

Gondwana University, Gadchiroli



Choice Based Credit System (CBCS)

Syllabus of Master of Computer Application (MCA)

**Faculty of Science
(Two Years Degree Course)**

Computer Science Board

2020-2021

| MCA I (Semester I) | | | | | | | | |
|------------------------------------|----------------------------|--|--------------------|-----------|-----------------|------------|------------|--------------------|
| Subject | Paper Code | Paper Name | Total Period /Week | Credit | % of Assessment | | | |
| | | | | | IA | UE | Total | Min. Passing (40%) |
| Core | PSMCAT101 | Java Concepts | 4 | 4 | 20 | 80 | 100 | 40 |
| | PSMCAT102 | Soft Skills & Personality Development | 4 | 4 | 20 | 80 | 100 | 40 |
| | PSMCAT103 | Scripting Languages | 4 | 4 | 20 | 80 | 100 | 40 |
| Discipline Specific Elective (DSE) | PSMCAT104.1 PSMCAT104.2 | <u>Elective (Select Any one)</u> 1. Operational Techniques 2. Discrete Mathematics | 4 | 4 | 20 | 80 | 100 | 40 |
| Skill Enhancement Elective (SEE) | PSMCAT105.1 PSMCAT105.2 | <u>Elective</u> 1. PC-Maintenance 2. E-Commerce | 4 | 4 | 20 | 80 | 100 | 40 |
| Core Lab* | PSMCAP106 | Lab on PSMCAT101, 102 & 103 | 6 | 2 | 50 | 50 | 100 | 40 |
| SEE based Lab | PSMCAP107 | Lab on PSMCAT105.1 or PSMCAT105.2 | 6 | 2 | 50 | 50 | 100 | 40 |
| Ability Enhancement | PSMCAS108 | Seminar | 1 | 1 | 25 | - | 25 | 10 |
| Total | | | 33 | 25 | 255 | 470 | 725 | 290 |

- **Core:** Major theory papers in the concerned subject.
- **Discipline Specific Elective:** These papers will be specialization in the concerned subject.
- **Skill Enhancement course:** Student can choose this paper from any subject.
- From Elective Courses (Either Skill based and Discipline Specific), students need to select one paper for each.
- **IA (Internal Assessment)** : It will be evaluated by Internal Examiner appointed by College in consultation with the University. (Refer Appendix 1)
- **UE (University Examination)**: It will be evaluated by External Examiner appointed by University. (Refer Appendix 1 & 3)

- **Period:** Each period is of 48 minutes or as per Government direction from time to time.
- In Paper Code
 - 1st Letter (P) : Represent it a Post Graduate Course.
 - 2nd Letter (S) : Represent it is Science Faculty
 - Next 3 Letter (MCA) : Represent the Master of Computer Application)
 - Next Letter (T/P) : T : Represent Theory Paper (Refer Appendix 1)
P : Represent Practical/Project (Refer Appendix 1 & 2)
S : Represent Seminar (Refer Appendix 1)
 - Last two letter : Represent Paper No. for Ex. 01 Represent Paper no.1
- **Lab* :**
 - 1) Not more than two students should be allowed to do practical on one machine.
 - 2) Wherever possible Practical's should be perform using Open Source Software.

Note: Student must appear for University Practical Examination.

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

MCA I (Semester II)

| Subject | Paper Code | Paper Name | Total Period /Week | Credit | % of Assessment | | | |
|------------------------------------|----------------------------|---|--------------------|-----------|-----------------|------------|------------|--------------------|
| | | | | | IA | UE | Total | Min. Passing (40%) |
| Core | PSMCAT201 | ASP.Net using C# | 4 | 4 | 20 | 80 | 100 | 40 |
| | PSMCAT202 | Soft Computing Techniques | 4 | 4 | 20 | 80 | 100 | 40 |
| | PSMCAT203 | Software Testing | 4 | 4 | 20 | 80 | 100 | 40 |
| Discipline Specific Elective (DSE) | PSMCAT204.1 PSMCAT204.2 | <u>Elective(select Any One)</u> 1.Data Warehousing 2. Clientand Server Technologies | 4 | 4 | 20 | 80 | 100 | 40 |
| Skill Enhancement | PSMCAP205 | Project | 4 | 4 | 20 | 80 | 100 | 40 |
| Core Lab | PSMCAP206 | Lab on PSMCAT201& PSMCAT202 | 6 | 2 | 50 | 50 | 100 | 40 |
| DSE based Lab | PSMCAP207 | Lab on PSMCAT204.1 Or PSMCAT204.2 | 6 | 2 | 50 | 50 | 100 | 40 |
| Ability Enhancement | PSMCAS208 | 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.

| Master of Computer Application | |
|--|---|
| MCA – [I / II] | Semester – [I / II / III / IV] |
| Paper Code : | Paper : Name of Paper |
| Time: 3Hours] | [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. | |
| <hr style="border-top: 1px dashed black;"/> | |
| 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 |

Master of Computer Application – I

(Semester I)

Master of Computer Application – I (Semester I)

Paper Code: PSMCAT101

Paper 1: JAVA CONCEPTS

Credit :4]

[Max. Marks:80

UNIT – I: Introduction to Java, Objects and Classes

History of Java, Features of Java, JDK Environment, The Java Virtual Machine, and Garbage Collection. Programming Concepts of Basic Java: Identifiers and Keywords, Operators, Variables, Types of Variables, Data Types, Control structures, decision making statements, Arrays, Array Methods, Strings and its methods. OOPS Concepts of Java, Declaring Objects, Methods, Modifiers of Class, Scope Rules, Constructor, Overloading Constructor, Finalize() Method, Uses of Static and Final Keywords, Dynamic Method Dispatch, Abstract Classes,

UNIT – II: Inheritance, Packages, Exception Handling and Multithreading

Inheritance and Interfaces, Implementing and extending Interface, Packages, Importing Packages and Classes, User define packages.

Types of Exceptions Try -Catch Block, Multiple Catch, Nested Try, Throw, Throws, Finally, Built-in and User- Defined Exception. Multithreading: Multithreading Concept, Thread Life Cycle, Thread Class and Runnable Interface, Type Priorities, Synchronization.

UNIT – III: Java I/O, Collection and Map Interface

Java I/O: Files and Stream, Stream classes, Reader Writer classes, File class, Tests and Utilities, Serialization and De-serialization.

Collection Framework: Collection Interface: List, Queue and Set, Methods of Collection Interface, Iterator Interface, Iterable Interface, List Interface: ArrayList class, LinkedList class, Vector and Stack. Queue Interface: PriorityQueue class, Deque, and ArrayDeque class. Set interface: HashSet, LinkedHashSet, and TreeSet classes.

Map Interface: Methods of Map Interface, HashMap, Hashtable, LinkedHashMap and TreeMap classes. Comparable and Comparator Interface.

UNIT – IV: Applet, Abstract Window Toolkit, Swing and JDBC

Applets: Applet Life Cycle, HTML <Applet> Tag, Passing Parameter to Applet, <PARAM> Tag. Abstract Window Toolkit: AWT Components: Container, List, Choice, Button, Label, etc. Containers: Panels, Applet, Window, Frame.

Difference between AWT and Swing, Hierarchy of Java Swing classes, Layout Managers-Border Layout, Flow Layout, Grid Layout, Card Layout, etc. Event Delegation Model, Event Source and Handlers, Event Categories, Listeners, Adapters-Anonymous Classes.

Database Programming: Design of JDBC, Types of Drivers, Executing SQL Statements, Query Execution, Scrollable and Updatable Result Sets, Rowset, Metadata, Transactions, Sample example of JDBC connectivity with MS-Access and ORACLE. Exceptions, Stored Procedures

Text Books:

1. Dr. S. B. Kishor, "PROGRAMMING LOGIC AND TECHNIQUES", BlackSwan (University Press) Hyderabad, Sep. 2012, ISBN 978 81 7371 8229
2. E. Balguruswamy, "Programming with Java - A Primer 3/e", Tata McGraw-Hill, New Delhi, Third Edition, ISBN0-07-061713-9
3. Cay S Horstmann Gary Cornell, "Core JAVA 2 Vol -1, 2", The Sun Micro Systems Press, New Delhi, ISBN- 978-0470105559

Reference Books :

1. Herbert Schildt, "Java2 Complete Reference", Tata McGraw Hill, 7th Edition, Year- 2007, ISBN No-0-07-063677-X
2. Deitel and Deitel, "Java How to Program", Prentice Hall Upper Saddle River, New Jersey 07458 (US) ISBN 0-13-034151-7

Master of Computer Application – I (Semester I)

Paper Code: PSMCAT102

Paper 2: Soft Skills & Personality Development

Credit: 4]

[Max. Marks: 80

UNIT – I: BUSINESS COMMUNICATION: AN INTRODUCTION

Introduction, Role of Communication in Business, Definitions of Communications, Purpose of Communications, Communication Situation.

INTRODUCTION TO SOUND SYSTEM OF ENGLISH: Introduction, The sounds of English- vowel sound, consonant sound, Organs of Speech.

EFFECTIVE BUSINESS WRITING: THE WHITE PAPER: Guidelines for a Business Article, Writing Plan, Writing Process, Introduction to the Article and Things to avoid.

UNIT-II: NON VERBAL COMMUNICATION

Importance, First Impression, Posture, Clothing , Gestures , Adapters , Symbolic , Conversational , Distance , Eye Contact , Across Culture , Display of Emotions , Non Verbal Actions , Movement and Body Positions - kinesics .

SELF CONCEPT: History, Academic Self Concept - Existential Self, Categorical Self. A positive Self Talk, Reality Check, Use of Humor.

SELF IMAGE AND SELF- ESTEEM: Meaning, Poor vs. Healthy Self Esteem, Inner Voice , Steps to Improve Self Esteem - Rebut the Inner Critic , Practice SelfCompassion

UNIT-III: BUILDING SELF CONFIDENCE

Introduction, Self- Esteem , Depression and Other Illness , Things to Raise Self Esteem , Changing Negative Thoughts to Positive .

PERSONAL PLANNING AND SUCCESSES ATTITUDE: Personal Planning , Evaluating Success , Setting Goals , Negative Thoughts , Positive Thoughts , Success Attitude , Optimism Over Pessimism , Optimism Over Cynicism , Interruptions into Opportunities, Teins Pak 8 Positive Attitude foe success and Positive Boss Attitude.

SWOT ANALYSIS: Strengths, Weaknesses, Opportunities, Threats, Master Plans.

MOTIVATION: How to be a Positive Person, Enthusiasm, Difference Between Enthusiasm and Effort , Conducive Conditions for Enthusiasm

UNIT – IV: ETIQUETTE

Meaning, Good Manners, Speaking Politely, Greeting People, Introductions with Grace, Grooming Appropriately, Writing Thank you Notes.

PUBLIC SPEAKING: Importance of Listening and Responding, 5 steps to Better Listening - Receiving, Understanding, Remembering, Evaluating, Responding. Techniques for writing.

OFFICE ETIQUETTES , E-MAIL ETIQUETTES AND PHONE ETIQUETTES: Most Important Email Etiquette Tips , Work or Office Etiquette , Most Important Office Etiquette Tips, Time Management ,Reasons Why Time Management is Important , Phone Etiquette.

TEAM DYNAMICS: Teamwork , Keys to Successful Teamwork , Benefits of Teamwork , Attitude(Psychology) - Definition , Explicit , Implicit , Function . Conflict - Definition, Conflict Resolution.

BOOKS:

- 1) Soft skill development by PRASHANT A.DHANWALKAR , S. R. SHARMA, Sai Jyoti Publication.
- 2) Business correspondence and report writing by R C SHARMA and KRISHNA MOHAN, Tata McGraw Hill.
- 3) Professional communication skills by PRAVIN BHATIA. S.Chand.

Master of Computer Application– I (Semester I)

Paper Code :PSMCAT103

Paper 3: Scripting Languages

Credit :4]

[Max. Marks:80

Unit – I: HTML and CSS

HTML: Introduction HTML Documents, Basic structure of an HTML document creating an HTML document Mark up Tags, Heading-Paragraphs, Line Breaks, and HTML Tags. Elements of HTML Introduction to elements of HTML- Working with Text, Working with Lists, Tables and Frames, Working with Hyperlinks, Images and Multimedia Working with Forms and controls.

CSS:-Creating Style Sheet, CSS Properties, CSS Styling(Background, Text Format, Controlling Fonts) Working with block elements and objects, Working with Lists and Table, CSS Id and Class Box Model(Introduction, Border properties, Padding Properties, Margin properties),CSS Advanced(Grouping, Dimension, Display, Positioning, Floating, Align, Pseudo class, Navigation Bar, Image Sprites, Attribute sector),CSS Colour Creating page Layout and Site Designs.

Unit – II: XML

Introduction to XML: What is XML, XML verses HTML, XML terminology, XML standards, XML syntax checking, The idea of mark-up, XML Structure, Organizing information in XML, Creating well-formed XML, XML Namespaces. DTD-Introduction to DTD, Document Type Declaration, Element Type Declaration, Attribute Declaration, Conditional Section, Limitations of DTD. Parsing XML: Introduction to Parser, Parsing approaches, JAXP, JAXP and SAX, JAXP and DOM., Extensible Style sheet Language (XSL): Introduction to XSL, overview, XPATH, XSLT templates, creating elements and attributes, looping and sorting, conditional processing, defining variables.

Unit – III: JAVASCRIPT

Introduction to JavaScript. Basic Syntax. JS Data Types, Control Structures., JS Event, JS object, (JS String function, JS math function, JS date function , JS array function and property)Working with Arrays. The Document Object Model. Events Handling.

Unit – IV: Python Scripting

Python: Introduction to Python language, Using the Python Interpreter, python-syntax, statements, functions, Built-in-functions and Methods, Modules in python, Exception Handling. Integrated Web Applications in Python — Building Small, Efficient Python Web Systems, Web Application Framework. More Control Flow Tools, Data Structures, Input and Output, Classes, Brief Tour of the Standard Library.

Text Books-

1. Beginning CSS: Cascading Style Sheets for Web Design, Wiley India ,author Ian Pouncey, Richard York.
2. HTML 5 in simple steps publication Kogent Learning ,Dreamtech Press
3. Mastering HTML, CSS & Javascript Web Publishing by Laura Lemay (Author), Rafe Colburn (Author), Jennifer Kyrnin (Author), BPB publication
4. Python: The Fundamentals of Python Programming by Paul Jones

Master of Computer Application – I (Semester I)

Paper Code : PSMCAT104.1

Paper 4: Operation Techniques

Credit :4]

[Max. Marks:80

UNIT I: Definition and Meaning of Operational Research

Definition and Meaning of Operational Research, Introduction to Operational Techniques, Basics of Operational Research, Different Phases of an Operational Research Study, Scope and Limitations of Operational Research, Mathematical Modeling of Real Life Problem.

UNIT II: Linear Programming and Allocation Models

Linear Programming and Allocation Models: Introduction, Requirement Applications, formulation, solution by graphical methods.

UNIT III: Transportation problems

Transportation problems: North West Corner Cell Method (NWCM), Least Cost Cell Method (LCCM), Vogel's Approximation Method(VAM).

Assignment Problem: Hungarian Method

UNIT-IV: Network Analysis

Network Analysis: PERT / CPM method.

Queueing Theory: Queueing System, Element of a Queueing System. Poisson Queueing System, Non Poisson Queueing System, Cost Models In Queueing

Books:

1. J.K. Sharma, "Operation Research Problems and Solutions", Macmillan, ISBN9781403931511
2. V.K. Kapoor, "Operation Research" ISBN:0470112689
3. Basic of Computer and Statistical Techniques – Dr. Rahul Sawlikar and Dr. S. B.Kishor, Das Ganu Prakashan, Nagpur – ISBN-978-81-921757-8-2

References:

1. Sancheti & Kapoor, "Business Statics", Sultan Chand & Sons, NewDelhi.
2. Kanti Swarup, P.K. Gupta, Man Mohan, " Operation Research", Sultan Chand & Sons, ISBN81-8054-535-0
- 3 .Statistical Methods- S.P.Gupta,S. Chand and Company, New Delhi
4. Statistics, Theory, Method and Application- Sancheti and Kapoor.

Master of Computer Application-I (Semester-I)

Paper Code:PSMCAT104.2

Paper-V (Elective):Discrete Mathematics

Credit:4]

[Max. Marks: 40]

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

Reference Books:

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

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 SetupProgram.

Unit – II: CPU andMonitor

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 inWindows.

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 andSpeakers.

Unit – IV: Study of Printer, Formatting and Trouble Shooting

Printer Features, Printer Performance, Print Quality, Print Speed, Printer Types, Fruiter Working, Installation of Printer Driver, Cleaning a Printer, Common Printer Problems. **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), ISBN81-203-2581-8
2. Basics of Computer Hardware –BPBPublication
3. Troubleshooting Your PC's for Dummies 3rd Edition – Dan Gooin, Willey Publishing Inc. ISBN:9780470230770
- 4.

Reference books:

1. Microprocessor and Interfacing by DouglasHall.
2. Inside the IBM PC by PeterNorton.

Unit I: Introduction to E-Commerce

Introduction, Applications, Definition of E-Commerce, Goals, Functions, Advantages & Drawback of E-Commerce, Traditional Vs E-Commerce. EDI: Introduction, Benefits, Applications, Advantages and Disadvantage, EDI Model, VAS, On-line Payment, Payment Gateways, OTP, Wallet Payment, IMPS, UPI, etc

Unit II: Internet & Extranet

Definition of Internet, Advantages & Disadvantages of the Internet, Component of Intranet Information Technology Structure, Development of an Intranet, Extranet and Intranet Difference, Role of Intranet in B2B Application.

Planning for Electronic Commerce - Planning electronic commerce initiatives, Linking objectives to business strategies, Measuring cost objectives, Comparing benefits to costs, Strategies for developing electronic commerce web sites.

Unit III: EDI, E-Governance & Electronic Payment System

Electronic Data Interchange: Introduction, Concepts of EDI and Limitation, Application of EDI, Disadvantages of EDI, EDI model.

Electronic payment System: Introduction, Types of EPS, Payment types, Traditional payment, Value exchange system, Credit card system, Electronic funds transfer, Paperless bill, Modern payment cash, Electronic cash.

Unit IV: Internet Marketing & E-Governance in India

Internet Marketing: The PROS and CONS of online shopping, The cons of online shopping, Justify an Internet business, Internet marketing techniques, The E-cycle of Internet marketing, Personalisation e – Commerce.

E- Governance for India: E- Governance of India, Indian customer EDI system, Service centre, Imports, Exports.

Text Books -

1. E-Commerce Concepts , Models , Strategies by G.S.V Murthy
2. E-Commerce by Kamlesh K Bajaj and Debjani Nag
3. Electronic Commerce by Gary P. Schneider

Credit :2]

[Max. Marks:100

Practical List on JAVA Concepts

1. Write a java program to find largest among threenumbers.
2. Write a java program to check whether seller made or loss, if sales price and purchase price is inputted throughkeyboard.
3. Write a program to accept two numbers and display result using command Lineargument.
4. Write a program for sorting a list of number usingArray.
5. Write a java program to print followingoutput.

| |
|-----------|
| A |
| A B |
| A B C |
| A B C D |
| A B C D E |

6. Write a java program to no. of evens and no. odd numbers in an array of size 10. Also calculate sum of evens and sum of odds.
7. Write a java program to find sum of prime numbers ranges from 1 to100.
8. Write a program to calculate multiplication and division using staticmethod.
9. Write a program of Constructor Overloading to calculate Area ofRoom.
 - i. Defaultconstructor
 - ii. Constructor with oneargument.
 - iii. Constructor with threearguments.
10. Write a program to demonstrate SingleInheritance.
11. Write a java program to create a class “ Student” with rollno,sub1,sub2,sub3 as data members and get Data() and print Data() as member functions.
12. Write a program to calculate Area of rectangle and circle usingInterface.
13. Design a Interface “MyInter” and add two methods sum() and mult() for two integers init.
14. Write a java program to demonstrate the try...catchmechanism.
15. Write a java program to show use of throw, throws and finallykeyword.
16. Write a program which throws IO Exception. (Accept student Name and age from keyboard anddisplay.
17. Write a program to demonstrate user defined exception (use division of two no's & throw user define exception if result is smaller than0.01)
18. Write a java program to demonstrate Threads using Thread class and also with Runnable interface.
19. Write a java program which shows the use of synchronization.
20. Write a program to demonstrate Linked Listclass.

21. Write a program to demonstrate Listclass.
 22. Write a program to demonstrate ListIterator Interface.
 23. Write a program to demonstrate Vectorclass.
 24. Write a HashMap example to add() and remove() elements.
 25. Write a HashMap example to replace() elements.
 26. Write an example of traversing elements in descending order.
 27. Write a program to retrieve the data from comparator interface.
 28. Java Program to demonstrate the use of Java Comparable. (Creating a class which implements Comparable Interface).
 29. Write a program to sort the elements of a list using different comparators.
 30. Write a program to print the values of the object by sorting on the basis of name and age.
 31. Write an AWT program to accept user's details.
 32. Write an Applet program to create Login page having Username and Password.
 33. Design a user interface using applet which accepts a number and program will calculate square and cube of given number and also display in respective textbox.
 34. Design a user interface using applet to accept two values and calculate sum of these numbers.
 35. Write a program to create a frame using JFrame class
 36. Write a program to create Frame and add any component on it.
 37. Write a program to create a login form and implement WindowListener .
 38. Write a program to demonstrate any one layout manager class.
 39. Write a Swing Program to create Student Admission Form using various controls.
 40. Write a program to demonstrate Event Handling.
 41. Write a program to demonstrate connectivity with MS-Access/Oracle.
 42. Write an example of Statement interface to insert, update and delete the record.
 43. Write an example of ResultSet interface to retrieve the data of 3rd row.
 44. Write a PreparedStatement example to insert records until user press n.
-

Practical List on Scripting Languages

1. Create a webpage with HTML describing your department. Use Paragraph and list tags.
 - (a) Apply various colors to suitably distinguish key words. Also apply font styling like italics, underline and two other fonts to words you find appropriate. Also use header tags.
 - (b) Create links on the words e.g. "Wi-Fi" and "LAN" to link them to Wikipedia pages.
 - (c) Insert an image and create a link such that clicking on image takes user to other page.
 - (d) Change the background color of the page. At the bottom create a link to take user to the top of the page.
2. Design a web page and apply block & text-level, horizontal rules & special characters tags, set Text color & background color tag.
3. Design a web page to include ordered, unordered and definition lists.
4. Design a web page to include links and set colors for links, active links and visited links.
5. Design a web page to include image with various attributes, set image as a button & background image.
6. Apply in-line CSS to change colors of certain text portion, bold, underline and italics certain words in HTML web page. Also change background color of each paragraph using in-line CSS.
7. Write all styling in CSS in different file (.css) and link it to your webpage such that changes made in CSS file are immediately reflected on the page. Group paragraphs into single class and add styling information to the class in CSS.
8. Create a simple form to submit user input like his name, age, address and favourite subject, movie and singer

9. Add few form elements such as radio buttons, check boxes and password field. Add a submit button at last.
10. Write a JavaScript using control structures and looping.
11. Write a JavaScript for web page using event handlers.
12. Design a web page to incorporate GIF animation.
13. Write a Javascript program to display information box as soon as page loads.
14. Write a JavaScript programs to dynamically bold, italic and underline words and phrases based on user actions.
15. Write a JavaScript program to display a hidden div (e.g. showing stats of a player when user clicks on his name).
16. Add your own XML tags. Revalidate it using validator.
17. Design an XML document to store information about a student in MCA colleges affiliated to Gondwana University, information includes PRN, Name, Name of College, Branch, Year of Joining, and e-mail id.
18. Write a Python Script lines for Loop, built-in enumerate function, new style formatting.
19. Write a Python Script lines for Fibonacci, tuple assignment.
20. Write a Python Script lines for implementing functions.
21. Write a Python Script line for import, regular expressions
22. Write a Python Script lines Command Line arguments using exception handling.

Master of Computer Application – I (Semester – I)

Practical Paper Code : PSMCAP107

Credit :2]

[Max. Marks:100

Practical list 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.

Master of Computer Application – I

(Semester II)

Master of Computer Application – I (Semester II)

Paper Code :PSMCAT201

Paper 1: ASP.Net using C#

Credit :4]

[Max. Marks:80

Unit-I: Introduction to ASP.NET 4

Introduction to ASP.NET 4: Microsoft.NET framework, ASP.NET lifecycle. **CSS:** Need of CSS, Introduction to CSS, Working with CSS with visual developer.

Unit-II: ASP.NET Server Controls

ASP.NET server controls: Introduction, How to work with button controls, Textboxes, Labels, checkboxes and radio buttons, list controls and other web server controls, web.config and global.asax files. **Programming ASP.NET web pages:** Introduction, data types and variables, statements, organizing code, object oriented basics.

Unit- III: Validation

Validation Control: Introduction, basic validation controls, validation techniques, using advanced validation controls. **State Management:** Using view state, using session state, using application state, using cookies and URL encoding. **Master Pages:** Creating master pages, content pages, nesting master pages, accessing master page controls from a content page. **Navigation:** Introduction to use the site navigation, using site navigationcontrols

Unit-IV: Database and Security

Databases: Introduction, using SQL data sources, GridView Control, DetailsView and FormView Controls, ListView and DataPager controls, Using object datasources.

ASP.NET Security: Authentication, Authorization, Impersonation, ASP.NET provider model

Books:

1. Beginning Visual C# 2010, K. Watson, C. Nagel, J.H Padderson, J.D. Reid, M.Skinner, Wrox (Wiley) 2010.
2. Murach's ASP.NET 4 Web Programming with C# 2010, 4th Edition, Anne Boehm, Joel Murach,SPD.
3. Beginning ASP.NET 4 in C# and VB, I. Spanjaars, Reprint2011

References:

1. ASP.NET 4.0 programming, J. Kanjilal, TataMcGraw-Hill.
2. Programming ASP.NET, D.Esposito, Microsoft Press (Dreamtech), Reprint 2011.ASP.NET.
3. Visual C#.NET, Vijay Nicoel,TMH

Master of Computer Application – I (Semester II)

Paper Code: PSMCAT202

Paper 2: Soft Computing Techniques

Credit :4]

[Max. Marks:80

Unit I (Soft Computing)

Soft Computing: Introduction of Soft Computing, Soft Computing Verses Hard Computing, Various Types of Soft Computing Techniques, Application of Soft Computing
Artificial Intelligence: Introduction, Various types of Production System, Characteristics of production system, breadth first search, depth first search techniques, other search techniques like Hill Climbing, Best first search, A* Algorithm, AO* Algorithms and various types of control strategies, knowledge represent issues, propositional and predicted logic

Unit II (Neural Network)

Neural Network: Structure and functions of a single neural, biological neural, artificial neural, definition of ANN, taxonomy of neural net, difference between ANN and human brain, characteristics and applications of ANN, single layer network, Perceptron training algorithms, linear separability, Windrow and Hebb's learning rule/Delta rule, ADALINE, MADALINE, AI V/S ANN.
Introduction of MLP, different activation functions, error back propagation algorithms, derivations of BBPA, Momentum, Limitation, Characteristic and Application of EBPA.

Unit III (Fuzzy logic)

Fuzzy logic: fuzzy set theory, fuzzy set verses crisp set, Crisp Relation and Fuzzy Relation,
Fuzzy Systems: Crisp logic, Fuzzy logic, introduction and features of membership functions, fuzzy rule base system: fuzzy propositions, formations, decomposition and aggregation of fuzzy rule, fuzzy reasoning, fuzzy interface system, fuzzy decision making & applications of fuzzy logic.

Unit IV (Genetic Algorithms)

Genetic Algorithms: fundamentals, basic concepts, working principle, encoding, fitness function, reproduction, genetic modeling: inheritance operators, cross over, inversion and deletion, mutation operator, bitwise operator, generational cycle, Convergence of GA, application and advance in GA, difference and similarity between GA, and other traditional methods.

Books:

- 1) L. Fortuna, G. Rozzotto, M. Lavorgna, "Soft Computing: New Trends and Applications", Springer, 2001
- 2) James Anderson, "An Introduction To Neural Networks", The MIT Press, 1995
- 3) Burkhardt, Henn, Hepper, Rintdorff, Schaeck. "Pervasive Computing", Pearson, 2002. ISBN 978-81-7758-280-2
- 4) Melanie Mitchell, "An Introduction To Genetic Algorithms", MIT Press, 1998, ISBN 0-262-13316-4

References:

- 1) F. Adelstein, S.K.S. Gupta, "Fundamentals of Mobile and Pervasive Computing", TMH.
- 2) Mohamad H. Hassoum, "Fundamentals of Artificial Neural Network" The MIT Press 1995

Master of Computer Application – I (Semester II)

Paper Code : PSMCAT203

Paper 3 :SOFTWARE TESTING

Credit :4]

[Max. Marks:80

Unit – I: Introduction to Software Testing

Introduction, Power and Challenges of Software projects, Software Fiascos, Reasons and solutions of software failure, Software testing professionals. **Fundamentals of Testing** – What is testing? Significance of Testing, Psychology of Testing and its choices, who does the Testing? Testing Phases, Testing Systems and its strategies, Metrics in Testing Phase. Risk-based Testing and Types of Risks.

Unit –II: Testing Levels and Types

Testing Levels – Testing Levels and Testing Approaches, **Types of Testing** – Smoke, Black box, White Box, Interface, Use Case, Gorilla, etc.**Static Testing**- Manual Reviews, Formal Code Reviews, StaticAnalysis.

Unit-III: Dynamic & Managing Testing Techniques.

Dynamic Testing – Review, Identify, Test Specification, Design Test Cases, Execute Test Cases, Generate Incident Report, Log the Defects, Test Documentation Standards, Formal Methods of Testing. **Managing Testing Process** – Management Commitment, Testing Process Management, Planning, Budgeting and Scheduling theTesting.

Unit-IV: Software Testing Tools & Code of Ethics

Software Testing Tools – Need for Tools, Classification of tools, benefits of tools, risk associated with tools, selecting tools, introduction to tools in testing process. **Code of Ethics for Software Professionals** – Human ethics, professional ethics, ethical issues in software engineering

Text Books:

1. Dr. K.V.K.K. Prasad, “ISTQB Certification Study Guide”, Wiley-Dreamtech Press, Year-2004, ISBN- 9788177227116.
2. Boris Beizer, “Software Testing Techniques”, Dreamtech Press, “2th Edition”, Year- 2002
- 3.SrinivasanDesikan, Gopaldaswamy Ramesh, “Software Testing: Principles andPractice”, Pearson Education India, Year-2006

Reference Books:

- 1.Dr. K.V.K.K. Prasad, “Software Testing Tools”, Dreamtech Press, Year- 2004
- 2.Brian Marick, “The Craft of Software Testing”, Pearson Education India.
3. SPD, “Software Testing Techniques”, Oreille.

Master of Computer Application - I (Semester – II)

Paper Code: PSMCAT204.1

Paper 4:DATA WAREHOUSING

Credit :4]

[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. **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

Reference Books:

1. AmiteshSinha, ”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

Master of Computer Application - I (Semester – II)

Paper Code :PSMCAT204.2

Paper 4:CLIENT AND SERVER TECHNOLOGIES

Credit :4]

[Max. Marks:80

Unit - I :Client Server Computing Concepts

Introduction to client / server computing Main frame – Centric client / server computing – Down sizing and client / server computing – Preserving mainframe application – Investment through porting – Client / server development tools – Advantages of Client / Server computing.

Unit - II : Components of Client Server Environment

Client Component : Components of client / server application – The client – Client service, request for services, RPC, windows services, Fax / print services, Remote boot services, other remote services – Utility embedding – Common request broker architecture (CORBA) – Server Component: The server - Detailed server functionality – The networking operating system – Novell network – LAN manager – IBM LAN server – Banyan VINES-PC network file services.

Unit - III : Client Server Platforms

Server operating system : Netware, OS/2, Windows NT, Unix – System Application architecture (SAA) – Connectivity – Open systems interconnect (OSI) process communication (IPC) – Communication interface technology, Wide area network technology.

Unit - IV : Client / Server Development Software

Platform migration and reengineering of existing systems – Hardware components - Distributed Objects and Internet: Distributed objects and components – Compound documents : The client framework – OLE / DCOM – Client / server and the Internet – Application Development Tools : Workbench architecture – Information engineering facility architecture – EASEL Workbench – Ellipse – SQL windows – Power builder – SQL Tool set APT workbench component.

Text Books :

1. Client Server Computing by Dewire and dawnatravis, McGrawHill.
2. Designing Enterprise Client/Server Systems by Beth Gold – Bernstein, David MarcaPHI.
3. Client / Server Communications by Thomas S Ligon, TMH.

Reference Books:

1. Client/Server Computing (2nd Edition) by Patrick Smith & Steave Guengerich, Publishers: PHI

Master of Computer Application – I (Semester – II)

Paper Code :PSMCAP205

Project

Credit :4]

[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 / managementangle.
- d. The project work will carry 100marks.
- 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 Internalexaminer.
- f. Internal Examiner must reject any project title which wasalready carried out in any computer course in the college using sametools.

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 theproject
2. Objectives and Hypothesis of theProject
3. Project Category (DBMS/RDBMS/OOPS/Web Designing/Internetetc.)
4. Tools/Platform, Languages to be used
5. A complete Structure of theprogram:
 - i. Analysis.
 - ii. Numbers ofModules.
 - iii. Data Structures orTables
 - iv. ProcessLogic.
 - v. Types of ReportGeneration.
 - vi. Scope of futureApplication.

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. TitlePage.
2. CertificatePage.
3. DeclarationPage.
4. AcknowledgmentPage.
5. Indexor ContentPage.
6. Documentation.
 - i. Introduction/Objectives.
 - ii. Preliminary SystemAnalysis.
 - Identification ofNeed.
 - PreliminaryInvestigation.
 - FeasibilityStudy.
 - Need of New System.
 - Flaws in PresentSystem.
 - iii. ProjectCategory.
 - iv. Software RequirementSpecification.
 - v. Detailed SystemAnalysis.
 - No. of Modules with title ofmodule.
 - Data Structures and Tables if any used inproject.
 - Entity-Relationship Diagram if any used inproject.
 - vi. SystemDesign.
 - SourceCode.
 - Input Screen & Output Screen.
 - Vii. ValidationChecks.
 - viii. Implementation, Evaluation and Maintenance.
 - ix. Security Measures taken.
 - x. Future Scope of the project.
 - xi. Bibliography

Appendix

- Survey Questionnaire

Master of Computer Application – I (Semester – II)

Practical

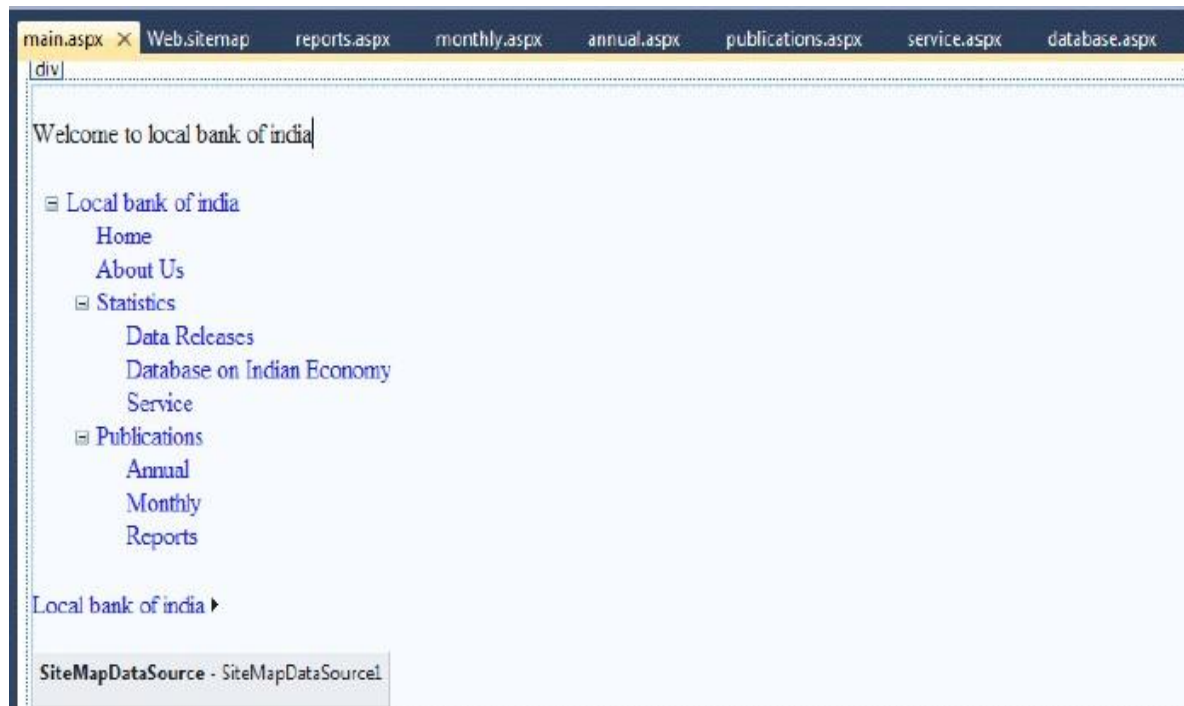
Paper Code :PSMCAP206

[Max. Marks: 100

Practical List on ASP.Net using C#

1. Create an application that allows the user to enter a number in the textbox named 'getnum'. Check whether the number in the textbox 'getnum' is palindrome or not. Print the message accordingly in the label control named lbldisplay when the user clicks on the button 'check'.
2. Create an application that allows the user to enter a number in the textbox named 'getnum'. Check whether the number in the textbox 'getnum' is palindrome or not. Print the message accordingly in the label control named lbldisplay when the user clicks on the button 'check'.
3. List of employees is available in listbox. Write an application to add selected or all records from listbox (assume multi-line property of textbox istrue).
4. "How is the book Programming in C# ?" Give the user three choice : i)Good ii)Satisfactory iii)Bad. Provide a VOTE button. After user votes, present the result in percentage using labels next to thechoices.
5. Create a project that calculates the total of fat, carbohydrate and protein. Allow the user to enter into text boxes. The grams of fat, grams of carbohydrate and grams of protein. Each gram of fat is 9 calories and protein or carbohydrate is 4 calories. Display the total calories of the current food item in a label. Use to other labels to display and accumulated some of calories and the count of items entered. The form food have 3 text boxes for the user to enter the grams for each category include label next to each text box indicating what the user isenter.
6. Set the label border color of rollno to red usingcss.
7. Set the font-Arial , font style-bond , font size-18px of different controls(ie. Label, textbox, button) usingcss.
8. Create the application that accepts name, password ,age , email id, and user id. Allthe informationentryiscompulsory.Passwordshouldbereconfirmed.Ageshouldbewithin21to 30. Email id should be valid. User id should have at least a capital letter and digit as well as length should be between 7 and 20 characters.

9. Create a website for a bank and include types of navigation.



10. Create a Web App to display all the Empname and Deptid of the employee from the database and bind it to GridView . Database fields are(DeptId, DeptName, EmpName,Salary).
11. Create a Login Module which adds Username and Password in the database. Username in the database should be a primarykey.
12. Create a web application to insert 3 records inside the SQL database table having following fields(DeptId, DeptName, EmpName, Salary). Update the salary for any one employee and increment it to 15% of the present salary. Perform delete operation on 1 row of the databasetable.
13. Write a program to get a user input such as the boiling point of water and test it to the appropriate value usingCompareValidator.
14. Write a program that uses a textbox for a user input name and validate it for RequiredField Validation.
15. Write a program that gets user input such as the user name, mode of payment, appropriate credit card.After the user enters the appropriate values the Validation button must validates the values entered.
16. Declare one TextBox control, one Button control, one Label control, and one RegularExpressionValidator control in an .aspx file. The submit() function checks if the page is valid. If it is valid, it returns "The page is valid!" in the Label control. If it is not valid, it returns "The page is not valid!" in the Label control. If validation fails, the text "The zip code must be 5 numeric digits!" will be displayed in the RegularExpressionValidatorcontrol.

17. Check the length of the string in the TextBox using CustomValidator.

Practical list for Soft Computing Techniques

Section – A: Based Soft Computing Technique using Mat Lab

Fuzzy Logic

- Different operations on Fuzzysets.
- Linguisticvariables
- Fuzzyintersections
- Fuzzy

unions NeuralNetwork

- Properties of singleneuron
- Theoretical model ofneuron
- Binary model ofneuron
- Essential

vectoroperations GeneticAlgorithm

- Genetic algorithm in problemsolving
- Biological terminology of geneticalgorithm

Practical List of Software Testing

1. Understand The Automation Testing Approach (TheoryConcept)
2. UsingSeleniumIDE,Writeatestsuitecontainingminimum2test cases.
3. Conductatestsuiteforanytwowebsites.
4. Writeandtestaprogramtologinaspecificwebpage.
5. Writeandtesta programtoprovidetotalnumberofobjectspresent/availableonthepage
6. Study of any testing tool (e.g. Winrunner)
7. Study of any web testing tool (e.g.Selenium)
8. Study of any bug tracking tool (e.g. Bugzilla,bugbit)
9. Study of any test management tool (e.g. TestDirector)
10. Study of any open source-testing tool (e.g. TestLink)

Master of Computer Application – I (Semester – II)
Practical

Paper Code :PSMCAP207

Credit :2]

[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 tableDONAR.

| 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 abovetable.

1. Find all donars whose name starts between alphabets „A“ to „S“.
2. Find all donars who belongs to cityCHANDRAPUR.
3. Find all donars who does not belongs to CHANDRAPURcity.
4. Find all donars who belongs to either CHANDRAPUR or NAGPURcity.
5. Find all donars whose city value containsNULL.
6. Arrange all donars in the sorted order whose age is between 18 and22.
7. Find all maledonars.
8. Find all male donars having O+Ve bloodgroup.
9. Find all donars who donated the blood between 25-AUG-10 and26-AUG-11.
10. Find all donars who donated more than 100 ml ofblood.
11. Find all female donars who belong to city CHANDRAPUR havingblood group „O+Ve“ in the sorted order ofcity?
12. Display all donars according theirage.
13. Display the donar list in recent order of donationdate.
14. Display all distinct blood grouptype.
15. Update the age of all donars by1.

- 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, salary).
 - Create table Math with fields (numb, square, cube & square_root).
 - Create table Patient with fields (pname, age, prescription).
 - Create table Musicalalbum 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 quantity of all album stored in the table music album.
- 8) Write a PL/SQL to delete the records from table music album where quantity is less than 4 using cursor.
- 9) Write a PL/SQL block to display the employee all having salary > some value. The value some value 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 donor name and display the information of donor. If duplicate or no donor found then proper exception should be raised.
- 23) Create a procedure that displays the information of donor by accepting donor 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 Donor, that whenever user try to insert a quantity greater than 500 ml a trigger must fire before insertion or updation of records.