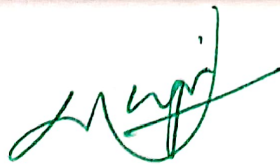**I. Answer any Six of the following Questions.**

Q. 1 & 2
Q. 3 & 4
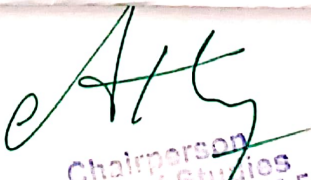Q. 5 & 6
Q. 7 & 8

PART-B

Marks: 4x10=40

II Answer All the Questions.

Q. 9   (a or b) from   unit- I
Q. 10   (a or b) from   unit- II
Q. 11   (a or b) from   unit- III
Q. 12   (a or b) from   unit- IV

GIRRAJ GOVERNMENT COLLEGE (A), NIZAMABAD
DEPARTMENT OF COMPUTERS SCIENCE
BSC COMPUTER SCIENCE
SEMESTER-IV
Paper-IV: Database Management Systems
CBCS (With effect from 2020-2021)

Time: 1Hr   Internal Examination   Max.Marks:30
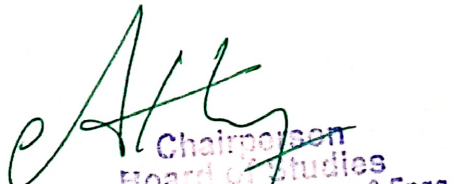
I. Multiple Choice Questions   Marks: 10x1=10

II. Fill in the Blanks   Marks: 15x1=15

III. Assignment: Marks: 05

DEPARTMENT OF COMPUTER SCIENCE
Girraj Govt. College (Autonomous)
SEC-PAPER: Semester-IV Syllabus
With effect from 2020-2021
SEC-PAPER: Python Programming

Max. Marks: 35

Unit-I

Chapter1: Introduction: Introduction to Python Programming: ,History of python, Features of python,

Applications of Python. , Input Output functions, Variables declarations ,Data types and type conversions

Chapter2: Operators: Arithmetic operators, Assignment operators, Comparison operators, Logical operators, Identity operators, Membership operator. Comments

Unit-II

Chapter1: Control Flow Statements: Decision Control Statements: The if, The if...else, The if...elif...else Nested if Statement.

Chapter2:

Looping statements: while Loop, for Loop statements, The continue and break Statements.

Time:30Mnts	Internal Examination	Max Marks:15

I. Fill in the Blanks

Marks: 7x1=7

Q. 1.

Q.2

Q.3

Q.4

Q.5

Q.6

Q.7

II. Answer Following Questions.

Marks: 8x1=8

Q. 8

Q.9

Q. 10

Q. 11

Q. 12

Q. 13

Q.14

Q.15

DEPARTMENT OF COMPUTERSCIENCE
Girraj Govt College (Autonomous)
SEC-PAPER: Semester-IV Syllabus
With effect from 2020-2021
SEC-PAPER: Python Programming

Time: 2:00 Hrs   External Examination   Max Marks:35

PART-A

Marks: 2x7.5=15

I. Answer two of the following Questions.

Q. 1 & 2

Q. 3 & 4

PART-B

Marks: 2x10=20

II. Answer All the Questions.

Q. 5.(a or b)

Q. 6(a or b)