

**NAGARJUNA GOVERNMENT COLLEGE,**

**AUTONOMOUS:NALGONDA**

**[www.ngcnalgonda.org](http://www.ngcnalgonda.org)**

**(Re Accredited by NAAC with "A" Grade)**

**DEPARTMENT OF COMPUTER SCIENCE**



**BOARD OF STUDIES MEETING**

**2020-21**

**NAGARJUNA GOVERNMENT COLLEGE,  
AUTONOMOUS:NALGONDA**

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**DEPARTMENT OF COMPUTER SCIENCE**

**BOARD OF STUDIES MEETING**

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**NAGARJUNA GOVERNMENT COLLEGE: NALGONDA**

(AUTONOMOUS)

(Re-Accredited with NAAC "A" GRADE)

To  
The Principal  
N.G.College  
Nalgonda.  
Sir,

Date

Sub:- Grant of Autonomous Status - Constitution of **BOARD OF STUDIES** in  
B.Sc Computer Science Department – Request for Approval –Reg.

Ref:-

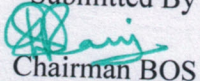
- 1) No.F.22-1/2007(AC) Dt: 3<sup>rd</sup> April 2007
- 2) OU Lr.Mr.69/H/2007/Acad.Dt.12-06-2007.
- 3) GO RT.No.467 HE.(CE-1) Dept. Dt.29-06-2007.
- 4) MGU Lr.191/MGU/NLG/2015-16, Dt.28-08-2015.

\*\*\*

With Reference to the Subject Cited above, I am submitting the List of members of Board of Studies for Academic Years 2019-20 for your Approval.

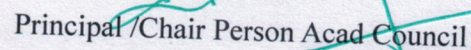
S.No.	NAME	DESIGNATION
1	<b>Sri K.Nagi Reddy Reddy</b> In-Charge Dept of Computer Science N.G. College. Nalgonda.	<b>CHAIRPERSON</b>
2	<b>Ms. D. Sandya Rani</b> Assistant Professor Chairman Board of Studies, Dept of Computer Science Mahatma Gandhi University Nalognda	<b>UNIVERSITY NOMINEE</b>
3	<b>Sri Goli Sushma</b> Govt.Degree Women's College. Nalgonda.	<b>SUBJECT EXPERT</b>
4	<b>Sri. Nagesh Kumar</b> Neelagiri Degree College, Nalgonda.	<b>SUBJECT EXPERT</b>
5	<b>Sri. SP.VENKAT RAMANA</b> Contract Faculty Computer Science, N.G.College, Nalgonda.	<b>MEMBER</b>
6	<b>Sri . Y.Rukesh Kumar</b> Guest Faculty N.G.College, Nalgonda	<b>MEMBER</b>

Submitted By

  
Chairman BOS

Dept. of Computer Science  
Computer Science & Informatics

Proposal Approved

  
Principal /Chair Person Acad Council

**BOARD  
OF  
STUDIES MEETING**

**NAGARJUNA GOVERNMENT COLLEGE, NALGONDA**  
**(Autonomous) Reaccredited with "A" Grade by NAAC**  
**(Affiliated to Mahatma Gandhi University)**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**BOARD OF STUDIES MEETING 2020-21**

**RESOLUTIONS**

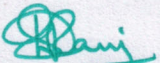
The members of Board of studies in Computer Science Department, N.G. College, Nalgonda met under the chairmanship of Sri **K.NAGI REDDY** on 23 -11-2020 and passed the following Resolutions.

**AGENDA :**

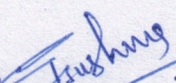
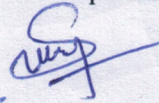
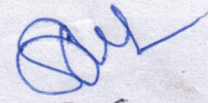
1. To consider and approve the syllabus for B.Sc I,II,III years(I, II, III, IV,V & VI Semesters) during 2020-21.
2. To consider and approve the introduction of Internal Assessment for the students Admitted into I,II & III years degree course during 2020-21.
3. To consider and approve the model question paper for B.Sc I, II,&III year 2020-21
4. To consider and approve the list of examiners for paper setting, evaluation for B.Sc. I,II, & III year (I,II,III,IV,V & VI Semester) during 2020-21.
5. To consider and approve to conduct practical exams semester wise for I,II & III Year Students
6. Any other related academic matters.

**RESOLUTIONS:**

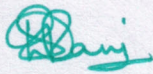
1. It is resolved to approve the Credit Structure, Syllabus and Question papers Models for the I,II,III,IV,V and VI Semester for the year 2020-21 and also in authorized the chairman of Board of Studies to nominate panel of Examiners and paper setter.
2. It is resolved to approve that V and VI semester computer science students will have only one paper in V semester and VI semester from 2020-21 as per the resolutions taken by Governing Body in the year 2018-2019.
3. It is resolved to adopt each semester is of 100 marks in which 70 Marks for Theory and 30 Marks for Internal Examinations (20 Marks for written examination 5 Marks for Assignment and 5 marks for Seminar) introduce for the year 2020-21 as per the direction of CCE, Hyd.

  
**Assistant Professor**

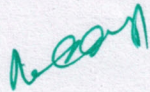
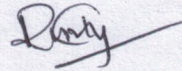

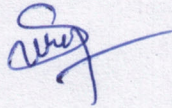
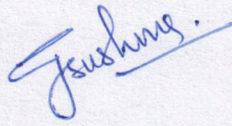
Dent - Computer Science & Informatics

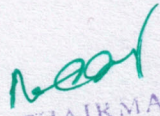
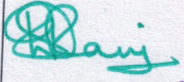
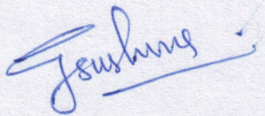
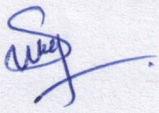
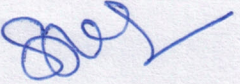
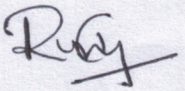
4. It is resolved to organize class wise and year wise Class Seminar, Group Discussion and Guest Lecture.
5. Approved to conduct practical examination at the end of each semester for I,II & III year students.
6. Approved List of Examiners.
7. Approved that it is mandatory to get a maximum of 28 marks in semester and on the whole 40 marks to get through the paper.
8. It is resolved to approve syllabus for skill enhancement courses and Generic elective.
9. It is resolve to approve the syllabus for special course for the VI semester



**Assistant Professor**  
Dept. - Computer Science & Informatics  
UCE & T.M.G.U., Nalgonda (T.S.)





SL.NO	NAME	DESIGNATION	SIGNATURES
1	<b>Sri K. Nagi Reddy</b> In-Charge Dept of Computer Science N.G. College. Nalgonda.	Chairman Board of Studies	 CHAIRMAN Board of Studies in Computer Science N.G. College, NALGONDA.
2	<b>Ms.D.Sandya Rani</b> Assistant Professor Chairman Board of Studies, Dept of Computer Science Mahatma Gandhi University Nalognda	Hon'ble Member	 <b>Assistant Professor</b> Dept. - Computer Science & Informatics UCE & T M.G.U., Nalgonda (T.S.)
3	<b>Smt. Goli Sushma</b> Govt.Degree Women's College. Nalgonda	Subject Expert	
4	<b>Sri S.Nagesh kumar</b> Neelagiri Degree College Nalgonda.	Subject Expert	
5	<b>Sri SP.VENKAT RAMANA</b> Contract Faculty Computer Science, N.G.College, Nalgonda.	Member	
6	<b>Sri Y.Rukesh Kumar</b> (Guest Faculty) N.G.College, Nalgonda	Member	

# PANEL EXAMINERS

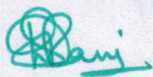
**NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS): NALGONDA**

(Affiliated to Mathatma Gandhi University)

**PANEL OF EXAMINERS FOR THE YEAR 2020-21**

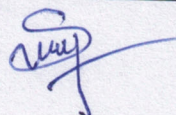
Subject: **COMPUTER SCIENCE**

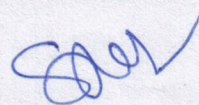
SNO	Paper	Name of the Examiners with full Addresses	Phone Numbers
1	I	Goli Sushma , TS SET, Lect. In Computer Science, Govt. Women's College, Ramagir, Nalgonda.	6281315652
2	I	Ch.madhavi, Lect in Computer Science, Government Degree College ALAIR, Dist:- Yadadri bhuvanagiri .Pin 508101	9553053211
3	I	S.Nagesh UGCNET ,Lect.in Computer Science, Neelagiri Degree & P.G.College, Near Kanakaduga Temple ,Ramagiri, Nalgonda-508001	9177933967
4	II	Goli Sushma , TS SET, Lect. In Computer Science, Govt. Women's College, Ramagir, Nalgonda.	6281315652
5	II	S.Nagesh UGCNET ,Lect.in Computer Science, Neelagiri Degree & P.G.College, Near Kanakaduga Temple ,Ramagiri, Nalgonda-508001	9177933967
6	II	Ch.madhavi, Lect in Computer Science, Government Degree College ALAIR, Dist:- Yadadri bhuvanagiri .Pin 508101	9553053211
7	III	Goli Sushma , TS SET, Lect. In Computer Science, Govt. Women's College, Ramagir, Nalgonda.	6281315652
8	III	M.Satyanaryana, Lecturer in Computer Science, Indian Institute of Management of Commerce, 6-1-91,Adj.Telephone Bhavan, Khairatabad, Hyderabad-04	9866260143
9	III	S.Nagesh UGCNET ,Lect.in Computer Science, Neelagiri Degree & P.G.College, Near Kanakaduga Temple ,Ramagiri, Nalgonda-508001	9177933967
10	IV	Goli Sushma , TS SET, Lect. In Computer Science, Govt. Women's College, Ramagir, Nalgonda.	6281315652
11	IV	M.Satyanaryana, Lecturer in Computer Science, Indian Institute of Management of Commerce, 6-1-91,Adj.Telephone Bhavan, Khairatabad, Hyderabad-04	9866260143
12	IV	Ch.madhavi, Lect in Computer Science, Government Degree College ALAIR, Dist:- Yadadri bhuvanagiri .Pin 508101	9553053211
13	V	M.Satyanaryana, Lecturer in Computer Science, Indian Institute of Management of Commerce, 6-1-91,Adj.Telephone Bhavan, Khairatabad, Hyderabad-04	9866260143
14	V	DUSHETTI BALAKISHAN, UGC NET Lecturer in Computer Science, Sri Navabharath Degree & PG College, Bhongiri ,Dist:-Yadadri bhuvanagiri .Pin 508116	9502160342
15	V	S.Nagesh UGCNET ,Lect.in Computer Science, Neelagiri Degree & P.G.College, Near Kanakaduga Temple ,Ramagiri, Nalgonda-508001	9177933967
16	VI	Goli Sushma , TS SET, Lect. In Computer Science, Govt. Women's College, Ramagir, Nalgonda.	6281315652
17	VI	DUSHETTI BALAKISHAN, UGC NET Lecturer in Computer Science, Sri Navabharath Degree & PG College, Bhongiri ,Dist:-Yadadri bhuvanagiri .Pin 508116	9502160342
18	VI	S.Nagesh UGCNET ,Lect.in Computer Science, Neelagiri Degree & P.G.College, Near Kanakaduga Temple ,Ramagiri, Nalgonda-508001	9177933967
19	VII	DUSHETTI BALAKISHAN, UGC NET, Lecturer in Computer Science, Sri Navabharath Degree & PG College, Bhongiri ,Dist:-Yadadri bhuvanagiri .Pin 508116	9502160342
20	VII	M.Satyanaryana, Lecturer in Computer Science, Indian Institute of Management of Commerce, 6-1-91,Adj.Telephone Bhavan, Khairatabad, Hyderabad-04	9866260143
21	VII	S.Nagesh UGCNET ,Lect.in Computer Science, Neelagiri Degree & P.G.College, Near Kanakaduga Temple ,Ramagiri, Nalgonda-508001	9177933967
22	VIII	Goli Sushma , TS SET, Lect. In Computer Science, Govt. Women's College, Ramagir, Nalgonda.	6281315652
23	VIII	S.Nagesh UGCNET ,Lect.in Computer Science, Neelagiri Degree & P.G.College, Near Kanakaduga Temple ,Ramagiri, Nalgonda-508001	9177933967
24	VIII	DUSHETTI BALAKISHAN, UGC NET, Lecturer in Computer Science, Sri Navabharath Degree & PG College, Bhongiri ,Dist:-Yadadri bhuvanagiri .Pin 508116	9502160342

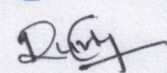


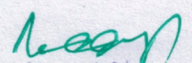
**Assistant Professor**

Dept. - Computer Science & Informatics  
UCE & T.M.G.U. Nalgonda









# SYLLABUS

**NAGARJUNA GOVT. DEGREE COLLEGE : NALGONDA**

(AUTOTONOMOUS) (Re Accredited by NAAC with "A" Grade)

**DEPARTMENT OF COMPUTER SCIENCE**

**B.Sc. ( COMPUTER SCIENCE ) I YEAR ( 2020-21 )**

**SEMESTER: I PAPER-I**

**SUBJECT:- PROGRAMMING IN C**

**UNIT - I**

**COMPUTER FUNDAMENTALS:** Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU.

**PROGRAM FUNDAMENTALS:** Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development.

**ALGORITHMS:** Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept.

**BASICS OF C:** Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation—precedence and associativity, Type Conversions.

**UNIT - II**

**INPUT-OUTPUT:** Non-formatted and Formatted Input and Output Functions, Escape Sequences,

**CONTROL STATEMENTS:** Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements—while, for, do-while; Special Control Statement—goto, break, continue, return, exit.

**ARRAYS AND STRINGS:** One-dimensional Arrays, Character Arrays, Functions from ctype.h, string.h, Multidimensional Arrays.

**UNIT - III**

**FUNCTIONS:** Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion.

**POINTERS:** Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Pointers to Pointers, Array of Pointers, Pointer to Array, Dynamic Memory Allocation.

**UNIT - IV**

**USER-DEFINED DATA TYPES:** Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Array of Structures (Union), Structures Vs Unions, Enumeration Types.

**FILES:** Introduction, Using Files in C, Working with Text Files, Working with Binary Files, Files of Records, Random Access to Files of Records, Other File Management Functions.

**Text book pradiDey, Manas Ghosh Computer Fundamentals and Programming in C(2e)**

References

- 1.Ivor Horton,Beginning C
- 2.Herbert Schildt,The Complete Reference C
- 3.Paul Deitel, Harvey Deitel,C How To Program
- 4.Byron S. Gottfried,Theory and Problems of Programming with C
- 5.Brian W. Kernighan, Dennis M. Ritchie,The C Programming Language
- 6.B. A. Forouzan, R. F. Gilberg, A Structured Programming Approach Using C

CHAIRMAN  
Board of Studies in Computer Science  
N.G.College, NALGONDA.

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**DEPARTMENT OF COMPUTER SCIENCE**  
**B.Sc. ( COMPUTER SCIENCE ) I YEAR ( 2020-21 )**

**SEMESTER: II PAPER - II**

**SUBJECT :- PROGRAMMING IN C++**

**UNIT - I**

**INTRODUCTION TO C++:** Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays.

**FUNCTIONS:** Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions. Object-oriented Programming: Procedural and Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.

**UNIT - II**

**CLASSES:** Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading, Object Conversion, Aggregation.

**UNIT - III**

**INHERITANCE:** Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Redefining Base Class Functions, Class Hierarchies, Polymorphism and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance.  
**C++ STREAMS:** Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

**UNIT - IV**

**EXCEPTIONS:** Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception, Handling the bad\_alloc Exception.

**TEMPLATES:** Function Templates-Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates - Introduction, Defining Objects of the Class Template, Class Templates and Inheritance, Introduction to the STL.

**Text** Tony Gaddis, *Starting out with C++: from control structures through objects*(7e)

**References**

1. B. Lippman, *C++ Primer*
2. Bruce Eckel, *Thinking in C++*
3. K.R. Venugopal, *Mastering C++*
4. Herbert Schildt, *C++: The Complete Reference*
5. Bjarne Stroustrup, *The C++ Programming Language*
6. Sourav Sahay, *Object Oriented Programming with C++*

CHAIRMAN

Board of Studies in Computer Science

N.G. College, NALGONDA.

Assistant Professor 2 of 2  
Dept. - Computer Science & Information  
N.G. College, Nalgonda

**NAGARJUNA GOVT. DEGREE COLLEGE : NALGONDA**

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**DEPARTMENT OF COMPUTER SCIENCE****B.Sc. ( COMPUTER SCIENCE ) II YEAR ( 2020-21 )****SEMESTER: III PAPER- III****DATA STRUCTURES USING C++****UNIT - I****Fundamental Concepts:** Introduction to Data Structures, Types of Data Structures, Introduction to Algorithm, Pseudo-code, Flow Chart, Analysis of Algorithms.**Linear Data Structure Using Arrays:** 1-D Arrays, 2-D Arrays, N-D Arrays, Memory Representation and Address Calculation of 1-D, 2-D, N-D Arrays, Concept of Ordered List, String Manipulation, Pros and Cons of Arrays.**Stacks:** Concept, Primitive Operations, Abstract Data Type, Representation Stacks Using Arrays, Prefix, Infix, Postfix Notations for Arithmetic Expression, Applications of Stacks—Converting Infix Expression to Postfix Expression, Evaluating the Postfix Expression, Checking Well-formed (Nested) Parenthesis, Processing of Function Calls, Reversing a String.**UNIT - II****RECURSION:** Introduction, Recurrence, Use of Stack in Recursion, Variants of Recursion, Execution of Recursive Calls, Recursive Functions, Iteration versus Recursion.**QUEUES:** Concept, Primitive Operations, Abstract Data Type, Representation Queues Using Arrays, Circular Queue, Double-Ended Queue, Applications of Queues.**LINKED LISTS:** Introduction, Concept, Terminology, Primitive Operations—creating, inserting, deleting, traversing, Representation of Linked Lists, Linked List Abstract Data Type, Linked List Variants – Singly Linked List, Doubly Linked List, Linear and Circular Linked List, Representation Stacks and Queues Using Linked Singly Lists, Application of Linked List—Garbage Collection.**UNIT - III****TREES:** Introduction, Representation of a General Tree, Binary Tree Introduction, Binary Tree Abstract Data Type, Implementation of Binary Trees, Binary Tree Traversals – Preorder, Inorder, Postorder Traversals, Applications of Binary Trees Briefly.**GRAPHS:** Introduction, Graph Abstract Data Type, Representation of Graphs, Graph Traversal – Depth-First Search, Breadth-First Search, Spanning Tree – Prim's Algorithm, Kruskal's Algorithm. Hashing: Introduction, Hash Functions, Collision Resolution Strategies.**UNIT - IV****SEARCHING AND SORTING:** Sequential (Linear) Search, Binary Search, Bubble Sort, Insertion Sort, Selection Sort, Quick Sort, Merge Sort, and Comparison of Sorting Techniques.**HEAPS:** Concept, Implementation, Abstract Data Type, Heap Sort.**Text books** Varsha H. Patil, Data Structures Using C++**References books**

Nell Dale, C++ Plus Data Structures

Seymour Lipschutz, Data Structures (Revised 1e) *Chairman*  
Board of Studies in Computer Science

Adam Drozdek, Data Structures and Algorithms in C++ College, NALGONDA.

Mark Allen Weiss, Data structures and Algorithm Analysis in C++ (4e)

D.S. Malik, C++ Programming: Program Design Including Data Structures (6e)

Michael Main, Walter Savitch, Data Structures and Other Objects Using C++ (4e)

Michael T. Goodrich, R. Tamassia, David M. Mount, Data Structures and Algorithms in C++  
Yonghui Wu, Jiande Wang, Data Structure Practice for Collegiate Programming Contests and Education*[Signature]**[Signature]**[Signature]**[Signature]*

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**DEPARTMENT OF COMPUTER SCIENCE**

**B.Sc. ( COMPUTER SCIENCE ) II YEAR ( 2020-21 ) SEMESTER: IV PAPER-IV**

**DATABASE MANAGEMENT SYSTEMS**

**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, Data Manipulation—Simple Queries, Sorting Results, Using the SQL Aggregate Functions, Grouping Results, Sub-queries, ANY and ALL, Multi-table Queries, EXISTS and NOT EXISTS, Combining Result Tables, Database Updates.

**SQL:** The ISO SQL Data Types, Integrity Enhancement Feature—Domain Constraints, Entity Integrity, Referential Integrity, General Constraints, Data Definition—Creating a Database, Creating a Table, Changing a Table Definition, Removing a Table, Creating an Index, Removing an Index, Views—Creating a View, Removing a View, View Resolution, Restrictions on Views, View Updatability, WITH CHECK OPTION, Advantages and Disadvantages of Views, View Materialization, Transactions, Discretionary Access Control—Granting Privileges to Other Users, Revoking Privileges from Users.

**ADVANCED SQL:** The SQL Programming Language—Declarations, Assignments, Control Statements, Exceptions, Cursors, Subprograms, Stored Procedures, Functions, and Packages, Triggers, Recursion.

**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.

Text

Thomas M. Connolly, Carolyn E. Begg, Database Systems—A Practical Approach to Design, Implementation, and Management (6e)

References Sharon Allen, Evan Terry, Beginning Relational Data Modeling

Jeffrey A. Hoffer, V. Ramesh, Heikki Topi, Modern Database Management

Raghu Ramakrishnan, Johannes Gehrke, Database Management Systems

Ramez Elmasri, Shamkant B. Navathe, Fundamentals of Database Systems

Abraham Silberschatz, Henry F. Korth, S. Sudarshan, Database System Concepts

C Coronel, S Morris, Peter Rob, Database Systems: Design, Implementation, and Management

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DEPARTMENT OF COMPUTER SCIENCE  
B.Sc III YEAR(2020-21) SEMESTER-V PAPER-V

SYLLABUS

**PROGRAMMING IN JAVA**

**UNIT - I**

**INTRODUCTION:** Java Essentials, JVM, Java Features, Creation and Execution of Programs, Data Types, Type Conversion, Casting, Conditional Statements, Loops, Branching Mechanism, Classes, Objects, Class Declaration, Creating Objects, Method Declaration and Invocation, Method Overloading, Constructors-Parameterized Constructors, Constructor Overloading, Cleaning-up unused Objects, Class Variables & Methods-static Keyword, this Keyword, One-Dimensional Arrays, Two-Dimensional Arrays, Command-Line Arguments, Inner Class.

**UNIT - II**

**INHERITANCE:** Introduction, Types of Inheritance, extends Keyword, Examples, Method Overriding, super, final Keywords, Abstract classes, Interfaces, Abstract Classes Verses Interfaces.

**PACKAGES**-Creating and Using Packages, Access Protection, Wrapper Classes, String Class, String Buffer Class.

**Exception:** Introduction, Types, Exception Handling Techniques, User-Defined Exception.

**UNIT - III**

**MULTITHREADING:** Introduction, Main Thread, Creation of New Threads - By Inheriting the Thread Class or Implementing the Runnable Interface, Thread Lifecycle, Thread Priority, Synchronization.

**INPUT/ OUTPUT:** Introduction, java.io Package, File Class, File Input Stream Class, File Output Stream Class, Scanner Class, Buffered Input Stream Class, Buffered Output Stream Class, Random Access File Class.

**APPLETS:** Introduction, Example, Life Cycle, Applet Class, Common Methods Used in Displaying the Output.

**UNIT - IV**

**EVENT HANDLING:** Introduction, Types of Events, Example.

**AWT:** Introduction, Components, Containers, Button, Label, Checkbox, Radio Buttons, Container Class, Layouts.

**SWING:** Introduction, Differences between Swing and AWT, JFrame, JApplet, JPanel, Components in Swings, Layout Managers, JTable, Dialog Box.

**DATABASE HANDLING USING JDBC:** Introduction, Types of JDBC Drivers, Load the Driver, Establish Connection, Create Statement, Execute Query, Iterate Result set, Scrollable Result set, Developing a JDBC Application.

**TEXT BOOK** Sachin Malhotra, Saurabh Choudhary, Programming in Java (2e)

**REFERENCES BOOKS**

Bruce Eckel, Thinking in Java (4e) Herbert Schildt

Java: The Complete Reference (9e) Y. Daniel Liang

Introduction to Java Programming (10e) Paul Deitel, Harvey Deitel,

Java: How To Program (10e) Cay S. Horstmann,

Core Java Volume I - Fundamentals (10e) C. Thomas Wu,

An introduction to object-oriented programming with Java (5e) Tony Gaddis,

Starting Out with Java From Control Structures Through Objects (6e) Jeanne Boyarsky, Scott Selikoff,

OCA: Oracle Certified Associate Java SE 8 Programmer-I Study Guide

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DEPARTMENT OF COMPUTER SCIENCE  
B.Sc III YEAR(2020-21) SEMESTER-VI PAPER-VI  
SYLLABUS  
WEB TECHNOLOGIES

**UNIT - I**

**STRUCTURING DOCUMENTS FOR THE WEB:** Introducing HTML and XHTML, Basic Text Formatting, Presentational Elements, Phrase Elements, Lists, Editing Text, Core Elements and Attributes, Attribute Groups

**LINKS AND NAVIGATION:** Basic Links, Creating Links with the <a> Element, Advanced E- mail Links.

**IMAGES, AUDIO, AND VIDEO:** Adding Images Using the <img> Element, Using Images as Links Image Maps, Choosing the Right Image Format, Adding Flash, Video and Audio to your web pages.

**TABLES:** Introducing Tables, Grouping Section of a Table, Nested Tables, Accessing Tables.

**FORMS:** Introducing Forms, Form Controls, Sending Form Data to the Server

**FRAMES:** Introducing Frameset, <frame> Element, Creating Links Between Frames, Setting a Default Target Frame Using <base> Element, Nested Framesets, Inline or Floating Frames with <iframe>.

**UNIT - II**

**CASCADING STYLE SHEETS:** Introducing CSS, Where you can Add CSS Rules.

**CSS PROPERTIES:** Controlling Text, Text Formatting, Text Pseudo Classes, Selectors, Lengths, Introducing the Box Model.

**MORE CASCADING STYLE SHEETS:** Links, Lists, Tables, Outlines, The :focus and :activate Pseudo classes Generated Content, Miscellaneous Properties, Additional Rules, Positioning and Layout with CSS

**PAGE LAYOUT:** Understating the Site's Audience, Page Size, Designing Pages, Coding your Design, Developing for Mobile Devices.

**DESIGN ISSUES:** Typography, Navigation, Tables, Forms.

**UNIT - III**

**LEARNING JAVASCRIPT:** How to Add Script to Your Pages, the Document Object Model, Variables, Operators, Functions, Control Statements, Looping, Events, Built- In Objects,

**WORKING WITH JAVASCRIPT:** Practical Tips for Writing Scripts, Form Validation, Form Enhancements, JavaScript Libraries.

**PUTTING YOUR SITE ON THE WEB:** Meta tags, Testing your site, Talking the Leap to Live, Telling the World about your site, Understanding your visitors

**UNIT-IV**

**XML-introduction,Xml Basics, Structuring Data, XML Namespaces,Document Type Definition(DTDs), W3CXML Schema Documents,XML, Vocabularies, Extensible style Sheet Language and XSL Transformations, Document Object Model(DOM).**

**Ajax-Enabled Rich Internet Applications:** introduction, history of Ajax, traditional web applications Vs Ajax Applications, RIA with Ajax, Ajax example using XMLHttpRequest object, XML and DOM, creating full scale Ajax-enabled application, Dojo Toolkit.

Text book Jon Duckett, Beginning HTML, XHTML, CSS and JavaScript

References

Chris Bates, Web Programming

M. Srinivasan, Web Technology: Theory and Practice

Achyut S. Godbole, Atul Kahate, Web Technologies

Kogent Learning Solutions Inc, Web Technologies Black Book

Ralph Moseley and M. T. Savaliya, Developing Web Applications

P.J. Deitel & H.M. Deitel, Internet and World Wide Web How to program

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B.Sc III YEAR(2020-21) SEMESTER-VI PAPER-VII  
SYLLABUS  
COMPUTER NETWORKS

**UNIT - I**

**INTRODUCTION:** Data Communication Components, Line Configuration, Topologies, Transmission Mode, Categories of Networks, ISO Reference Model-Layered Architecture, Functions of Layers, TCP/IP Reference Model.

**TRANSMISSION MEDIA:** Guided Media-Twisted Pair Cable, Coaxial Cable, Optical Fiber, Unguided Media- Satellite Communication, and Cellular Telephony.

**UNIT - II**

**MULTIPLEXING:** Frequency-Division Multiplexing, Time-Division Multiplexing.

**Data Link Layer:** Error Detection-VRC, LRC, CRC, Checksum, Error Correction-Hamming Code, Burst Error Correction, Line Discipline-ENQ/ACK, Poll/Select, Flow Control-Stop-and-Wait, Sliding Window, Error Control-Stop-and-Wait ARQ, Sliding Window ARQ Go-Back-n ARQ, Selective-Reject ARQ.

**UNIT - III**

**LOCAL AREA NETWORKS:** Introduction to IEEE 802, Ethernet-CSMA/CD, Implementation, Token Ring, Token Passing, Implementation.

**SWITCHING:** Circuit Switching, Packet Switching, Message Switching.

**UNIT-IV**

**NETWORKING AND INTERNETWORKING DEVICES:** Repeaters, Bridges, Routers, Gateways, Brouters, Switches, Distance Vector Routing Algorithm, Link State Routing Algorithm.

**TRANSPORT LAYER:** Duties of Transport Layer, Connection. Upper OSI Layers; Session Layer, Presentation Layer, Application Layer.

**TEXT BOOK** Behrouz A. Forouzan, Data Communication and Networking (2e Update)

**References**

S.S. Shinde, Computer Networks William Stallings,  
Data and Computer Communications Andrew S. Tanenbaum, David J Wetherall,  
Computer Networks Behrouz A Forouzan, Firouz Mosharraf,  
Computer Networks A Top-Down Approach James F. Kurose, Keith W. Ross,  
Computer Networking: A Top-Down Approach Featuring the Internet

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**DEPARTMENT OF COMPUTER SCIENCE  
B.Sc I YEAR (2020-21) SEMESTER-II**

**SYLLABUS**

**ABILITY ENHANCEMENT COMPULSORY COURSE (AEEC)**

**FUNDAMENTALS OF COMPUTERS**

Theory

2 Hours/Week 2 credits

**UNIT-I**

**INTRODUCTION TO COMPUTERS:** what is a computer, characteristics of Computers, Generations of Computers, Classifications of Computers, Basic Computer organization, Applications of Computers. Input and Output Devices: Input devices, Output devices, Softcopy devices, Hard copy devices. Computer Memory and Processors: Introduction, Memory Hierarchy, Processor, Registers, Cache memory, primary memory, secondary storage devices, magnetic tapes, floppy disks, hard disks, optical drives, USB flash drivers, Memory cards, Mass storage devices, Basic processors architecture.

**UNIT - II**

**NUMBER SYSTEM AND COMPUTER CODES:** Binary number system, working with binary numbers, octal number system, hexadecimal number system, working with fractions, signed number representation in binary form, BCD code, other codes. Boolean algebra and logic gates: Boolean algebra, Venn diagrams, representation of Boolean functions, logic gates, logic diagrams and Boolean expressions using karnaugh-map. Computer Software: Introduction to computer software, classification of computer software, system software, application software, firmware, middleware, acquiring computer software, design and implementation of correct, efficient and maintainable programs.

**Text Book:**

Reema Thareja, Fundamentals of Computers.

**References:**

1. V.Rajaraman, 6th Edition Fundamentals of Computers, Neeharika Adabala.
2. Anita Goel, Computer Fundamentals.

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**DEPARTMENT OF COMPUTER SCIENCE**

**B.Sc II YEAR (2020-21) SEMESTER-III**

**SYLLABUS**

**(SKILL ENHANCEMENT COURSE(SEC))**

**COMPUTATION USING EXCEL(SEC-I)**

**UNIT-I**

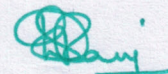
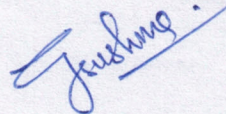
**UNDERSTANDING EXCEL:** Excel's Files, Ribbon and shortcut, Create a workbook, Enter data in a worksheet, Format a worksheet, Format numbers in a worksheet, Create an Excel table, Filter data by using an Auto filter, Sort data by using an AutoFilter. Essential worksheet Operations: Using Short cut keys, Key board shortcuts. Working with Cells and Ranges: Formatting Cells, Name Manager. Visualizing Data Using Conditional Formatting: Apply conditional formatting. Printing Your Work: Print a worksheet, Using Print Preview and other utilities

**UNIT-II**

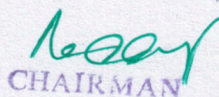
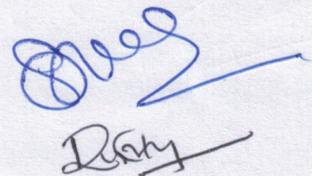
**DATES AND TIMES & TEXT:** Working with Dates & Time, Creating Formulas that Manipulate text – Upper, Proper, Lower, Concatenate, Text to Column. Creating Formulas that Count, Sum, Subtotal. Create a formula, Use a function in a formula. Creating Formulas that Look up Values: VLookup, Hlookup, Match & index. Creating charts and Graphics. Chart the data, Creating Sparkline Graphics, Using Insert Tab utilities.

Suggested Books:

1. Charts and Graphs Microsoft Excel 2013 – Bill Felen – Pearson Publication.
2. Statistics made simple do it yourself on PC – KVS Sarma – 2nd Edition – PHI.
3. Microsoft Office 2007- Essential Concepts and Techniques – Shelly Cashman Vermaat – Cengage Learning.
4. PC software Under Windows – Puneet Kumar – Kalyani Publishers



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B.Sc II YEAR (2020-21) SEMESTER-III  
SYLLABUS  
(SKILL ENHANCEMENT COURSE (SEC)  
OPERATING SYSTEM (SEC-II)

UNIT - I

**Introduction:** Computer-System Architecture, Computing Environments. Operating-System Structures: Operating-System Services, User Interface for Operating-System, System Calls, Types of System Calls, Operating System Structure.

**Process Management:** Process Concept, Process Scheduling, Operations on Processes, Inter process Communication, Examples-Producer-Consumer Problem. Process Synchronization: Critical-Section Problem, Peterson's Solution, Synchronization, Semaphores, Monitors.

Unit - II

**CPU Scheduling:** Concepts, Scheduling Criteria, Scheduling Algorithms.

**Deadlocks:** System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.

Text Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Operating System Concepts (9e)

Reference s Naresh Chauhan, Principles of Operating Systems

Thomas W. Doeppner, Operating Systems in Depth

Andrew S. Tanenbaum, Modern Operating Systems

William Stallings, Operating Systems - Internals and Design Principles

Dhananjay M. Dhandhere, Operating Systems - A Concept Based Approach

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B.Sc II YEAR(2020-21) SEMESTER-IV  
SYLLABUS  
(SKILL ENHANCEMENT COURSE(SEC))

PYTHON (SEC-III)  
UNIT - I

**Introduction to Python Programming:** How a Program Works, Using Python, Program Development Cycle, Input, Processing, and Output, Displaying Output with the Print Function, Comments, Variables, Reading Input from the Keyboard, Performing Calculations (Operators, Type conversions, Expressions), More about Data Output.

**Decision Structures and Boolean Logic:** if, if-else, if-elif-else Statements, Nested Decision Structures, Comparing Strings, Logical Operators, Boolean Variables.

**Repetition Structures:** Introduction, while loop, for loop, Calculating a Running Total, Input Validation Loops, Nested Loops.

UNIT - II

**Functions:** Introduction, Defining and Calling a Void Function, Designing a Program to Use Functions, Local Variables, Passing Arguments to Functions, Global Variables and Global Constants, Value-Returning Functions- Generating Random Numbers, Writing Our Own Value-Returning Functions, The math Module, Storing Functions in Modules.

**File and Exceptions:** Introduction to File Input and Output, Using Loops to Process Files, Processing Records, Exceptions.

Text Tony Gaddis, Starting Out With Python(3e)

References

1. Kenneth A. Lambert, Fundamentals of Python
2. Clinton W. Brownley, Foundations for Analytics with Python
3. James Payne, Beginning Python using Python 2.6 and Python 3
4. Charles Dierach, Introduction to Computer Science using Python
5. Paul Gries, Practical Programming: An Introduction to Computer Science using Python

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DEPARTMENT OF COMPUTER SCIENCE  
B.Sc II YEAR(2020-21) SEMESTER-IV

SYLLABUS  
(SKILL ENHANCEMENT COURSE(SEC)  
OPERATING SYSTEM-II (SEC-IV)

**UNIT - I**

**Main Memory:** Introduction, Swapping, Contiguous Memory Allocation, Segmentation, Paging.

**Virtual Memory:** Introduction, Demand Paging, Page Replacement, Allocation of Frames, Thrashing.

**Mass-Storage Structure:** Overview, Disk Scheduling, RAID Structure.

**File Systems:** File Concept, Access Methods, Directory and Disk Structure, File-System Mounting, Protection.

**UNIT - II**

**File System** Implementation, Directory Implementation, Allocation Methods, Free-Space Management. Recovery, Network File System.

**Protection and Security:** Goals of Protection, Principles of Protection, Domain of Protection, Access Matrix, Access Control, Revocation of Access Rights, The Security Problem, Program Threats, System and Network Threats, Cryptography as a Security Tool, User Authentication, Implementing Security Defenses, Firewalling to Protect Systems and Networks, Computer-Security Classifications. Case Study: Windows 7 and Linux System.

Text

Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Operating System Concepts (9e)

Reference s Naresh Chauhan, Principles of Operating Systems

Thomas W. Doeppner, Operating Systems in Depth

Andrew S. Tanenbaum, Modern Operating Systems

William Stallings, Operating Systems - Internals and Design Principles

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DEPARTMENT OF COMPUTER SCIENCE  
B.Sc III YEAR (2020-21) SEMESTER-V

SYLLABUS  
GENERIC ELECTIVE (GE)  
INFORMATION TECHNOLOGIES

Theory 4Hours/Week 4 credits

UNIT - I

**INFORMATION TECHNOLOGY BASICS** – introduction, Need for Information Storage and Processing, Information Technology Components, Role of information Technology, Information Technology and the Internet. Emerging Trends in IT - Introduction, Electronic Commerce (E-Commerce), Electronic Data Interchange(EDI), Smart Cards, Mobile Communication, Internet Protocol TV.

UNIT - II

**COMPUTER SOFTWARE:** Introduction, Classification of Computer Software, System Software, Applications Software, Firmware, Middleware, Acquiring Computer Software. Operating Systems: Introduction, Evolution of OS, Process Management, Memory Management, File Management, Device Management, Security Management, Command Interpreter, Windows, Linux.

UNIT - III

Introduction to Algorithms and Programming Languages: Algorithm, Control Structures, Flowcharts, Pseudo code, Programming Languages, Generations of Programming Languages. Database Systems: File Oriented Approach, Database Oriented Approach, Database Views, Three-Schema Architecture, Database Models, Components of DBMS, Introduction of SQL Queries.

UNIT - IV

**COMPUTER NETWORKS:** Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model.

**THE INTERNET:** Internet Services, Types of Internet Connections, Internet Security. Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, On-demand Computing, Wireless Network, Bluetooth, Artificial Intelligence.

Text Wiley India Editorial Team, Fundamentals of Information Technology  
Reema Thareja, Fundamentals of Computers  
Reference s P. K. sinha, Computer Fundamentals  
Anita Goel, Computer Fundamentals  
V. Rajaraman, Fundamentals of Computers  
E. Balagurusamy, Fundamentals of Computers  
J. Glenn Brookshear, Dennis Brylow, Computer Science An Overview

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# QUESTION BANKS

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DEPARTMENT OF COMPUTER SCIENCE  
B.Sc. (COMPUTER SCIENCE) I YEAR (2020-21)

SEMESTER: I PAPER-I

C LAB

PRACTICAL QUESTION BANK

Practical: 2 Hours/Week

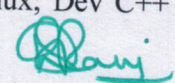
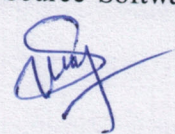
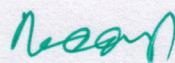
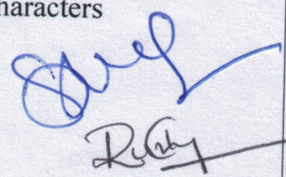
1. Write a program to find the largest two (three) numbers using if and conditional operator.
2. Write a program to print the reverse of a given number.
3. Write a program to print the prime number from 2 to n where n is given by user.
4. Write a program to find the roots of a quadratic equation using switch statement.
5. Write a program to print a triangle of stars as follows (take number of lines from user):

```
*  
***  
*****  
*****  
*****
```

6. Write a program to find largest and smallest elements in a given list of numbers.
7. Write a program to find the product of two matrices..
8. Write a program to find the GCD of two numbers using iteration and recursion.
9. Write a program to illustrate use of storage classes.
10. Write a program to demonstrate the call by value and the call by reference concepts.
11. Write a program that prints a table indicating the number of occurrences of each alphabet in the text entered as command line arguments.
12. Write a program to illustrate use of data type enum.
13. Write a program to demonstrate use of string functions string.h header file.
14. Write a program that opens a file and counts the number of characters in a file.
15. Write a program to create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
16. write a program that opens an existing text file and copies it to a new text file with all lowercase letters changed to capital letters and all other characters unchanged.

Note:

1. Write the Pseudo Code and draw Flow Chart for the above programs.
2. Recommended to use Open Source Software: GCC on Linux; Dev C++ (or) Code Blocks on Windows 10.



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DEPARTMENT OF COMPUTER SCIENCE

B.Sc. (COMPUTER SCIENCE) I YEAR (2020-21) SEMESTER: II

Object Oriented Programming in C++ Practical

C++ Lab

PRACTICAL QUESTION BANK

Practical: 2 Hours/Week

1. Write a program to.
  - a. Print the sum of digits of a given number.
  - b. Check whether the given number is Armstrong or not
  - c. Print the prime number from 2 to n where n is natural number given.
2. Write a program to find largest and smallest elements in a given list of numbers and sort the given list.
3. Write a menu driven program that can perform the following functions on strings. (Use overloaded operators where possible).
  - a. Compare two strings for equality (== operator)
  - b. Check whether first string is smaller than the second (<= operator)
  - c. Copy the string to another.
  - d. Extract a character from the string (overload [])
  - e. Reverse the string.
  - f. Concatenate two strings (+ operator)
4. Write a program using friend functions and inline functions.
5. Write a program to find area of a rectangle, circle, and square using constructors.
6. Write a program to implement copy constructor.
7. Write a program to demonstrate single inheritance and multiple inheritances.
8. Write a program to demonstrate hierarchical inheritance and multipath inheritance (using virtual functions)
9. Write a program to demonstrate static polymorphism using method overloading.
10. Write a program to demonstrate dynamic polymorphism using method overriding and dynamic method dispatch.
11. Write a program to demonstrate the function templates and class templates.
12. Write a program to menu driven program for accepting two numbers and perform calculator operations addition, subtraction, multiplication, division and remainder using function template.
13. Write a program to demonstrate exception handling.
14. Write a program to demonstrate various input-output manipulations.
15. Write a program to implement stack abstract data type.
16. Write a program to demonstrate array of objects.

**Note:** Recommended to use Open Source Software: GCC on Linux; Dev C++ (or) Code Blocks on Windows 10.

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Assistant Professor  
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NAGARJUNA GOVT. DEGREE COLLEGE: NALGONDA  
(AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE

B.Sc II YEAR(2020-21)

PRACTICAL QUESTION BANK

PAPER – III

TIME 3 HOURS

Max.Marks 50

**DATA STRUCTURES LAB**

1. Write programs to implement the following using an array: a) Stack ADT b) Queue ADT.
2. Write a program to convert the given infix expression to postfix expression using stack.
3. Write a program to evaluate a postfix expression using stack.
4. Write a program to ensure the parentheses are nested correctly in an arithmetic expression.
5. Write a program to find following using Recursion
  - a) Factorial of +ve Integer b) nth term of the Fibonacci Sequence c) GCD of two +ve integers
6. Write a program to create a single linked list and write functions to implement the following operations.
  - a. Insert an element at a specified position
  - b. Delete a specified element in the list
  - c. Search for an element and find its position in the list
  - d. Sort the elements in the list ascending order
7. Write a program to create a double linked list and write functions to implement the following operations.
  - a. Insert an element at a specified position
  - b. Delete a specified element in the list
  - c. Search for an element and find its position in the list
  - d. Sort the elements in the list ascending order
8. Write a program to create singular circular linked lists and function to implement the following operations.
  - a. Insert an element at a specified position
  - b. Delete a specified element in the list
  - c. Search for an element and find its position in the list
9. Write programs to implement the following using a single linked list:
  - a. Stack ADT b. Queue ADT.
10. Write a program to implement Binary search technique using Iterative method and Recursive methods.
11. Write a program for sorting the given list numbers in ascending order using the following technique: Bubble sort and Selection sort
12. Write a program for sorting the given list numbers in ascending order using the following technique: Insertion sort and Quick sort
13. Write a program for sorting the given list numbers in ascending order using the following technique: Merge sort and Heap sort
14. Write a program to traverse a binary tree in following way.
  - a. Pre-order b. In-order c. Post-order
15. Write a program to the implementation graph traversals – BFS and DFS.
16. Write a program to find the minimum spanning tree for a weighted graph using
  - a. Prim's Algorithm b. Kruskal's Algorithm.

Note:

Write the Pseudo Code for the above programs.

Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows.

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NAGARJUNA GOVT. DEGREE COLLEGE: NALGONDA  
(AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE

B.Sc II YEAR(2020-21)

PRACTICAL QUESTION BANK

PAPER – IV

TIME 3 HOURS

Max.Marks 50

**DATABASE MANAGEMENT SYSTEMS**

Consider the relational schema for part of the DreamHome case study is:

Branch (branchNo, street, city, postcode)

Staff (staffNo, fName, IName, position, sex, DOB, salary, branchNo)

PropertyForRent (propertyNo, street, city, postcode, type, rooms, rent, ownerNo, staffNo, branchNo)

Client (clientNo, fName, IName, telNo, prefType, maxRent, eMail)

PrivateOwner (ownerNo, fName, IName, address, telNo, eMail, password)

Viewing (clientNo, propertyNo, viewDate, comment)

Registration (clientNo, branchNo, staffNo, dateJoined)

1. Create a database with name "DreamHome" and now create all the tables listed above with constraints.
2. Insert a new row into the table supplying data for all columns.
3. Modify data in the database using UPDATE
4. Delete data from the database using DELETE
5. Changing a table definition using ALTER
6. Removing a table using DROP
7. Removing rows in table using TRUNCATE
8. Create an index and removing an index
9. Practice other standard SQL commands for creating, modifying, displaying data of tables.
10. List full details of all staff.
11. List all staff with a salary greater than £10000.
12. List the property numbers of all properties that have been viewed.
13. Produce a list of salaries for all staff, showing only the staffNo, fName, IName, and salary details.
14. List all cities where there is either a branch office or a property for rent.
15. List all cities where there is a branch office but no properties for rent.
16. List all cities where there is both a branch office and at least one property for rent.
17. List the names and comments of all clients who have viewed a property for rent.
18. Produce a status report on property viewings.
19. List complete details of all staff who work at the branch in Glasgow.
20. List the addresses of all branch offices in London or Glasgow
21. List all staff with a salary between £20,000 and £30,000.
22. Identify all clients who have viewed all properties with three rooms.
23. How many properties cost more than £350 per month to rent?
24. How many different properties were viewed in May 2013?
25. Find the total number of Managers and the sum of their salaries.
26. Find the minimum, maximum, and average staff salary.
27. Find the number of staff working in each branch and the sum of their salaries.
28. List all managers and supervisors.
29. Find all owners with the string 'Glasgow' in their address.
30. List the details of all viewings on property PG4 where a comment has not been supplied.
31. Produce a list of salaries for all staff, arranged in descending order of salary
32. Produce an abbreviated list of properties arranged in order of property type.

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Assistant Professor  
Dept - Computer Science & Informa

33. Find the number of staff working in each branch and the sum of their salaries.
  34. For each branch office with more than one member of staff, find the number of staff working in each branch and the sum of their salaries.
  35. List the staff who work in the branch at '163 Main St'.
  36. List all staff whose salary is greater than the average salary, and show by how much greater than the average.
  37. List the properties that are handled by staff who work in the branch at '163 Main St'.
  38. Find all staff whose salary is larger than the salary of at least one member of staff at branch B003.
  39. Find all staff whose salary is larger than the salary of every member of staff at branch B003
  40. List the names of all clients who have viewed a property, along with any comments supplied.
  41. For each branch office, list the staff numbers and names of staff who manage properties and the properties that they manage.
- B.Sc. (Computer Science) – Osmania University Page | 15
42. For each branch, list the staff numbers and names of staff who manage properties, including the city in which the branch is located and the properties that the staff manage.
  43. Find the number of properties handled by each staff member, along with the branch number of the member of staff.
  44. List all branch offices and any properties that are in the same city.
  45. List all properties and any branch offices that are in the same city.
  46. List the branch offices and properties that are in the same city along with any unmatched branches or properties.
  47. Find all staff who work in a London branch office.
  48. Construct a list of all cities where there is either a branch office or a property.
  49. Construct a list of all cities where there is both a branch office and a property.
  50. Create a view so that the manager at branch B003 can see the details only for staff who work in his or her branch office.
  51. Create a view of the staff details at branch B003 that excludes salary information, so that only managers can access the salary details for staff who work at their branch.
  52. Create a view of staff who manage properties for rent, which includes the branch number they work at, their staff number, and the number of properties they manage.
  53. Removing a view using DROP VIEW
  54. Give the user with authorization identifier Manager all privileges on the Staff table.
  55. Give users Personnel and Director the privileges SELECT and UPDATE on column salary of the Staff table.
  56. Revoke the privilege SELECT on the Branch table from all users.
  57. Revoke all privileges you have given to Director on the Staff table.
  58. Demonstrate exceptions in PL/SQL
  59. Demonstrate cursors in PL/SQL
  60. Write PL/SQL queries to create procedures.
  61. Write PL/SQL queries to create functions.
  62. Write PL/SQL queries to create package.
  63. Write PL/SQL queries to create triggers.

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64. Write PL/SQL queries using recursion.  
Consider the relational schema for part of the Hotel case study is:  
Hotel (hotelNo, hotelName, city)  
Room (roomNo, hotelNo, type, price)  
Booking (hotelNo, guestNo, dateFrom, dateTo, roomNo)  
Guest (guestNo, guestName, guestAddress)
65. Create a database with name "Hotel" and now create all the tables listed above with constraints.
66. Insert a new row into the table supplying data for all columns.
67. Modify data in the database using UPDATE
68. Delete data from the database using DELETE
69. Changing a table definition using ALTER
70. Removing a table using DROP
71. Removing rows in table using TRUNCATE
72. Practice other standard SQL commands for creating, modifying, displaying data of tables.
73. List full details of all hotels.
74. List full details of all hotels in London.
75. List the names and addresses of all guests living in London, alphabetically ordered by name.
76. List all double or family rooms with a price below £40.00 per night, in ascending order of price.
77. List the bookings for which no dateTo has been specified.
78. How many hotels are there?
79. What is the average price of a room?
80. What is the total revenue per night from all double rooms?
81. How many different guests have made bookings for August?
82. List the price and type of all rooms at the Grosvenor Hotel.
83. List all guests currently staying at the Grosvenor Hotel.
84. List the details of all rooms at the Grosvenor Hotel, including the name of the guest staying in the room.
85. What is the total income from bookings for the Grosvenor Hotel today?
86. List the rooms that are currently unoccupied at the Grosvenor Hotel.
87. What is the lost income from unoccupied rooms at the Grosvenor Hotel?
88. List the number of rooms in each hotel.
89. List the number of rooms in each hotel in London.
90. What is the average number of bookings for each hotel in August?
91. What is the most commonly booked room type for each hotel in London?
- B.Sc. (Computer Science) – Osmania University Page | 16
92. What is the lost income from unoccupied rooms at each hotel today?
93. Insert rows into each of these tables.
94. Update the price of all rooms by 5%.
95. Demonstrate that queries written using the UNION operator and same can be rewritten using the OR.
96. Apply the syntax for inserting data into a table.
97. Create a view containing the cheapest hotels in the world.
98. Create the Hotel table using the integrity enhancement features of SQL.
99. Create a database trigger for the following situations:
- (a) The price of all double rooms must be greater than £100.
- (b) The price of double rooms must be greater than the price of the highest single room.
- (c) A booking cannot be for a hotel room that is already booked for any of the specified dates.
- (d) A guest cannot make two bookings with overlapping dates.

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(e) Maintain an audit table with the names and addresses of all guests who make bookings for hotels in London (do not store duplicate guest details).

Given relation schemas are Sailors(sid : integer, sname : string, rating : integer, age : real) Boats(bid : integer, bname : string, color : string)

Reserves(sid : integer, bid : integer, day : date)

100. Find the names and ages of all sailors.
101. Find all sailors with a rating above 7.
102. Find the names of sailors who have reserved boat 103.
103. Find the sids of sailors who have reserved a red boat.
104. Find the names of sailors who have reserved a red boat.
105. Find the colors of boats reserved by Lubber.
106. Find the names of sailors who have reserved at least one boat.
107. Find the names of sailors who have reserved at least two boats.
108. Compute increments for the ratings of persons who have sailed two different boats on the same day.
109. Find the ages of sailors whose name begins and ends with B and has at least three characters.
110. Find the names of sailors who have reserved a red or a green boat.
111. Find the names of sailors who have reserved a red and a green boat.
112. Find the sids of all sailors who have reserved red boats but not green boats.
113. Find all sids of sailors who have a rating of 10 or have reserved boat 104.
114. Find the names of sailors who have not reserved a red boat.
115. Find sailors whose rating is better than some sailor called Horatio.
116. Find sailors whose rating is better than every sailor called Horatio.
117. Find the names of sailors who have reserved all boats.
118. Find the names of sailors who have reserved at least two boats.
119. Find the names of sailors who have reserved all boats called Interlake.
120. Find sailors who have reserved all red boats.
121. Find the sailor name, boat id, and reservation date for each reservation.
122. Find the sids of sailors with age over 20 who have not reserved a red boat.
123. Find the average age of all sailors.
124. Find the average age of sailors with a rating of 10.
125. Find the name and age of the oldest sailor.
126. Count the number of different sailor names.
127. Find the names of sailors who are older than the oldest sailor with a rating of 10.
128. Find the sailors with the highest rating.
129. Find the age of the youngest sailor for each rating level.
130. Find age of the youngest sailor who is eligible to vote for each rating level with at least 2 such sailors.
131. Find the average age of sailors for each rating level that has at least two sailors.
132. For each red boat, find the number of reservations for this boat.
133. Find the average age of sailors who are of voting age (i.e., at least 18 years old) for each rating level that has at least two sailors.
134. Delete the records of sailors who have rating 8 (deleting some rows in a table).
135. Loading data which is present in the text into the table.

Note:

Recommended to use open source database software like MySQL, MongoDB, PostgreSQL, etc...

In practical examination, students have to

- Create database
- Create tables with their integrity constraints.
- Insert the data into tables and then execute the queries.
- Answer any six queries from ten queries given by the examiner.

*Dr. P. S. Rao*  
**Assistant Professor**

**Dept. - Computer Science & Informatics**

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NAGARJUNA GOVT. DEGREE COLLEGE: NALGONDA(AUTONOMOUS)  
B.Sc III YEAR(2020-21) PAPER V  
PRACTICAL QUESTION BANK

TIME : 3 HOURS

**JAVA LAB**

MAX.MARKS : 50

Write java programs to find the following

1. a) largest of given three numbers b) reverses the digits of a number  
c) given number is prime or not d) GCD of given two integers
2. Write java programs that implement the following  
a) default constructor b) parameterized constructor c) constructor overloading
3. a) Write a java program to find the smallest of given list integers using array and scanner class.  
b) Write a java program for multiplication of two matrices.
4. a) Write a java program for demonstrating an inner classes or nested classes.  
b) Write a java program to implement method overloading, method overriding, dynamic method dispatch
5. Write a java program to implement single, multilevel, hierarchal, multiple, hybrid inheritances.
6. Write java programs that demonstrate the use of abstract, this, super, static, final keywords
7. a) Write a java program for creating a package and using a package.  
b) Write a java program to demonstrate the use of wrapper classes.
8. a) Write a java program using all five keywords of exception handling mechanism.  
b) Write a java program for creating customized (user) exception
9. a) Write a java program that checks whether a given string is a palindrome or not.  
b) Write a java program for sorting a given list of names in ascending order.
10. a) Write a java program to create a file, write the data and display the data.  
b) Write a java program that reads a file name from user and displays its information.
11. a) Write a java program for controlling main thread.  
b) Write a java program for creating new thread by extending Thread class.
12. a) Write a java program for creating new thread by implementing Runnable interface.  
b) Write a java program for thread synchronization.
13. a) Write a java program to create following AWT components: Button, Checkbox, Choice, and List. b) Write java programs to create AWT application using containers and layouts.
14. a) Write java programs to create a simple Applet and create swing based Applet.  
b) Write a java program to handle different types of events in a swing application.
15. Write java programs to create a swing application using swing components and layouts.
16. Write a java program to store and retrieve data from database using JDBC.

Note: Write the program using simple text editors (not IDE), compile and run from command prompt. Encourage students to develop small java applications using IDE, like giving as assignment. Write a small java application using some features of java.

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Computer Science & Informatics

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**NAGARJUNA GOVT. DEGREE COLLEGE: NALGONDA**  
**(AUTONOMOUS)**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**B.Sc III YEAR(2020-21) PAPER-VI**  
**PRACTICAL QUESTION BANK**

**TIME : 3 HOURS**

**MAX.MARKS : 50**

**Web Technologies Lab**

1. a. Write a HTML program using basic text formatting tags, <h1>, <p>, <br>, <pre>.  
b. Write a HTML page for Example Cafe using above text formatting tags.
2. a. Write a HTML program using presentational element tags <b>, <i>, <strike>, <sup>, <sub>, <big>, <small>, <hr>.  
b. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <kbd>, <address>
3. a. Write a HTML program using different list types.  
b. Write a HTML page that displays ingredients and instructions to prepare a recipe.
4. a. Write a HTML program using grouping elements <div> and <span>.  
b. Write a HTML Menu page for Example cafe site.
5. a. Write a HTML program using images, audios, videos.  
b. Write a HTML program to create your time table.
6. Write a HTML program to create a form using text inputs, password inputs, multiple line text input, buttons, check boxes, radio buttons, select boxes, file select boxes.
7. Write a HTML program to create a frames and links between frames.
8. Write a HTML program to create different types of style sheets.
9. Write a HTML program to create CSS on links, lists, tables and generated content.
10. Write a HTML program to create your college web site using multi column layouts.
11. Write a HTML program to create your college web site using for mobile device.
12. Write a HTML program to create login form and verify username and password using DOM
13. Write a JavaScript program to calculate area of rectangle using function.  
b. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time. a. Write a JavaScript program using switch case?.
- 14 a. Write a JavaScript program to print multiplication table of given number using loop. a. Write a JavaScript programs using any 5 events.
- 15 a. Write a JavaScript program using JavaScript built in objects.  
b. Write a JavaScript program to create registration form and validate all fields using form validation.

*Chairman*  
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**Assistant Professor**  
**Dept. - Computer Science & Informatics**  
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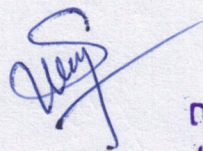
**NAGARJUNA GOVT. DEGREE COLLEGE(A): NALGONDA**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**COMPUTER NETWORKING**  
**BSC -III YEAR SEMESTER-VI (2020-21) PAPER-VII**  
**PRACTICAL QUESTION BANK**

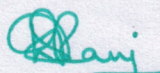
**TIME : 3 HOURS**

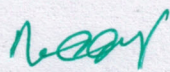
**MAX.MARKS : 50**

- 1 Write a program to create a socket and implement connect function.
- 2 Write a program to get MAC address.
- 3 Write a program to display hello world using signals.
- 4 Write a program for socket pair system call using IPC.
- 5 Write a program to implement the sliding window protocol.
- 6 Write a program to identify the category of IP address for a given IP address.
- 7 Write a program to print details of DNS host.
- 8 Write a program to implement listener and talker.
- 9 Write a program to implement TCP echo using client-server program.
- 10 Write a program to implement UDP echo using client-server program.
- 11 Write a UDP client-server program to convert lowercase letters to uppercase letters.
- 12 Write a TCP client-server program to convert a given string into reverse.
- 13 Write a UDP client-server program to convert a given string into reverse.
- 14 Write a program to implement TCP iterative client-server program.
- 15 Write a program to implement time service using TCP client-server program.
- 16 Write a program to implement time service using UDP client-server program.

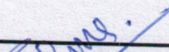
Note Write above program using C language on Unix/Linux systems.



  
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**Dept. - Computer Science & Informatics**  
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# MODEL PAPERS

NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) , NALGONDA

TENTATIVE SCHEME OF EVALUATION

COURSE: B.Sc.,

SUBJECT: Computer Science

2020-21

Semester: I

Module: PROGRAMMING IN C

Time: 2:30 Hours

PAPER -I

Max. Marks: 70

PART-A

I. Answer the following questions in one or two sentences.

5x2=10

1. What is RAM?
2. What is Compiler?
3. What is Array?
4. Define Enumerated Data type?
5. Explain C Tokens?

PART-B

II. Answer any four questions from the following not exceeding 20 lines.

4x5=20

6. Explain about Control Statements?
7. What is String. And Explain It?
8. What is Call- By - Value. Explain?
9. Write a Program to find Factorial of a given Number?
10. What is Algorithm? Explain its Characteristics
11. Explain Call-by- address?

PART-C

III. Answer the following questions not exceeding 40 lines

4x10=40

12. A) Explain about Different Data types in C language?

OR

B) What is Operating System?

13. A) Explain Looping Statements with an Example Program?

OR

B) Write a Program Matrix multiplication using Arrays?

14. A) What is Storage class? Explain Different types of Storage classes?

OR

B) What is Pointer? Give to suitable example programs.

15. A) Define the Structure? Explain it with an Example program

OR

B) Explain about Working with Binary Files.

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NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS), NALGONDA

TENTATIVE SCHEME OF EVALUATION

COURSE: B.Sc.,

SUBJECT: COMPUTER SCIENCE

2020-21

SEMESTER: II

Module: PROGRAMMING IN C++

Time: 2:30

PAPER-II

Max.Marks:70

**PART-A**

I. Answer the following questions in one or two sentences.

5x2=10

1. What is an Exception?
2. What is a Array?
3. What is a Class?
4. Define the Constructor?
5. Define the Inheritance?

**PART-B**

II. Answer any four questions from the following not exceeding 20 lines.

4x5=20

6. Explain about OOPs?
7. Write a short note on Data types?
8. What is Virtual Function?
9. Explain about Polymorphism?
10. Explain about Unformatted I/O Operations.

**PART-C**

III. Answer the following questions not exceeding 40 lines.

4x10=40

12. A) Explain about Control structures in C++.

OR

B) What is Function? Explain about Call-by-value?

13. A) Explain about Operator overloading?

OR

B) Write a Program to implement copy constructor?

14. A) Explain about Different types of inheritances?

OR

B) Explain Friend functions and Inline functions?

15. A) Explain about Exception Handling in C++?

OR

B) Explain about Templates?

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N.G. College, NALGONDA.

Assistant Professor

Dept. - Computer Science & Informatics  
UCE & T.M.G.U., Nalgonda (T.S.)

NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) : NALGONDA

TENTATIVE SCHEME OF EVALUATION

COURSE: B.Sc.,  
SEMESTER: III  
Time: 2:30  
Max.Marks:70

SUBJECT:- COMPUTER SCIENCE 2020-21  
Module: DATA STRUCTURES USING C++  
PAPER-III

PART-A

I. Answer the following questions in one or two sentences. 5x2=10

1. What is Data Structure?
2. What is rear?
3. What is a Stack?
4. Define Graph?
5. Define the Linked List?

PART-B

II. Answer any four questions from the following not exceeding 20 lines. 4x5=20

6. Explain Postfix with Example?
7. What is Circular Queues?
8. What is DFS?
9. Explain about Double Linked List?
10. Sort the Numbers 75,42,23,87,96,65,12,36 by using Insertion Sort?

PART-C

III. Answer the following questions not exceeding 40 lines. 4x10=40

12. A) What is Flowchart? Explain it With Example Program?.

OR

B) Explain about String Manipulation?

13. A) Explain about Double Ended Queues with example?

OR

B) Write a Program for Single Linked List?

14. A) Explain about Binary concepts ?

OR

B) Explain Prim's And Kruskal's Algorithm?

15. A) Explain about Heap Sort with Example ?

OR

B) Write a Program by using Quick Sort?

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N.G. College, NALGONDA.  
Assistant Professor  
Dept. - Computer Science & Informatics  
U.C.E & T.M.G.U., Nalgonda (T.S.)



NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS), NALGONDA

TENTATIVE SCHEME OF EVALUATION

COURSE: B.Sc.,

SUBJECT: COMPUTER SCIENCE 2020-21

PAPER-IV SEMESTER: IV

DATABASE MANAGEMENT SYSTEMS

Time: 2:30 Hours

Max. Marks: 70 PART-A

5x2=10

I. Answer the following questions in one or two sentences.

1. What is Transaction?
2. What is Generalization?
3. What is Super key?
4. Define Trigger?
5. Define Aggregation?

PART-B

II. Answer any four questions from the following not exceeding 20 lines.

4x5=20

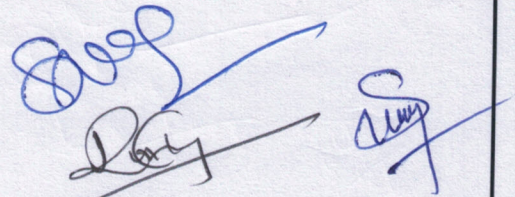
6. Explain about Keys?
7. What is an Operator Explain Different types of Set Operators?
8. Write about GROUPBY?
9. Explain E-R MODEL ?
10. What is about Serializability?
11. Explain about BCNF.

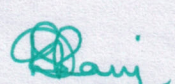
PART-C

III. Answer the following questions not exceeding 40 lines

4x10=40

12. A) Explain about Components of DBMS?  
OR  
B) What is Data Base? Explain its Advantages?
13. A) What is about VIEW ?  
OR  
B) Explain about SQL Command?
14. A) What is Normal Form? Explain 1NF, 2NF and 3NF?  
OR  
B) What is Specialization and Generalization?.
15. A) Define Deadlock? Explain Time stamp methods?  
OR  
B) Explain about Data Base Security?.



  
Assistant Professor  
Dept. - Computer Science & Informatics  
UOE & T.M.G.U., Nalgonda (I.S.)  
CHAIRMAN  
Board of Studies in Computer Science & Informatics  
N.G. College, NALGONDA.

NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS), NALGONDA  
SUBJECT: COMPUTER SCIENCE  
B.Sc III Year : SEMESTER -V 2020-21

SUBJECT:- PROGRAMMING IN JAVA

PAPER-V MODEL PAPER

Time 2 1/2 Hours

Max. Marks 70

**PART-A**

**I. Answer the following question in one or two sentences**

5x 2 =10

- 1) Explain about java features ?
- 2) Define Interfaces ?
- 3) Explain about Thread life cycle ?
- 4) What are types of Events ?
- 5) Write about an Execute Query ?

**PART-B**

**II. Answer any four questions from the following not exceeding 20 lines**

4X5=20

- 6) Define Array? Explain about One-Dimensional Arrays ?
- 7) Write about Final Keywords ?
- 8) Explain about Exceptional Handling.
- 9) What is Applet Class ?
- 10) What is Buffered input stream class explain it ?
- 11) Explain about Radio Buttons.

**PART-C**

**III. Answer the following questions not exceeding 40 lines**

4X10=40

- 12) A) Explain Method overloading ?  
(OR)  
B) Explain about Two-Dimensional Arrays ?
- 13) A) Explain about Access Protection ?  
(OR)  
B) Explain about User-defined Exception ?
- 14) A) Explain about Buffered output stream class ?  
(OR)  
B) How to implement the thread in run able interface ?
- 15) A) Explain about the Swings ?  
(OR)  
B) Explain about establish connection?

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**Assistant Professor**  
Dept. - Computer Science & Information Systems  
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**NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) , NALGONDA**  
**DEPART MENTCOMPUTER SCIENCE**

**B.Sc III Year**

**SEMESTER-VI 2020-21**

**SUBJECT :- WEB TECHNOLOGIES**

**PAPER-VI MODEL PAPER**

**Time:2:30**

**Max.Marks:70**

**PART-A**

- I) Answer the following question in one or two sentence 5×2=10
- 1) Define an Anchor tag ?
  - 2) What is Table ?
  - 3) Define an Event ?
  - 4) Define An Hyperlink ?
  - 5) Define a Multi frame ?

**PART-B**

- II) Answer any four questions from the following not exceeding 20 lines 4×5=20
- 6) Explain about Frames with example program ?
  - 7) What is CSS and Explain it ?
  - 8) Explain about Java script ?
  - 9) Explain about a conditional statements in J.S?
  - 10) What is Box model ?
  - 11) Explain Formatting tags ?

**PART-C**

- III) Answer the following question not exceeding 40 lines 4 ×10=40
- 12) A) Explain about HTML ?  
(OR)  
B) What is Table ? explain with example program ?
  - 13) A) Explain about Lists ?  
(OR)  
B) Explain about CSS properties ?
  - 14) A) Explain about an Operators in J.S ?  
(OR)  
B) Explain about Built in Objects ?
  - 15) A) Explain about Images in HTML ?  
(OR)  
B) Explain about a DOM ?

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**NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) , NALGONDA**

**TENTATIVE SCHEME OF EVALUATION**

**B.Sc III Year**

**SEMESTER-VI 2020-21**

**SUBJECT :- COMPUTER NETWORKING**

**PAPER-VII MODEL PAPER**

**Tim 2 1/2 Hours**

**Max. Marks 70**

**PART-A**

- I) Answer the following question in one or two sentence 5×2=10
- 1) Define a Topologies ?
  - 2) what is a Coaxial Cable ?
  - 3) Define a Time –Division Multiplexing ?
  - 4) Define a Flow control –stop-and-wait ?
  - 5) What is a Token passing ?

**PART-B**

- II) Answer any four questions from the following not exceeding 20 lines 4×5=20
- 6) Explain about Categories of network ?
  - 7) What Media-Satellite communication ?
  - 8) Explain about Burst Error correction ?
  - 9) Explain about Introduction to IEEE 802 ?
  - 10) What is Repeaters ,Bridges ,Routers ?
  - 11) Explain about Application layer ?

**PART-C**

- III) Answer the following question not exceeding 40 lines 4 ×10=40
- 12) A) Explain about Data communication components ?  
(OR)  
B) What is ISO Reference Model-layered Architecture ?
- 13) A) Explain about Frequency-Division Multiplexing?  
(OR)  
B) Write about Sliding Window ARQ Go-Back-n ARQ ?
- 14) A) What are Token Passing?  
(OR)  
B) Explain about Circuit Switching ?
- 15) A) Discuss about Connection Upper OSI layers ?  
(OR)  
B) Write about Distance Vector Routing Algorithm ?

*Neeraj*  
CHAKRABARTI

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**Assistant Professor**

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