

Gondwana University, Gadchiroli



Choice Based Credit System (CBCS)

Syllabus of

**Post Graduate Diploma in Computer
Science and Application
(PGDCS&A)**

(One Year Diploma Course)

Prepared by

Dr. S. B. Kishor

PGDCS&A (Semester - I)

Subject	Paper Code	Paper Name	Total Period /Week	Credit	% of Assessment			
					IA	UE	Total	Min. Passing (40%)
Core	PGDCS&AT101	Problem Solving Techniques	4	4	20	80	100	40
	PGDCS&AT102	Operating System and Linux	4	4	20	80	100	40
	PGDCS&AT103	Programming in 'C'	4	4	20	80	100	40
Discipline Specific Elective (DSE)	PGDCS&AT104.1 PGDCS&AT104.2	<u>Elective</u> 1. Discrete Mathematical Structure 2. Numerical Methods	4	4	20	80	100	40
Skill Enhancement Elective (SEE)	PGDCS&AT105.1 PGDCS&AT105.2	<u>Elective</u> 1. Digital Electronics and Microprocessor 2. PC-Maintenance	4	4	20	80	100	40
Core Lab*	PGDCS&AP106	Lab on PGDCS&AT101, PGDCS&AT102 & PGDCS&AT103	6	2	50	50	100	40
SEE based Lab	PGDCS&AP107	Lab on (PGDCS&AT104.1 or PGDCS&AT104.2) & (PGDCS&AT105.1 or PGDCS&AT105.2)	6	2	50	50	100	40
Ability Enhancement	PGDCS&AS108	Seminar	1	1	25	-	25	10
Total			33	25	255	470	725	290

Note: Student must appear for University Practical Examination.

Note : Direction and scheme of course is available in the website of Gondwana University, Gadchiroli (www.gondwana.digitaluniversity.ac)

PGDCS&A (Semester - II)

Subject	Paper Code	Paper Name	Total Period /Week	Credit	% of Assessment			
					IA	UE	Total	Min. Passing (40%)
Core	PGDCS&AT201	OOPs with C++	4	4	20	80	100	40
	PGDCS&AT202	System Analysis and Design	4	4	20	80	100	40
	PGDCS&AT203	Database Management System	4	4	20	80	100	40
Discipline Specific Elective (DSE)	PGDCS&AT204.1 PGDCS&AT204.2	<u>Elective</u> 1.Data Warehousing & SQL 2. Java	4	4	20	80	100	40
Skill Enhancement	PGDCS&AP205	Project	4	4	20	80	100	40
Core Lab	PGDCS&AP206	Lab on PGDCS&AT201&PGDCS&AT203	6	3	50	50	100	40
Discipline Specific based Lab	PGDCS&AP207	Lab on PGDCS&AT204.1 or PGDCS&AT204.2	6	2	50	50	100	40
Ability Enhancement	PGDCS&AS208	Seminar	1	1	25	-	25	10
Total			33	25	255	470	725	290

Pattern of Question Paper

General Rules and Regulations regarding pattern of question paper for the semester end examination is as given below:

1. There will be four units in each paper.
2. Maximum marks of each theory paper will be 80.
3. Question paper will consist of five questions, each of 16 marks.
4. Four questions will be based on four units with internal choice.
5. Fifth question will be compulsory with questions from each of the four units having equal weightage and there will be no internal choice.

Post B.Sc. Diploma in Computer Science and Application	
PGDCS&A	Semester – [I / II]
Paper Code :	Paper : Name of Paper
Time: 3 Hours]	[Max. Marks: 80
Note: 1) All questions are compulsory and carry equal marks. 2) Draw Neat and Labeled diagram and use supporting data wherever necessary. 3) Avoid vague answers and write specific points/answer related to questions.	

Q1 Either (From Unit 1)	
a)	8
b)	8
Or	
c)	8
d)	8
Q2 Either (From Unit 2)	
a)	8
b)	8
Or	
c)	8
d)	8
Q3 Either (From Unit 3)	
a)	8
b)	8
Or	
c)	8
d)	8
Q4 Either (From Unit 4)	
a)	8
b)	8
Or	
c)	8
d)	8
Q5 Solve all questions	
a) (From Unit 1)	4
b) (From Unit 2)	4
c) (From Unit 3)	4
d) (From Unit 4)	4

PGDCS&A

(Semester- I)

Post Graduate Diploma in Computer Science and Application (Semester- I)
Paper Code : PGDCS&AT101

PAPER I : PROBLEM SOLVING TECHNIQUES

[Max.Marks : 80

UNIT – I : Language Evolution

Machine Language, Assembly Language, High Level Language. **Translators:** Compiler, Interpreter and Assembler, Linker, Loader, Study of Programming Language (Procedure Oriented, Object-Base, Event-Base), Study of HLL, Characteristics of Good Language, Generation of Languages.

UNIT – II : Programming Construction Tools

Problem Analysis, Process Analysis, Conceptual Development of Solution. Development Tools: Algorithm: Types of Algorithm, Algorithm of Analysis, Advantage and Disadvantage of Algorithm, Complexity of Algorithm, Big-O Notation Flowcharts: Concept, Symbols, Rules of flowcharting, Advantage and Disadvantage of Flowchart. Pseudo Code: Definition and Its Characteristics

UNIT – III : Control Statements

Basics of Programming Language: Use of Character Set, Meaning of Keywords and Identifiers, Role of Data Types, Constants and Variables. Importance of Casting, Different Types of Operators and their Precedence, Expressions, Conditional Statements (One-Way, Two-Way and Multi-Way Conditional), Looping Statements (For, While, do-while), Usage of Exit, Continue, Break and Goto Statement.

UNIT – IV : Arrays

Arrays: Arrays, One dimensional array, Various Operation on Array (Inserting of Element, Deleting of Element, Rotating List, Sorting, Searching, Merging Etc) and Two dimensional arrays (Matrix Addition, Transpose of Matrix, Matrix Multiplication), Modular programming and its features.

Text Books:

1. Anil V. Chouduri, “The Art of Programming through Flowchart and Algorithms”, Laxmi Pub. ISBN-8170087791
2. R.G. Dromey, “How to Solve it by Computer”, Pearson, ISBN 978-81-317-0562-9
3. Behrouz Forouzan, “Basic of Computer Science”, Cengage Learning, ISBN 81-315-1118-9
4. Koren, “ Computer Arithmetic Algorithm”, Universities Press, ISBN- 9788173715334

Reference Books:

1. Donald Knuth, ”The Art of Computer Programming Vol-I,II III”, Pearson.
2. Horowitz, Sahani, “Fundamental of Computer Algorithm”, Ori

Post Graduate Diploma in Computer Science and Application (Semester- I)

Paper Code : PGDCS&AT102

PAPER II : OPERATING SYSTEM AND LINUX

[Max.Marks:80]

UNIT – I : Introduction to Operating System and CPU Scheduling

Introductory Concepts: Operating System Functions and Characteristics, Historical Evolution of Operating Systems, Real Time Systems, Distributed Systems, Methodologies for Implementation of O/S Service System Calls, System Programs, and Interrupt Mechanisms. CPU Scheduling: Levels of Scheduling, Comparative Study of Scheduling Algorithms.

UNIT – II : Hardware Management and Protection

Hardware Management: Hardware Organization, Device Scheduling Policies. Deadlocks: Deadlock Characterization, Deadlock Prevention and Avoidance, Deadlock Detection and Recovery, Practical Considerations. Concurrent Processes: Critical Section Problem, Semaphores, Classical Process Co-Ordination Problems and their Solutions, Interprocess Communications.

UNIT –III :Introduction to Linux

Structure of Linux Operating System, Exploring the directory structure, Naming files and directories.

Shell: Bourne, Korn and C-Shells

File system Commands: ls, mkdir, rmdir, cd, cat, mv, cp, rm, ln, pwd, more

Text editing with vi editor

UNIT - IV: Shell Scripts

Pipe and Filters: sort, grep, egrep Permission modes: chmod, chown, chgrp **Process:** ps, kill Communication, Shell Scripts: Variables, Arithmetic in Shell Script, Control flow statements, Shell Parameters

Text Books:

1. Peterson Richard, “The Complete References Linux”, Tata McGraw Hill, “4th Edition”, Year- 2000, ISBN No.- 978-0072129403
2. Tannenbaum, “Operating Systems”, PHI Publication, “4th Edition”, Year- 2000

Reference Books :

1. Tannenbaum, “Operating Systems”, PHI Publication, “4th Edition”, Year- 2000.
2. Tackett, Burnett, “Using Linux”, PHI, Fifth Edition,2001, ISBN 81-203-1653

Post Graduate Diploma in Computer Science and Application (Semester - I)
Paper Code : PGDCS&AT103

Paper III : PROGRAMMING IN 'C'

[Max. Marks: 80

UNIT – I : Introduction to C and Basic Programming Elements

History of C, C Character Set, Keywords and Identifiers, Tokens , Basic Structure of C Program, Types of Constants, Data Types, Variables, Type Declaration Instruction, Type Casting, Operators and Expressions, Input and Output Management in C.

UNIT – II : Control Statement, Arrays, Storage Class

Control Statements: if, if...else, switch....case, while, do...while, for Loops, Nested Loops, break and continue, exit Statements and goto Statement.

Arrays: Array Definition, One Dimensional Array, Two Dimensional Array, Sorting, Searching, Addition and Multiplication of Two Dimensional Arrays.**Storage Class:** auto, register, static, extern.

UNIT – III : Function, String Handling, Structure and Union

Functions: Definition, Library Functions User Defined Functions, Function Prototype, Function Definition, Function Call, Types of User Defined Functions, Arrays and Functions.

String Handling: String Library Functions: strlen, strcat, strcmp, strcpy, strcmp.

Structure and Union: Definition of Structure, Declaring Structure, Accessing Structure Elements, Array of Structure, Nesting of Structure. Introduction of Union, Difference between Structure and Union.

UNIT – IV : Pointer, File Management in 'C'

Pointer: Introduction to Pointer, Understanding Pointers, Declaring Pointer Variables, Pointer and Function (Call By Value and Call By Reference), Pointer and Arrays, Pointer and Strings, Pointer and Structure, Pointer to Pointer.

File Management in 'C' : Introduction, Defining and Opening and Closing File, Input and Output Operations on Files, Random Access to Files, Error Handling During I/O Operations, Command Line Arguments.

Text Books:

1. E. Balagurusamy , “ Programming in ANSI C”, TMH, 5th Ed., ISBN 0-07-068182-1
2. Dr. S.B. Kishor, Dr. V. Godki, “Gateway to C Programming”, Lambert Pub. Germany, ISBN9783845414744

Reference Books:

1. K. R. Venugopal and S. R. Prasad, “Mastering C”, 3rd Reprint, ISBN 0-07-061667-1
2. S. Shrivastav, “ C In Depth”, 1st Ed., ISBN 81-7656-107-X

Post Graduate Diploma in Computer Science and Application (Semester - I)

Paper Code : PGDCS&AT104.1

Elective Paper IV : DISCRETE MATHEMATICAL STRUCTURE

[Max Marks: 80

UNIT – I : Mathematical Logic

Mathematical Logic- Statements and Notation, Equivalence of Formulas, Duality, Connectives, Normal Forms, Principle Disjunctive Normal Form, Principle Conjunctive Normal Form, Theory of Inference for the Statement Calculus, Inference Theory of the Predicate Calculus.

UNIT – II : Relation and Digraph

Relational and Digraphs- Product Sets and Partitions, Relations and Digraphs, The Matrix of a Relation, Paths in Relations and Digraphs, Properties of Relations, Equivalence Relations, Computer Representation of Relations and Digraph, Manipulation of Relations, Transitive Closure and Warshall's Algorithm.

UNIT – III : Lattices and Boolean-Algebra

Additional Relations and Structure-Partially Ordered Sets, Lattices, Hasse Diagram, Principle of Duality, Distributive Lattice, Sub Lattice, Complemented Lattice

Boolean-Algebra: Introduction, Functions of Boolean algebra's, Boolean Function as Boolean Polynomials

UNIT - IV : Groups, Languages and Finite State Machines

Groups: Binary Operations, Products and Quotients of Groups, Subgroup, Abelian Group, Normal Subgroup, Semi Groups, Products and Quotients of Semi Groups.

Languages: Definition, Languages of Machine, Grammar, Derivation Trees

Finite-State Machines: Introduction to Finite State Machine, Moore Machines

Text Books:

1. Dr. S.B. Kishor, "Discrete Mathematics", Das GanuPrakashan, 2014, ISBN-978-93-81660-21-8
2. Bernard Kolman, Robert C. Busby, Sharon C. Ross, "Discrete Mathematical Structures", Prentice HallPublication, "6th Edition", Year-2008, ISBN No.-0132297515.
3. Discrete Mathematical Structures with Application to computer science, Publication Tata McGraw –Hill, Year-2003, ISBN-0-07-065142-6,

Reference Books :

1. Goodaire, "Discrete Mathematics with Graph Theory", PHI Publication, Year-1997, ISBN No- 0136020798.
2. J.K.Sharma, "Discrete Mathematics", McMillanPublication, Copyright Year-2011, ISBN No-9780230322301.
3. RajendraAkerkar, "Discrete Mathematics", Publication Pearson

Post Graduate Diploma in Computer Science and Application (Semester-I)

Paper Code : PGDCS&AT104.2

Elective Paper IV: NUMERICAL METHODS

[Max. Marks: 80]

UNIT –I : Roots of Non-Linear Equations

Algebraic equation, Polynomial equation, Transcendental equation, Iterative method, Starting & Stopping Iterative method, Bisection Method, False Position method, Newton Raphson Method: Secant Method, Determining all possible roots, Multiple roots of polynomial, Complex Roots using Muller's Method.

UNIT – II : Linear Equations

Solution to Linear Equations, Existence of solution, Gauss Elimination Method, Gauss elimination with pivoting, Gauss Jordan Method, Round off errors and refinement, m Conditioned system, Matrix inversion method.

UNIT – III : Interpolation

Linear interpolation, Lagrange Interpolation, Spline Interpolation, Interpolation with equidistant points, Least Square regression Fitting, Transcendental equations, Multiple linear regression, m conditioning in Least square

UNIT – IV: Integration and Differentiation

Trapezoidal Rule, Simpson 1/3 Rule, Simpson 3/8 rule, Gaussian Integration, Solution to differential equation (using Runge-Kutta second and fourth order methods, Multistep method for differential equations (Milne-Simpson method, Adams-bashforth--Moulten Method).

Text Books:

1. S.B. Kishor, "Numerical Methods", Das GanuPrakashan, Nagpur,2010
- 2.Y. Rajaraman, Computer Oriented Numerical Methods - Prentice Hall Publication
- 3.Gupta and Kapoor Fundamental of Mathematical Statistics
- 4.Brian Flowers Introduction to Numerical Methods in C++ By. (Oxford)
- 5.E. Balaguruswamy, Numerical Methods - Tata McGraw Hill Publication

Reference Books:

1. S Sastry Introduction to Numerical Analysis
2. Srimanta Pal Numerical Methods (Oxford)
3. K Sankara Rao Numerical Methods for Scientists & Engineers.
4. Manish Goyal Computer Based Numerical And Statistical Techniques (Laxmi)

Post Graduate Diploma in Computer Science and Application (Semester-I)

Paper Code : PGDCS&AT105.1

Elective Paper V : DIGITAL ELECTRONICS

[Max. Marks: 80

UNIT – I : Number System and Data Representation

Number System: Binary, Octal, Decimal and Hexadecimal Number System and their Inter Conversion. **Binary Codes:**BCD , Excess3, Parity, Gray, ASCII, EBCDIC Codes and their Advantages and Disadvantages. **Data Representation :**Positive,Negative, Maximum and Minimum Number Representation (Related to 8 bit Number), Real Number Representation, Underflow, Overflow, Range and Accuracy.

UNIT – II : Binary Arithmetic

Binary Arithmetic: Binary Addition, Decimal Subtraction Using 9's and 10's Complement, Binary Subtraction Using 1's and 2's Complement, Multiplication and Division. **Logic Gates:**Truth Table, Properties and Symbolic Representation of NOT, AND, OR, NOR, NAND, EX-OR, EX-NOR Gates. NOR and NAND Gates as Universal Gates.

UNIT - III : Boolean Algebra and Combinational Circuits

Boolean Algebra:Laws and Identities of Boolean Algebra, Demorgan's Theorem, Use of Boolean Algebra for Simplification of Logic Expression, K-Map for 2,3,4 Variables, Simplification of SOP and POS Logic Expression Using K-Map.

Combinational Circuits: Half Adder, Full Adder, Parallel Adder, Half Subtractor, Full Subtractor, 4-Bit Binary Adder Subtractor, Multiplexer, Demultiplexer, Decoder, Encoder, Parity Detector.

UNIT – IV : Sequential Circuits and Counters

Sequential Circuits: Flip-Flops Construction and Working of RSFF, JKRSFF, DFF, TFF, JKFF and JKMSFF. **Counters:**Construction and Working of Asynchronous, Synchronous, Up-Down Counter, Shift Registers and Their Types, Ring Counter , Johnson Counter with their Time Diagram.

Text Books:

1. Gothman, "Digital Electronics", PHI.
2. Navaneeth, Kale and Gokhale,"Digital and Analog Technique".ISBN-81-225-0153-2

Reference Books:

1. Soumitra Mandal, "Digital Electronics", TMH, ISBN 0-07015382-5
2. B Ram , "Fundamental of Microprocessor and Microcomputer", Dhanpat Rai Pub.
3. Liu. Gibson , "Microcomputer System" The 8086/8088 Family, ISBN-1-55623-874-6

Post Graduate Diploma in Computer Science and Application (Semester-I)

Paper Code : PGDCS&AT105.2

Elective Paper V: PC – MAINTENANCE

[Max. Marks: 80

UNIT - I : Preventive Maintenance

Introduction, Need, Tools, Materials. Procedures: Active Hardware Maintenance, Active Software Maintenance, Passive Maintenance Procedure, Heat and Temperature Control, Dust and Pollution Control, Ventilation Control, EMI Electrostatic Discharge Control, Humidity and Corrosion Control, Shock and Vibration Control.

Preventive Maintenance Schedule. BIOS and CMOS, Working with the BIOS Setup Program.

UNIT – II : CPU and Monitor

History and Study of Different Types of CPUs, Terminology Used with CPU, Data Processing Inside CPU, RAM & ROM, Different Types of ROM, Virtual Memory, Installing and Removing Memory. Video Cards and Monitors, Display Resolution, Feature, Video Driver, CTs Working, LCDs Working, Monitor Resolution, Interfacing, Refresh Rate, Monitor Driver, Adjusting Display Settings in Windows.

UNIT - III : Study of Drives

Study of Different Types of Drives, Hard Drive Interfaces- IDE, SCSI, SATA Hard Drive Performance, Installing Hard Drives, Partitioning, Disk Formatting, Common Hard Drive Problems.

Installation of Operating System and Software: Installing Video Card, Testing, plug in the Video Card, Providing Power to Motherboard, Testing. Installing the CD ROM Drive, Installing Keyboard and Mouse, Installing Sound Card, Installing Modem, Installing the Motherboard, Installing the Power Supply, Attaching Add-on Cards, Installing the Drives Testing, Parallel and Serial Port Connection, Front Panel Indicators and Speakers.

UNIT – IV : Formatting and Trouble Shooting

Formatting: Formatting PC, Backup of Data Before Formatting, System Restore, Precautions for Formatting, Role of Technician.

Trouble Shooting: Introduction, Types of PC Faults: Solid Faults, Intermittent Faults, Developing Strategy. Diagnostic and Repair Tools – Diagnostic Software Tools, Diagnostic Hardware Tools, Advanced Testing Tools, Hand Tools for Service Engineers, Disassembling PC, Troubleshooting Display Problems, Memory Troubleshooting, Power Supply Testing and Problems Troubleshooting. Cleaning and Trouble Shooting of Keyboards, Mouse, Front Panel Indicators and Speakers Troubleshooting.

Text Books:

1. Fundamentals of Computers – Raja Raman (Prentice Hall Of India), ISBN 81-203-2581-8
2. Basics of Computer Hardware –BPB Publication
3. Troubleshooting Your PC's for Dummies 3rd Edition – Dan Gooin, Willey Publishing Inc. ISBN:9780470230770

Reference books:

1. Microprocessor and Interfacing by Douglas Hall.

2. Inside the IBM PC by Peter Norton.
3. IBM PC/XT Hardware: Reference Manual.

Post Graduate Diploma in Computer Science and Application (Semester-I)
Paper Code : PGDCS&AP106

[Max. Marks: 100]

A) Practical Based On Linux

- 1) Perform the following Directory Commands
a) pwd b) ls c) mkdir d) cd e) rmdir
- 2) Perform the following File management Commands
a) Cat b) cp c) ln d) rm e)more f) mv
- 3) A Shell Script to perform various arithmetic operations.
- 4) A Shell Script that takes two numbers from keyboard and display their average as an output.
- 5) A Shell Script to display current date, users who have logged in , process status and calendar of the month.

B) Practical Based On 'C' programming

- 1) A program to find simple and compound interest for the rate of interest.
- 2) A program to find corresponding temperature in Fahrenheit from a given temperature in Celsius.
- 3) A Program to accept decimal number and display equivalent number in Octal and Hexadecimal.
- 4) A program to swap the contents of two variables.
- 5) Program to accept the distance between two cities in Kilometer and print the distance in meter, feet, inches and centimeter.
- 6) Program to accept the two sides and angle included by these two sides to find area and third side of a Triangle.
- 7) To check a number is even or odd.
- 8) A program for testing leap year.
- 9) A program to find largest among any five number with minimum condition.
- 10) A program to find roots of Quadratic equation ax^2+bx+c .
- 11) Consider the example where we want to print all the prime number between 10 to 100.
- 12) Program to print multiplication Table of a number.
- 13) A program to print number, square and cube of the first 10 natural number.
- 14) A program to find the factorial of a integer number.
- 15) A program to generate and print Fibonacci sequences .
- 16) A program to print first 5 lines of the following pyramid.

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

- 18) A program to print first n lines of the following Pyramid.

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

- 19) A program to find the GCD of two Positive integers by successive division.
- 20) A Program to find the number of Armstrong number between 123 to 425.
- 21) A program to print truth table from $X * Y + Z$.
- 22) A Program to generate a menu driven program using switch statement.
 - 1) Add
 - 2) Edit.
 - 3) Delete.
 - 4) Exit.
- 23) A Program to find sum of two matrices having size $m * n$ and $p * q$.
- 24) A Program to Transport the matrix of size $M * N$.
- 25) A Program to delete an element from list of N number.
- 26) A Program to find sum of each row and column of matrix and also find largest and smallest element in the given matrix.
- 27) A program to count number of characters including uppercase and lowercase letter, digits, punctuations, space and words that are entered in a given string.
- 28) A Program to enter the marks of 5 subjects of 3 students and also find the total marks of each student using structure with array.
- 29) A Program to accept the containing 10 number and pass it to function to print it.
- 30) A program to evaluation following series.

$$e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \dots + \frac{x^n}{n!}$$
- 31) A program to define and accept the element of structure
 - 1) Empno.
 - 2) Name
 - 3) Basic pay and display the same structure along with DA, CCA and gross salary.
DA and CCA are calculated as follows.
DA = 91% of basic salary
CCA = RS 100/- consolidation.
- 32) A program to Sort the string using Pointer.
- 33) A function length () which count the length (number of character in the given string).
- 34) A function copystr () which will copy the contents of string into another.
- 32) A function concat () with will concatenation the string t to the end of string s.
- 33) A program to simulate DOS TYPE command.
- 34) A program to count number of characters include uppercase and lowercase letter, digits, punctuations, space, words and number of lines in given file.
- 35) A program to create data file "Student.dat" having fields, Rollno, Name and Address
- 36) A program to read and display the contents of data file "Student.dat"

A) Practical based on DIGITAL ELECTRONICS

- 1) To Study and Design the characteristics of basic gates (AND, OR, NOT).
- 2) To Study and Design the characteristics of Universal gates (NAND, NOR).
- 3) To Study and Design the Derived gates (EX-OR, EX-NOR)
- 4) To Study and Design the basic gates (AND, OR, NOT) using Universal NAND gate.
- 5) To Study and Design the basic gates (AND, OR, NOT) using Universal NOR gate.
- 6) To Study and Design the basic gates (EX-OR, EX-NOR) using Universal NAND gate.
- 7) To Study and Design the derived gates (EX-OR, EX-NOR) using Universal NOR gate.
- 8) To Study and Design NOR gate using NAND gate.
- 9) To Study and Design NAND gate using NOR gate.
- 10) To Study and Design RS FLIP FLOP using NAND gate.
- 11) To Study and Design RS FLIP FLOP using NOR gate.
- 12) To Study and Design JK FLIP FLOP.
- 13) To Study and Design JKMS FLIP FLOP.
- 14) To Study and Design the Half-adder.
- 15) To Study and Design the Full-adder.
- 16) To Study and Design the Half subtractor.

B) Practical based on PC Maintenance and Troubleshooting

- 1) Study of various Input devices.
- 2) To study and Installation of Keyboard.
- 3) To study and Installation of Mouse.
- 4) Study of various Output devices.
- 5) To study and Installation of Scanner.
- 6) To study and Installation of Printer.
- 7) To study and Installation of Multimedia.
- 8) Study of different operating system.
- 9) Study of booting process.
- 10) To study assembling and disassembling the PC.
- 11) To study and Installation of configuring motherboard.
- 12) To study and Installation of VGA adaptor.

- 13) To study and Installation of SMPS.
- 14) To study and Installation of Software.
- 15) To study and Installation of antivirus software.
- 16) Procedure to cleanup Disk, Disk fragmentation.
- 17) Things to know while purchasing the computer.

PGDCS&A

(Semester- II)

Post Graduate Diploma in Computer Science and Application (Semester-II)

Paper Code : PGDCS&AT201

Paper I: OOPS WITH C++

[Max. Marks: 80

UNIT – I : Object Oriented Concepts, Tokens, Expressions and Control Structures

Introduction: Basic Elements of Programming, Console I/O Operations.

Control Structures: Control and Looping Statements.

Function: Function Prototyping, Call and Return by Reference, Inline Function, Default and Const Arguments, Function Overloading, Arrays, Manipulators and Enumeration.

UNIT – II : Classes and Object

Object Oriented Methodology: Basic Concepts/Characteristics of OOP. Advantages and Application of OOP" s, Procedural Programming Vs OOP.

Classes and Objects: Specifying a Class, Creating Objects, Private & Public Data Members and Member Functions, Defining Inline Member Functions, Static Data Members and Member Functions. Arrays within Class, Arrays of Objects, Objects as Function Arguments, Returning Objects.

UNIT – III : Constructors, Destructors, Operators Overloading and inheritance.

Constructors and Destructors: Introduction, Parameterized Constructors, Multiple Constructors in a Class, Constructors with Default Arguments, Dynamic Initialization of Objects, Copy Constructors, Dynamic Constructors, Const. Objects, Destructors

Operators Overloading: Definition, Unary and Binary Overloading, Rules for Operator Overloading.

Inheritance: Defining Derived Classes, Types of Inheritance, Constructors and Destructors in Derived Classes.

UNIT – IV: Pointers Virtual & Friend functions and file handling

Pointers: Pointer to Objects, this Pointer, „New“ and „Delete“ Operators, Virtual Function, Friend Functions. Opening, Closing a File, File Modes, File Pointers and their Manipulation, **Sequential**

Input and Output Operations: Updating a File, Random Access, and Error Handling During File Operations, Command Line Arguments.

Text Books:

1. E Balagurusamy, “Object Oriented Programming with C++ “, Tata McGraw Hill Publishing Company Limited, New Delhi, ISBN:- 13- 978-07-066907-9
- 2.Parimala N.,” Object Orientation through C++”, Macmillan India Ltd. Publication, ISBN:-0333 93202-1

Reference Books:

1. K.R.Venugopal, Rajkumar, T. Ravishankar, “Mastering C++”, ISBN:0-07-463454-2.
2. D. Ravichandran, “Programming with C++”, Tata McGraw Hill , ISBN: 978-0-07-049488-6.

Post Graduate Diploma in Computer Science and Application (Semester-II)

Paper Code : PGDCS&AT202

Paper II : SYSTEM ANALYSIS AND DESIGN

[Max. Marks: 80

UNIT –I : System Concept

System Concept-System Concept, Electronic of The System, Types of System. **The System Development Life Cycle** –Introduction, Consideration for Candidate Systems, Prototyping. **The Role of the System Analyst** –Introduction, Multi-Faceted Role of the Analyst, the Analyst/User Interface, Rising Position in System Development.

UNIT – II : Initial Investigation

System Planning and The Initial Investigation –Introduction, Base For Planning in System Analysis, Initial Investigation. **Information Gathering** –Introduction, Information Gathering Tools. **The Tools of Structured Analysis** –Introduction, the Tools of Structured Analysis, Pros & Cons of Each Tool. **Feasibility Study** –Introduction, System Performance Definition, Feasibility Study.

UNIT – III : Cost Benefit Analysis

Cost Benefit Analysis –Introduction, Data Analysis, Cost Benefit Analysis, Procedure For Cost Benefit Determination. **System Design**-Introduction, The Process of Design, Design Methodology, Major development Activities, Audit Considerations. **Input/output and Form Design** –Introduction, Input Design, Output Design, Form Design.

UNIT-IV : File Organization

File Organization and Data Base Design –Introduction, File Structure, and File Organization, Database Design, Data Structure, Normalization and The Role of Database Administrator. **System Implementation** (System Testing & Quality Assurance)-Introduction, the Test Plan, Quality Assurance, Levels of Quality Assurance, Role of Data Processing Auditor. **Software Documentation**-.Requirement Documentation, Architecture /Design Documentation, Technical Documentation, User Documentation, Marketing Documentation, Documentation Standard, Online Documentation

Text Books:

1. Elias Award, “System Analysis & Design”, Golgotha Publication, 2nd Edition, ISBN: 81751568-X
2. Edward,” System Analysis & Design “, Tata McGraw Hill, ISBN: 8120317270
3. Raja Raman,” Analysis and Design of Information System”, PHI Publication, ISBN -8120312270

Reference Books:

1. Kendall & Kendall, “System Analysis & Design “, PHI Publication, 5th Edition, ISBN-8120321553
2. Dennis, “System Analysis & Design”, Wiley Student Publication, 3rd Ed. ISBN-9788126508808

3. ISRD Group, "Structured System Analysis & Design", TMH Pub. ISBN

Post Graduate Diploma in Computer Science and Application (Semester-II)

Paper Code : PGDCS&AT203

PaperIII : DATABASE MANAGEMENT SYSTEM

[Max. Marks: 80

UNIT - I : Introduction to DBMS

Database Environment, Data Processing, Traditional Environment and DBMS Environment/ Facilities, Difference between File based System and DBMS Environment, Types of Database, Elements of DBMS, Components of DBMS, Database Approach, Types of Database Users, Functions of Database, Objectives of Database, Benefits of Database, Characteristic of DBMS, Advantages and Disadvantages of a DBMS, the Three-Level Architecture Proposal for DBMS, Data Abstraction and Integration, Database Administrator (DBA), Role of DBA, Functions of DBA, Responsibility of DBA.

UNIT - II : Data Models, Operations and Maintenance

Data Model, Entities, Attributes, Relationship, Entity-Relationship Model, Mapping Cardinality/ Data Association, Integrity Constraints, Transforming E-R Diagram into Relation, Database Design, Classification, Approaches to the Relational Model, Hierarchical Model and Network Model with an Example, Normalization, Functional Dependency, First Normal Form, Second Normal Form, Third Normal Form, Codd's 12 Rules, Database Security, Integrity and Control. Problem of Concurrent Access, Resource Locking, Deadlock, Data Recovery.

UNIT-III: Working With MS-Access

Introduction to MS-Access, Designing a Database, Creating Database from Blank Database Creating Database from Template, Creating Tables using Design View, Creating Tables using Wizard, Working with Table.

Datatypes in MS-Access - Auto number, Date/Time, Number, Text, Yes/No., Hyperlink Etc., Managing Table, Editing Table, Editing Records

UNIT-IV: Query and Form Designing

Queries: Queries Views, Filters, Types of Queries, Creating query in Design View, Creating Query By using Wizard, Specifying Criteria in Queries, Parameter, Action Query Update, Append Query, Query Filter using multiple criteria. **Forms:** Creating Forms using Wizard, **Reports:** Creating Reports by using Wizard, Elements of Reports, Printing a Report, **Macros:** Types of Macros, Import Database, and Export Database.

Text Books:

1. Philip J. Pratt, "Database Management System", Cengage Learning, ISBN- 81-315-0969-9
2. Panneerselvem, "Database Management Systems", PHI, ISBN- 81-203-2028X.
3. Silberschatz, Korth, Sudarshan "Database System Concepts", BPB, ISBN- 0-07-120413-X.
4. Caleste Robinson, "Access 97", BPP, 1998, ISBN : 81-7029-928-4

Reference Books:

1. Dr. S. B. Kishor, "Database Management System & MS-Access", Das Ganu, ISBN : 978-93-81660-92-8
2. C.J.Date, A. Kannan, S.Swamynathan, "An Introduction to Database Systems", 8th Edition,

Post Graduate Diploma in Computer Science and Application (Semester-II)

Paper Code : PGDCS&AT204.1

Elective Paper IV : DATA WAREHOUSING AND SQL

[Max. Marks: 80

UNIT – I : Data Warehouse and OLAP

Introduction to Data Warehousing: Characteristics of a Data Warehouse, Data Warehouse Architectural Strategies, Design Considerations, Data Content, Building a Data Warehouse, Metadata, Tools for Data Warehousing, Performance Considerations, Crucial Decisions in Designing a Data Warehouse. Various Technological Considerations: OLTP and OLAP Systems, Data Modeling, Categories of OLAP Tools, Managed Query Environment (MQE), OLAP Tools and Internet.

UNIT – II : Data Mart and Data Mining Tools

Data Mart: Data Mart, Type of Data Mart, Loading a Data Mart, Metadata for a Data Mart, Data Model for a Data Mart, Software Component for a Data Mart, Tables in Data Mart, Security in Data Mart. Data Mining and Tools: Introduction, From Data Warehouse To Data Mining, Steps of Data Mining, Data Mining Algorithm, Database Segmentation, Predictive Modeling, Link Analysis, Tools for Data Mining.

UNIT – III : SQL Basic, Create, Modify and Retrieve Database Objects

SQL Basic Concept and Principles: SQL Language, Role of SQL, SQL Feature and Benefits, Relational Database and SQL, Fundamental SQL Concepts and Principle, SQL Data Types, Constants, Operators, Expressions, SQL Functions and Data Integrity. Creating, Modifying and Retrieving Database Objects: Data Definition Language, Data Manipulation Language, Table, Index, Views, Aliases, Synonyms, Schemas and Sequences, Data Queries – Select Statement, Query Result, Single Table, Multiple Table Queries, Types of Clause, Types of Joins, Sub Queries and Queries Expression.

UNIT – IV : Transaction Processing, Database Security and PL/SQL

Transaction Processing and Database Security: Transaction Control Language, Commit, Rollback, Save Point, Managing Security and Privileges, Grant, Revoke, Using Views for Security, Using Views, Stored Procedure and Triggers for Security, Locking Levels, Shared and Exclusive Locks, Deadlock, Avoidance, Locking Techniques.

Programming with SQL: PL/SQL Programming Concept, Stored Procedure, Functions, Triggers

Text Books:

1. C.S.R. Prabhu, “Data Warehousing”, PHI Publication, “3rd Edition”, Year- 2010, ISBN No- 9788120336278
2. Pang-Ning Tan, Michael Steinbach and Vipin Kumar, “Introduction to Data Mining”, Pearson Addison Wesley Publication “ 1st Edition”, Year- 2005, ISBN No- 0321321367
3. Alan Beaulieu, “ Learning SQL”, O’Reilly Publication, “ 2nd Edition”, Year- 2009, ISBN No- 0596520832

4. Alex Kriegel and Boris M. Trukhnov, "SQL Bible", Wiley publication, "2nd Edition", Year- 2008, ISBN No- 0470229063

Reference Books :

1. Amitesh Sinha, "Data Warehousing", Thomson publication, "1st Edition ", Year- 2001, ISBN No- 0790612496
2. Larry Rockoff, " The language of SQL", Course Technology PTR publication, " 1st Edition", Year- 2010, ISBN No- 143545751X
3. James Groff & Paul Weinberg, "The Complete Reference: SQL ", Tata Mcgraw Hill publication, "3nd Edition", Year- 2009, ISBN No- 0071592555

Post Graduate Diploma in Computer Science and Application (Semester-II)
Paper Code : PGDCS&AT204.2
Elective Paper IV: JAVA

[Max. Marks: 80]

UNIT - I : Problem Solving Techniques

Problem Analysis, Process Analysis, Conceptual Development of Solution. Development Tools:
Algorithm: Types of Algorithm, Analysis of Algorithm, Advantage and Disadvantage of Algorithm, Complexity of an Algorithm, Big-O Notation **Flowcharts:** Types of Flowcharts, Advantage and Disadvantage of Flowchart. **Pseudo Code:** Definition and Its Characteristics

UNIT - II : Basic Programming concepts of Java

Java Tokens: Identifiers, Keywords, Expressions in Java, Operators; Data Types in Java, Implementing Java Programs, Java Virtual Machine, Type Casting, Control Structures, Looping statements, Arrays and its methods, String.

UNIT - III : Java IDE

Introduction to Eclipse:- version history of eclipse, eclipse SE, eclipse EE, Eclipse ME, Plugins, installation of Plugins, list of Eclipse plugins, Workspace, Switch Workspace, Package Explorer, User Interface Components of Eclipse window.

Language Feature:- Static method, Static class, Constructor, Constructor Overloading, Method Overloading, Dynamic method dispatch.

UNIT - IV: -Exception Handling and Threading

Exception, Type of Exception, Exception Keywords, Classes of Exception. Thread concept, life cycle method of thread ,Thread Creation. Abstract class, interface, File class and its methods, packages.

Text Books:

1. Cay S Horstmann Gary Cornell, “Core JAVA 2 Vol -1, 2”, The Sun Micro Systems Press, New Delhi, ISBN-13: 978-0470105559
2. Peter Van der Liden, “Just Java”, The Sun Micro Systems Press, New Delhi, ISBN, 0130897930
3. E. Balguruswamy, “Programming with Java -A Primer”, The Sun Micro Systems Press, New Delhi, ISBN 81-265-0931-7

Reference Books:

1. Deitel and Deitel, “Java How to Program”, Prentice Hall Upper Saddle River, New Jersey 07458 (US). ISBN 0-13-034151-7
2. Jerry R Jackson Alan L, “Java by Example 1.2”, McClellan Publication

Post Graduate Diploma in Computer Science and Application (Semester-II)
Paper Code : PGDCS&AP205
Project

[Max. Marks: 100

Instruction:

Towards the end of the second semester of study, a student will be examined in the course “Project Work”.

- a. Project Work may be done individually or in groups (Maximum 2 students) in case of bigger projects. However if project is done in groups, each student must be given a responsibility for a distinct module and care should be taken to monitor the progress of individual student.
- b. The Project Work should be done using the tools covered in Master of Computer Application
- c. The Project Work should be of such a nature that it could prove useful or be relevant from the System-oriented/Application/commercial / management angle.
- d. The project work will carry 100 marks.
- e. The external viva-voce examination for Project Work would be held as per the Examination Time Table of the second year of study, by a panel of one external and one Internal examiner.
- f. Internal Examiner must reject any project title which was already carried out in any computer course in the college using same tools.

Types of Project

It is suggested that the project is to be chosen which should have some direct relevance in day-today activities of the candidates in his/her institution. The Applications Areas of project may be – Financial / Marketing / Database Management System / Relational Database Management System / E-Commerce / Internet/ Manufacturing / Web Designing / Hardware and Software interaction based etc.

Project Proposal (Synopsis)

The project proposal should be prepared in consultation with the guide/co-guide. The project proposal should clearly state the objectives and environment of the proposed project to be undertaken. It should have full details in the following form:

1. Title of the project
2. Objectives and Hypothesis of the Project
3. Project Category (DBMS/RDBMS/OOPS/Web Designing/Internet etc.)
4. Tools/Platform, Languages to be used
5. A complete Structure of the program:
 - i. Analysis.
 - ii. Numbers of Modules.
 - iii. Data Structures or Tables
 - iv. Process Logic.
 - v. Types of Report Generation.
 - vi. Scope of future Application.

Project Report Formulation : In General, project report must consist of following. Depending upon the kind of project one may alter the following sequence in consultation with guide.

1. Title Page.
2. Certificate Page.
3. Declaration Page.
4. Acknowledgment Page.
5. Index or Content Page.
6. Documentation.
 - i. Introduction/Objectives.
 - ii. Preliminary System Analysis.
 - Identification of Need.
 - Preliminary Investigation.
 - Feasibility Study.
 - Need of New System.
 - Flaws in Present System.
 - iii. Project Category.
 - iv. Software Requirement Specification.
 - v. Detailed System Analysis.
 - No. of Modules with title of module.
 - Data Structures and Tables if any used in project.
 - Entity-Relationship Diagram if any used in project.
 - vi. System Design.
 - Source Code.
 - Input Screen & Output Screen.
 - vii Validation Checks.
 - viii Implementation, Evaluation and Maintenance.
 - ix Security Measures taken.
 - x Future Scope of the project.
 - xi Bibliography

Appendix

- o Survey Questionnaire

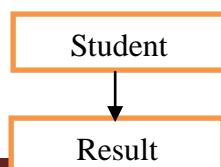
Post Graduate Diploma in Computer Science and Application (Semester-II)

Paper Code : PGDCS&AP206

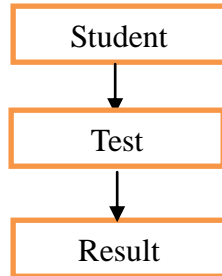
[Max. Marks: 100

Practical list of OOPs with C++

1. Write a cpp program to find roots of quadratic equations.
2. Write a cpp program that will ask for a temperature in Fahrenheit and display in Celsius.
3. Write a cpp program which accepts marks of three subjects. Calculate total & average marks and also check student is pass or fail.(if average above or equal to 50 the „Pass”).
4. Design a menu driven program using switch case which accepts two integer values and program will display menus for addition, subtraction ,multiplication, division and ask user to select appropriate choice.
5. Design inline functions for add and multiply of two integer numbers.
6. Write a cpp program to overload “sum()” function for add two integers, to add three real and add three integers.
7. Write a cpp program for following series. $\sin X = X - \frac{X^3}{3!} + \frac{X^5}{5!} - \frac{X^7}{7!} + \dots$
8. Write a cpp program for following. $\cos X = 1 - \frac{X^2}{2!} + \frac{X^4}{4!} - \frac{X^6}{6!} + \dots$
9. Design a class “Complex” with real and imaginary members also design appropriate member function to get and print complex numbers.
10. Design a class “ Time” with hours and minutes as data members and to get and print data of Time class also design a sum() with object as arguments to add two objects of Time class.
11. Design a class “Employee” with appropriate members. Demonstrate array of objects.
12. Create a class “ Complex” with real and imaginary members and to initialize them write overloaded constructor for i) Default constructor ii) Constructor with one parameter iii) Constructor with two parameters.
13. Create a constructor for “Integer “class with M and N as data members and constructor for initialize data members.
14. Design a class “String” with name and length as data members. Create a dynamic constructor to initialize object of any length can be created.
15. Create a class “Employee” with empno, ename, salary as data members and create Copy constructor to create objects from already created objects.
16. Write acpp program to overload unary “++”and “- -“ operator for “Sample” class with X,Y, Z of integer type.
17. Write a cpp program to overload binary “+” operator for Complex Class. (Complex class is already design).
18. Write a program to Single inheritance for following structure.
Student Class (rollno, sub1, sub2) and Result class(total,avg)



19. Write a class for Multilevel Inheritance for following structure
Student class (rollno), Test Class(sub1,sub2), Result Class(total, avg)



20. Write a program in show () and display () function are overridden. Demonstrate use of virtual function for runtime polymorphism.

21. Write a program which demonstrates the pure virtual function.

22. Write a cpp program in which use pointer to Sample class objects are used. Demonstrate it.

23. Write a cpp program which read contents from file and counts no. vowels and consonants in a file.

24. Write a cpp program which counts no. command line arguments on command line.

25. Write a cpp program which read a file and write contents of a file without white spaces into another file.

26. Write a cpp program which reads contents from a file and the even nos. are copied to “even.txt” and odd nos. are copied to “odd.txt” file.

27. Write a cpp program which demonstrates use of this pointer.

Post Graduate Diploma in Computer Science and Application (Semester-II)
Paper Code : PGDCS&AP207

[Max. Marks: 100]

Practical on SQL

- A. Create table DONAR with following fields (Dno, Dname, City, Age, Sex, BG, Quantity, date).
B. Insert the following records into the table DONAR.

Dno	Dname	City	Age	Sex	BG	Quantity	Date
101	RAJESH RAO	CHANDRAPUR	28	M	O+ve	100	25-AUG-11
102	ANAND SHARMA	NAGPUR	20	M	O+ve	200	26-AUG-11
103	VISHAL DESHPANDE	HYDERABAD	23	M	O-ve	250	26-AUG-11
104	SHRUTI RAKHUNDE	CHANDRAPUR	22	F	A+ve	100	27-AUG-11
105	ANUSHREE DHAKATE	-	22	F	A-ve	200	26-AUG-11
106	VIJETA DHAKATE	BALLARPUR	22	F	O+ve	100	25-AUG-11
107	AAMIR TAJA	CHANDRAPUR	21	M	O+ve	250	27-AUG-11
108	AMIR KHAN	DURGAPUR	25	M	O+ve	100	25-AUG-11

C] Perform following queries on above table.

1. Find all donars whose name starts between alphabets 'A' to 'S'.
2. Find all donars who belongs to city CHANDRAPUR.
3. Find all donars who does not belongs to CHANDRAPUR city.
4. Find all donars who belongs to either CHANDRAPUR or NAGPUR city.
5. Find all donars whose city value contains NULL.
6. Arrange all donars in the sorted order whose age is between 18 and 22.
7. Find all male donars.
8. Find all male donars having O+Ve blood group.
9. Find all donars who donated the blood between 25-AUG-10 and 26-AUG-11.
10. Find all donars who donated more than 100 ml of blood.
11. Find all female donars who belong to city CHANDRAPUR having blood group 'O+Ve' in the sorted order of city?
12. Display all donars according their age.
13. Display the donar list in recent order of donation date.
14. Display all distinct blood group type.
15. Update the age of all donars by 1.
16. Mr. RAJESH RAO changed his name as RAMESH RAO and he is shifted to DURGAPUR. Note the above changes in the table.
17. Due to certain reason all the donars who donated the blood on date '26-AUG-11' are rejected. Hence delete their information.
18. Find the donars names whose first name starts with letter 'A' and ends with 'D' irrespective of case letter.

19. Find the donar names whose last name starts between alphabets 'D' to 'S' (Ex. DESPANDE, SHARMA)
20. Find total number of donars having O+Ve group.
21. Find total quantity of blood of group A+Ve.
22. Average age of female donar of O+Ve group by rounding the age to next digit.
23. Display all donars who name pronounces like 'AAMIR';
24. Find the donars who donated the blood in the month of AUG.
25. Find the donars who donated the blood on 15th Aug. of year.

Functions

Perform following queries on table donar (Functions)

- Find the donar names whose first name starts with letter 'A' and ends with 'D' irrespective of case letter.
(Ex. ANAND) Hint: Use SUBSTR and INSTR function to extract first name.
- Find the donar names whose last name starts between alphabet 'D' to 'S'
(Ex. DESHPANDE, SHARMA)
Hint: Use SUBSTR and INSTR function to extract first name.
- Find total number of donars having O+ve group.
- Find total quantity of blood of group A+ve.
- Average age of female donar of O+ve group by rounding the age to next digit.
Hint: use Ceil function to round the age to next digit.
- Display all donars who name pronounces like 'AAMIR';
- Find the donars who donated the blood in the month of AUG.
- Find the donars who donated the blood on 15th Aug. of year.
- Display all donar names in lowercase.
- Find donars whose first name is five characters long.
Find every 3rd donar in the list. Donar numbers are assigned as consecutive no.
Hint: where $\text{mod}(\text{dno}, 3) = 0$

Practical on (PL/SQL)

- 1) Create following Tables and Execute the respective PL/SQL blocks.
 - Create table employee with the fields (empno, ename, job, hiredate, jdate&sal).
 - Create table Math with fields (numb, square, cube & square_root).
 - Create table Patient with fields (pname, age, prescription).
 - Create table Musicalbum with fields (title, hero, singer, qth).
 - Create table Stu with fields (name & marks).
 - Create table errorh with fields (error_no& description).
 - Create a table DONAR where following fields(Donar no., donar name, city, age, Sex, Blood group, quantity of blood given, date of donation)
- 2) Write a PL/SQL block to accept employee number and display his/her job, joining date and salary of employee. Define the variable using % rowtype.
- 3) Write a PL/SQL block to accept three paper marks and display result if student scores more than 35 marks in each paper and also specify the class.
- 4) Write a PL/SQL block to find the square, cube, square root of nos. bet 1 & 25 using loop.
- 5) Write a program to divide a number by character number. If any error occurs it should be handled properly, and store the error number and its description in a table called errorh.

- 6) Write a PL/SQL block to accept and insert a valid data into the table patient. Write appropriate user defined exception.
- 7) Write a PL/SQL block, to display only title and quality of all album stored in the table musicalbum.
- 8) Write a PL/SQL to delete the records from table musicalbum where quantity is less than 4 using cursor.
- 9) Write a PL/SQL block to display the employee all having salary>somevalue. The value somevalue can be passing during execution or through bind variable.
- 10) Write a PL/SQL block to accept the title and display other information; it must handle the exception properly.
- 11) Write a procedure to swap two numbers.
- 12) Write a procedure to insert values into a table stu. Write a PL/SQL, main program to call the procedure stu_insert.
- 13) Write a function which is able to perform addition of two numbers.
- 14) Write a function which is able to perform addition of two numbers as well as addition of three number using default argument concepts.
- 15) Write a package, which contain two procedures.
- 16) A procedure which display the data of stu.
- 17) A procedure which store the data into the table stu.
- 18) Write trigger before inserting or updating a name into the table stu name will be automatically converted into uppercase.
- 19) Write a trigger on a table stu, that whenever user try to insert a marks of math either less than zero or greater than 100 a trigger must fire before insertion or updating of records.
- 20) Use DONAR table and write a PL/SQL block to accept donar number and display the donar detail and find how many days it pass from the last donation.
- 21) Write a PL/SQL block to accept donar number, donar name, city, age, sex, blood group, quantity and date of donation and store the data into the table DONAR. Use user defined exception for handling various exception like donar name should not be blank, age of donar should be at least 18 years and so on. Also use STORAGE_ERROR exception to check storage is available or not.
- 22) Write a PL/SQL block to accept donar name and display the information of donar. If duplicate or no donar found then proper exception should be raised.
- 23) Create a procedure that displays the information of donar by accepting donar number.
- 24) Write a trigger which will not allow the user to work on table DONAR during period say 9 am to 9:30 am, on any day.
- 25) Write a trigger on a table Donar, that whenever user try to insert a quantity greater than 500 ml a trigger must fire before insertion or updatation of records.

Practical List of JAVA

1. WAP to display the List of even and odd number from 1 to 100.
2. WAP to print Factorial of a number.
3. Compare Two Numbers using else-if Statement.
4. Determine If Year Is Leap Year or not.
5. WAP to print Fibonacci Series from 0 to 100.
6. Generate prime numbers between 1 to 100.
7. Display Pyramid of stars using nested for loops.
8. Write a program to find SUM AND PRODUCT of a given two number.
9. Write a program to find sum of all integers greater than 100 and less than 200 that are divisible by 7.
10. Write a program to concatenate string using for Loop.
11. Program to Display Multiplication Table.
12. Write a program to Swap the values.
13. Write a program to convert given no. of days into months and days.(Assume that each month is of 30 days).
14. Write a program to find whether given no. is Armstrong or not.
15. Write a program to find average of consecutive N Odd numbers and even numbers.
16. Write a program to demonstrate the constructor.
17. Write a program to demonstrate the overloading constructor.
18. Write a program to demonstrate the method overloading.
19. Write a program to demonstrate the method overriding.
20. Write a program to demonstrate the Exception Keywords.
21. Write a program to demonstrate the predefined Exception.
22. Write a program to demonstrate the life cycle methods of thread.
23. Write a program to create the thread using Thread class.
24. Write a program to create a file and read the data from file.
25. Write a program to write the data in the file.