

DEVI AHILYA VISHWAVIDYALAYA, INDORE



Detailed Syllabus of B.Sc.(Computer Science)

Effective From July – 2010

TOTAL PAGES = 30

SEMESTER SYSTEM
SYLLABUS FOR B Sc(CS) Pass and Hons. Course

Effective from July 2010

Effective From Session July 2010							
CLASS ---- ----→ / SEMESTER	B.Sc.(CS)	CCE 30 %	MIN. MARKS	TERM END EXAM 70%	MIN. MARKS	TOTAL 100%	MIN. MARKS
FIRST SEM.	CS-101 PC SOFTWARE	15	5	35	12	50	17
	CS-102 COMPUTER FUNDAMENTALS	15	5	35	12	50	17
	CS-101P - PRACTICAL ON WINDOWS, MS-OFFICE, AND INTERNET	----	----	----	----	50	17
SECOND SEM.	CS-201 PROGRAMMING AND PROBLEM SOLVING THROUGH C LANGUAGE	15	5	35	12	50	17
	CS-202 COMPUTER ORGANISATION	15	5	35	12	50	17
	CS-201P - PRACTICAL ON C PROGRAMMING	----	----	----	----	50	17
THIRD SEM.	CS-301 DATA STRUCTURE USING C++	15	5	35	12	50	17
	CS-302 DBMS FUNDAMENTALS	15	5	35	12	50	17
	CS-301P PRACTICAL ON DATA STRUCTURE AND DBMS	----	----	----	----	50	17
	CS-303 SYSTEMS PROGRAMMING (for Hons.)	15	5	35	12	50	17
FOURTH SEM.	CS-401 OPERATING SYSTEM USING LINUX	15	5	35	12	50	17
	CS-402 SYSTEM ANALYSIS & DESIGN	15	5	35	12	50	17
	CS-401P PRACTICAL ON LINUX	----	----	----	----	50	17
	CS-404 COMPUTING AND ITS APPLICATIONS (for Hons.)	15	5	35	12	50	17

PS :- CCE ----- CONTINUOUS COMPREHENSIVE EVALUATION, INDIVIDUAL PASSING REQUIRED FOR THEORY AND PRACTICAL SUBJECT.

SEMESTER SYSTEM
PROPOSED SYLLABUS FOR B Sc(CS) Pass and Hons. Course – V Sem

CLASS/SEM	B.SC.(CS)	CCE 30%	MIN MARK S.	TERM END EXAM 70%	MIN MARK S.	TOTAL 100%	MIN MARKS
FIFTH SEM FOR PASS COURSE AND HONS.	CS-501 JAVA PROGRAMMING –I	15	5	35	12	50	17
	CS-502 WEB TECHNOLOGY & PROGRAMMING	15	5	35	12	50	17
	CS-503 PRACTICAL ON JAVA & WEB PROGRAMMING					50	17
FOR HONS. ONLY	CS-504 COMPUTER GRAPHICS AND MULTIMEDIA	15	5	35	12	50	17
	CS-505 OPERATING SYSTEM CONCEPTS	15	5	35	12	50	17
	CS-506 PROGRAMMING IN VB AND VB.NET	15	5	35	12	50	17
	CS-507 – PRACTICAL ON COMPUTER GRAPHICS					50	17
	CS-508 – PRACTICAL ON VB AND VB.NET					50	17
	CS-509-PROJECT (SYNOPSIS & ANALYSIS ONLY)					50	17

Proposed Syllabus for B.Sc. (CS.) Pass and Hons. Course VI Semester

CLASS/SEM	B.SC.(CS)	CCE 30%	MIN MARK S.	TERM END EXAM 70%	MIN MARKS.	TOTAL 100%	MIN MARKS
SIXTH SEM FOR PASS COURSE AND HONS.	CS-601 JAVA PROGRAMMING –II	15	5	35	12	50	17
	CS-602 DATA & NETWORK COMMUNICATION	15	5	35	12	50	17
	CS-603 - PRACTICAL ON JAVA-II					50	17
FOR HONS. ONLY	CS-604 COMPUTER ARCHITECTURE	15	5	35	12	50	17
	CS-605 SCIENTIFIC COMPUTING	15	5	35	12	50	17
	CS-606 INTRODUCTION TO SOFTWARE ENGINEERING	15	5	35	12	50	17
	CS-607 PRACTICAL ON SCIENTIFIC COMPUTING					50	17
	CS-609 MAJOR PROJECT	30	10	70	24	100	33

CS 101 - PC SOFTWARE**Effective From Session July 2010****Maximum Marks: 35****Minimum Pass Marks: 12****UNIT I**

MS-Windows: Operating system-Definition & functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders. Control panel – display properties, adding and removing software and hardware, setting date and time, screen saver and appearance. Using windows accessories.

UNIT-II

Documentation Using MS-Word - Introduction to Office Automation, Creating & Editing Document, Formatting Document, Auto-text, Autocorrect, Spelling and Grammar Tool, Document Dictionary, Page Formatting, Bookmark, Advance Features of MS-Word-Mail Merge, Macros, Tables, File Management, Printing, Styles, linking and embedding object, Template.

UNIT III

Electronic Spread Sheet using MS-Excel - Introduction to MS-Excel, Creating & Editing Worksheet, Formatting and Essential Operations, Formulas and Functions, Charts, Advance features of MS-Excel-Pivot table & Pivot Chart, Linking and Consolidation.

UNIT IV

Database Management using Excel-Sorting, Filtering, Table, Validation, Goal Seek, Scenario.

UNIT V

Presentation using MS-PowerPoint: Presentations, Creating, Manipulating & Enhancing Slides, Organizational Charts, Excel Charts, Word Art, Layering art Objects, Animations and Sounds, Inserting Animated Pictures or Accessing through Object, Inserting Recorded Sound Effect or In-Built Sound Effect.

TEXT BOOK

Learn Microsoft Office – Russell A. Stultz – BPB Publication

REFERENCES BOOKS

1. Microsoft Office – Complete Reference – BPB Publication
2. Courter, G Marquis (1999). Microsoft Office 2000: Professional Edition. BPB.
3. PC Software – Shree Sai Prakashan, Meerut

CS-101P - PRACTICAL ON WINDOWS, MS-OFFICE, AND INTERNET**Maximum Marks: 50****Minimum Pass Marks:17****WINDOWS**

1. Creating folder, cut, copy, paste, managing file and folder in windows.
2. Arrange icons, set display properties
3. Adding and removing software and hardware
4. Setting date and time, screen saver and appearance.
5. Using windows accessories.
6. Settings of all control panel items
7. Search file

MS-Word

1. Creating & Editing Document
2. Formatting Document
3. Use of Auto-text, Autocorrect, Spelling and Grammar Tool,
4. Page Formatting, Page Border, Background,
5. Creation of MS-Word-Mail Merge, Macros, Tables.
6. Practice of Printing, page setup etc.

MS-Excel

1. Creating & Editing Worksheet, Fill Handle
2. Use Formulas and Functions
3. Preparing Charts

MS-Powerpoint

1. Creating, Manipulating & Enhancing Slides,
2. Inserting Organizational Charts, Excel Charts
3. Using Word Art
4. Putting Animations and Sounds
5. Inserting Animated Pictures
6. Inserting Recorded Sound Effect

CS 102 - COMPUTER FUNDAMENTALS

Effective From Session July 2010

Maximum Marks: 35

Minimum Pass Marks: 12

UNIT I

Evolution of Computers - Generations, Types of computers, Computer system characteristics, Basic components of a Digital Computer - Control unit, ALU, Input/Output functions and memory, Memory addressing capability of a CPU, Word length of a computer, processing speed of a computer, Computer Classification.

UNIT II

Input/Output Units-: Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light pen, Touch Screen, Monitors and types of monitor -Digital, Analog, Size, Resolution, Refresh Rate, Dot Pitch, Video Standard - VGA, SVGA, XGA etc, Printers & types - Daisy wheel, Dot Matrix, Inkjet, Laser, Line Printer, Plotter, Sound Card and Speakers.

UNIT III

Memory - RAM, ROM, EPROM, PROM and other types of memory, Storage fundamentals - Primary Vs Secondary Data Storage, Various Storage Devices - Magnetic Tape, Magnetic Disks, Cartridge Tape, Hard Disk Drives, Floppy Disks (Winchester Disk), Optical Disks, CD, VCD, CD-R, CD-RW, Zip Drive, flash drives Video Disk, Blue Ray Disc, SD/MMC Memory cards, Physical structure of floppy & hard disk, drive naming conventions in PC. DVD, DVD-RW, USB Pen drive.

UNIT IV

Software and its Need, Types of Software - System software, Application software, System Software - Operating System, Utility Program, Algorithms, Flow Charts - Symbols, Rules for making Flow chart, Programming languages, Assemblers, Compilers and Interpreter, Computer Applications in Business.

UNIT V

Introduction to **Internet**, Connecting to the Internet Hardware, Software & ISPs, Search Engines, Web Portals, Online Shopping, Email – Types of email, Compose and send a message. Reply to a message, Working with emails.

TEXT BOOKS

Computer Fundamentals – B. Ram – New Age International Publishers

REFERENCES BOOKS

1. S.K.Basandra, “*Computers Today*“, Galgotia Publications.
2. Computer Fundamentals – P. K. Sinha – BPB Publication
3. PC Software – Shree Sai Prakashan, Meerut

CS - 201 PROGRAMMING AND PROBLEM SOLVING THROUGH C LANGUAGE**Effective From Session July 2010****Maximum Marks: 35****Minimum Pass Marks: 12****UNIT I**

Structure of C program, keywords, identifiers, constants, variables, data types, type conversion, Types of operators and expressions, Input and output functions in C.

Decision Statement – IF-ELSE statement, break, continue, goto, switch() case and nested IF statement.

UNIT II

Loop Control Statements – For loop, While loop, Do-while loop and nested loops.

Arrays – Definition, Initialization, characteristics, One, Two, Three and Multidimensional Arrays, scanf() and printf() functions, Working with Strings & Standard Functions.

UNIT III

Pointers – Introduction, features, Declaration, Arithmetic operations, pointers and Arrays, Array of pointers, pointers to pointers, pointers and strings, Void pointers.

UNIT IV

Functions – Declaration, Prototype, Types of functions, call by value and reference, Function with operators, function with decision statements, function with Loop statements, Function with Arrays and Pointers, Types of Storage Classes.

UNIT V

Structure and Union – Declaration, Initialization, structure within structure, Array of structure, Enumerated data types, Union of structure, Files – Streams and file types, file operations, File I/O, Read, Write and Other file function.

TEXT BOOKS

1. E. Balaguruswamy, *“Programming In C”*, TMH Publications

REFERENCES BOOKS

1. Ashok N. Kamthane, *“Programming with ANSI and Turbo C”*, Pearson Education
2. Ashok N. Kamthane et. al., *Computer Programming and IT (for RTU)*, Pearson Education, 2011
3. Gottfried, *Schaums Outline Series, “Programming With C”*, TMH Publications
4. Mahapatra, *“Thinking In C”*, PHI Publications

CS-201P - PRACTICAL ON C PROGRAMMING**Maximum Marks: 50****Minimum Pass Marks:17**

1. Write a program for swapping two variables without using third variable.
2. Write a program to calculate simple Interest and Compound Interest.
3. Write a program to convert temperature entered into centigrade to Fahrenheit.
4. Write a program to find maximum of three numbers.
5. Write a program to read in a three digit number produce following output (assuming that the input is 539)
 - 5 hundreds
 - 3 tens
 - 9 units
6. Write a program to find sum of digits of accepted number.
7. Write a program to find student grade using IF-ELSE ladder
8. Write a program that prints given three integers in ascending order using IF-ELSE
9. Write a program for simple calculator using switch/case loop.
10. Write a program for print Fibonacci series up to N number.
11. Write a program to find sum of first 50 odd numbers and even numbers.
12. Write a program to find reverse of given number.
13. Write a program to find factorial of accepted number.
14. Write a program to find all prime number between two given numbers
15. Write a program to find minimum, maximum, sum and average of given one dimensional array.
16. Write a program for sparse matrix.
17. Write a program to find addition, subtraction, multiplication of matrix.
18. Write a program to print terms of each of the following series
 - i. Sin(x) ii. Cos(x)
19. Display the following output on the screen

a.	b.	c.
*	1	A
**	12	AB
***	123	ABC
****	1234	ABCD
*****	12345	ABCDE
20. Write a program to read and write a structure.
21. Write a program for factorial function.
22. Write a program to read a string and print its reverse.
23. Write a program to find a^b using Call by reference.
24. Write a program for create, open and append a file.
25. Write a program to copy the contents of one file to another.

CS - 202 COMPUTER ORGANIZATION**Effective From Session July 2010****Maximum Marks: 35****Minimum Pass Marks: 12****UNIT I**

Number systems – Decimal Number system, Binary number system, Octal & Hexa-decimal number system, 1's & 2's complement, Binary Fixed- Point Representation, Arithmetic operation on Binary numbers, Overflow & underflow.

UNIT II

Floating Point Representation, Codes, ASCII, EBCDIC codes, Gray code, Excess-3 & BCD, Error detection & correcting codes, Logic Gates, AND, OR, NOT GATES and their Truth tables, NOR, NAND & XOR gates.

UNIT III

Flip-flops - RS, D, JK & T Flip-flops, Registers, Shift Registers, Multiplexer, De-multiplexer, Encoder, Decoder , Counters.

UNIT IV

Boolean Algebra – Basic Operations and Boolean Law's, Demorgan's theorem, K -Map, Sum of Product & Product of Sum. Combinational & Sequential circuits, Half Adder & Full Adder, Adder & Subtractor.

UNIT V

DMA- control signals for DMA transfers,Block diagram of DMA controller, DMA transfer in a microcomputer system. Instruction Sets – Characteristics and Functions, Types of Operations Addressing modes and formats, Processor Organization, Instruction Cycle, and Register Organization.

TEXT BOOK

Computer Fundamentals – B. Ram – New Age International Publishers

REFERENCE BOOKS

1. William Stallings, “**Computer Organization & Architecture**”, Pearson.
2. BARTEE, “**Digital Computer Fundamentals** ” TMH Publication
3. *MORRIS MANO*, “**Computer System Architecture** ” PHI

CS – 301 DATA STRUCTURE USING C++**Effective From Session July 2011****Maximum Marks: 35****Minimum Pass Marks: 12****UNIT I**

Introduction to Object Oriented Programming, Object oriented Paradigm, Introduction to C++, Differentiate C & C++, Data types, Operators, Decision making and Loop control statements of C++.

UNIT II

Introduction to Data-structures: Definition of data structures and abstract data-types.

Classification of Data-structures: Linear, Non-linear, Homogeneous, Non-homogeneous, Static and Dynamic data structures. **Levels of Data-structures:** User level(view-level), logical level, Physical level. **Arrays :** Definition, representation of One and Two dimensional arrays in memory(Address Calculation).**Sparse Matrix :** Definition, Memory Representation

UNIT-III

Stack : Definition, Array implementation of stack (static stack) : Operations PUSH, POP, TRAVERSE. **Applications of stack :** Infix, Prefix , Postfix representation and conversion using stack, Postfix expression evaluation using stack, use of stack in recursion implementation.

Queue : Definition, array implementation of queue (static queue) : Operations INSERT, DELETE, TRAVERSE. **Applications of queue :** Network Printer, Simulation of an Airport, Time Sharing System(Round Robin Scheduling) **Comparisons** of array, stack and queue data structures. **Introduction** to Circular queue, priority queue, Double ended queue, multiple queue.

UNIT-IV

Pointers : Introduction, Pointers to structures, malloc, calloc functions. Dynamic memory: New & Delete. **Linked list :** Singly and Doubly Linear link lists, Singly and doubly circular linked list : Definitions, operations INSERT , DELETE, TRAVERSE on all these list. (Insertion operation includes – insertion before a given element, insertion after a given element, insertion at given position, insertion in sorted linked list) , Implementations of Stack and Queue using linked list (Dynamic stack).

UNIT-V**Applications of linked list :**

String representation & string operations like string length, string reverse, string comparison, string concatenation, sting copying, convert upper-case to lower and vice-versa, substring using linked list.

Polynomial representation and addition of two polynomial using linked list.

Josphus problem, searching using linked list, sorting using linked list.

Simple Searching Algorithms: Linear or sequential search, Binary search, interpolation search using array.

Simple Sorting Algorithms: Bubble sort, Selection sort, Insertion Sort on array.

TEXT BOOK

Data Structures In C++ By Ellis Horowitz, Sartaj Sahani, Dinesh Mehta Galgotia Publications.

REFERENCE BOOKS:

1. Data Structures (Schaume's Outlines) By Lipschutz TMH Publications.
2. Data Structures and Algorithm in C++ By Adam Drozdek Thomson (Vikas)
3. Data Structures using C & C++ By Aaron M. Tenenbaum, Yedidyah Langsam PHI publications.

CS – 302 DBMS FUNDAMENTALS**Effective From Session July 2011****Maximum Marks: 35****Minimum Pass Marks: 12****UNIT – I**

DBMS Definition, Characteristics of DBMS ,Application and advantages of DBMS, Instances , Schemas and Database States, Three Levels of Architecture , Data Independence, DBMS languages, Data Dictionary, Database Users, Data Administrators.

UNIT – II

Data Models, types and their comparison, Entity Relationship Model, Entity Types, Entity Sets, Attributes and its types, Keys, E-R Diagram, Data Integrity
RDBMS –Concept, Components and Codd's rules.

UNIT – III

Relational Algebra (selection, projection, union, intersection, Cartesian product, Different types of join like theta join, equi-join, natural join, outer join)
Functional Dependencies, Good & Bad Decomposition, Anomalies as a database: A consequences of bad design, Normalization: 1NF, 2NF, 3NF, BCNF, 4NF 5NF.

UNIT – IV

Introduction to SQL, DDL, DML, and DCL statements, Creating Tables, Adding Constraints, Altering Tables, Update, Insert, Delete & various Form of SELECT- Simple, Using Special Operators for Data Access. Aggregate functions, Joining Multiple Tables (Equi Joins),Joining a Table to itself (self Joins) Functions.

UNIT – V

Introduction to PL/SQL (blocks of PL/SQL, Variables, constants), Control Structure
Introduction to Stored Procedures, Functions , Cursor and Triggers

TEXT BOOK

Fundamentals of Database systems, Elmasri & Navathe, Addison & Weisely, New Delhi.

REFERENCE BOOKS

1. Database Concepts, H. F. Korth & A. Silverschatz, Tata McGraw Hill, New Delhi
2. Database Systems, C. J. Date, Prentice Hall of India, New Delhi.
3. SQL,PL/SQL, The programming language of Oracle. Ivan Bayross,

CS-301P Practical on Data Structure-I using C++ & DBMS FUNDAMENTALS**Maximum Marks: 50****Minimum Pass Marks:17****Data Structure-I using C++**

1. Store records of 100 students using array.
2. Representation of upper triangular and lower triangular sparse matrix in array.
3. Push and Pop operation on stack using array.
4. Insertion and deletion operation on queue using array.
5. Insertion and deletion operation on circular queue using array.
6. Program for exchanging the value of two variables using pointers.
7. Linked List creation, insertion and deletion.
8. Sort a Linked List.
9. Implementations of Stack and Queue using linked list.
10. Representation of polynomial using linked list.
11. Double linked list creation, insertion and deletion.
12. Program for linear search.
13. Program for binary search.

DBMS FUNDAMENTALS

1. Assignment to create simple tables , with only the primary key constraint (as a table level constraint & as a field level constraint) (include all data types)
2. Assignment to create more than one table, with referential integrity constraint, PK constraint.
3. Assignment to create one or more tables with following constraints, in addition to the first two constraints (PK & FK)
 - a. Check constraint
 - b. Unique constraint
 - c. Not null constraint
4. Assignment to drop a table from the database, to alter the schema of a table in the Database.
5. Assignment to insert / update / delete records using tables created in previous Assignments. (use simple forms of insert / update / delete statements)
6. Assignment to query the tables using simple form of select statement
 Select <field-list> from table [where <condition> order by <field list>]
 Select <field-list, aggregate functions > from table [where <condition> group by
 i. having <> order by <>]
7. Assignment to use various additional operator available for conditional statement like between, in any, all etc.
8. Assignment to query table, using set operations (union, intersect)
9. Assignments to query tables using nested queries
10. Assignments to query more than one table using following joins
 - a. Cartesian Product
 - b. Inner Joins
 - c. Equi-Join
 - d. Table Aliases
 - e. Non-Equi Join
 - f. Non-Key Join
 - g. Reflexive Join
 - h. Natural Join
 - i. Outer Joins
 - j. Right Outer Join
 - k. Left Outer Join
 - l. Full Outer Join

**CS – 303 SYSTEM PROGRAMMING
(FOR HONS. COURSE ONLY)**

**Effective From Session July 2011
Minimum Pass Marks: 12**

Maximum Marks: 35

UNIT – I

Background – Introduction, System Software and Machine Structure, The Simplified Instructional Computer (SIC), Traditional (CISC) Architectures, RISC Architectures.

UNIT – II

Assemblers - Basic Assembler Functions, Machine-Dependent Assembler Features, Machine-Independent Assembler Features, Assembler Design Options, Implementation Examples.

UNIT – III

Loaders and Linkers - Basic Loader Functions, Machine-Dependent Loader Features, Machine-Independent Loader Features, Loader Design Options, Implementation Examples.

UNIT – IV

Macro Processors - Basic Macro Processor Functions, Machine-Dependent Macro Processor Features, Machine-Independent Macro Processor Features, Macro Processor Design Options, Implementation Examples.

UNIT – V

Compilers - Basic Compiler Functions, Machine-Dependent Compiler Features, Machine-Independent Compiler Features, Compiler Design Options, Implementation Examples.

TEXT BOOK:

1. System Programming and operating system – D.M. Dhamdhare –Tata McGrawhill

REFERENCE BOOKS:

1. System Software: An Introduction to Systems Programming, 3/E - Leland L. Beck - Addison-Wesley
2. System Programming – J.J.Donavan – Tata McGrahill

CS – 303 OPERATING SYSTEM USING LINUX

Effective From Session July 2011

Maximum Marks: 35

Minimum Pass Marks: 12

UNIT – I

Definition of Operating System, Types of Operating System, features of Unix, Basic Architecture of Unix/Linux system, features of Kernel and Shell. *Unix File system* - Boot block, super block, Inode table, data blocks, How Unix/Linux kernel access files, Unix/Linux standard file system.

UNIT –II

Structure of file system, Essential Linux commands - Commands for files and directories creating and viewing files using cat, cd, ls, cp, md, rm, mkdir, rmdir, pwd, file, more, less, file comparisons – cmp & comm, View files, disk related commands, checking disk free spaces, chmod with its options, cal,date,who,tty, lp, stty.

UNIT -III

Filters and pipes : head, tail , wc, pr, cut, paste, sort, unique, grep, egrep, fgrep ,tee,
The process : shell process, parent and children ,process status, system process, multiple jobs in background and foreground, changing process priority with nice, premature termination of process, Mathematical commands- bc, expr, factor, units.

UNIT -IV

Creating and editing files with VI editor with their command options, Operators, text deletion, text movement, changing text, yanking text, filtering text, the ex mode, moving text from one file to another.

Communication: The bulletin board –news, write, mesg, talk, mail, elm, pine, finger, vacation and connecting to remote machine.

UNIT - V

System administration Common administrative tasks, identifying administrative files – configuration and log files, Role of system administrator, Managing user accounts-adding & deleting users, changing permissions and ownerships,

Installation of Unix/Linux system– Unix/Linux Installation requirement, complete Procedure steps, Partitioning the Hard drive, System startup and shut-down process, init and run levels. File system mounting, lpstat, backup strategy, installing software on Unix/Linux.

TEXT BOOK

1. Unix – Syed mansoor sarwar, Robert kortskey - Pearson Education

REFERENCE BOOKS:

1. Unix concepts and Application- Sumitabha Das-Tata McHill
2. Using Linux – David Bandel and napier – Pearson Education

CS-401P PRACTICAL ON LINUX**Maximum Marks: 50****Minimum Pass Marks:17****1:-** Demonstrate the following commands:

- i) ls
- ii) cat
- iii) mkdir
- iv) cp
- v) pwd
- vi) chmod with its options, cal,date,who,tty, lp,stty.

2:- Basic Operations

- i. Connecting to the system
- ii. Disconnecting from the system
- iii. Text and graphic mode
- iv. Changing your password
- v. Navigating through the file system
- vi. Determining file type
- vii. Looking at text files
- viii. Finding help
- ix. List the different types of file comparisons command.

3:- Demonstrate the all types of disk related commands.**4:-** Demonstrate following commands:-

- i) md
- ii) rm
- iii) file
- iv) less

5:- Demonstrate the following commands

- i) head
- ii) tail
- iii) wc
- iv) paste
- v) sort

6:- Demonstrate the following commands

- i) unique
- ii) grep
- iii) fgrep
- iv) tee

7:-List the different types of Mathematical command in UNIX.**8:-** Demonstrate the mail command with an example.**9:-** Write the program to compare the two strings.**10:-** Write the program to move one file to another file.**11:-** Write the program to print the following diagram:-

- | | | | | | | | | | |
|----|---|---|---|----|-----|---|---|---|---|
| i) | 1 | | | | ii) | * | * | * | * |
| | 2 | 3 | | | | * | * | * | |
| | 4 | 5 | 6 | | | * | * | | |
| | 7 | 8 | 9 | 10 | | * | | | |

CS – 402 SYSTEM ANALYSIS AND DESIGN**Effective From Session July 2011****Maximum Marks: 35****Minimum Pass Marks: 12****UNIT – I**

Define Data, Information, System, System component, System Analysis, Business system concepts, Categories of Information System, Scope of Information System, System Development Life Cycle, system prototype.

UNIT - II

Role of information system, Information system planning , Fact finding techniques, Tools for documenting procedure and decisions, Structured Analysis, Data flow analysis, Features and tools of data flow strategy, Advantage of data flow analysis, Physical and Logical data flow diagrams.

UNIT - III

Data dictionary features, Processes in the Data dictionary, Application Prototype, Steps in prototype methods, Use of Prototypes, A Prototyping example, System Design, Objectives in Designing an information system, software development specification.

UNIT - IV

Elements of the design, Design of output, Design of files, Design of Database Interaction, Design of Input, Design of control, Design of Procedure, Design of Program specification.

UNIT - V

Design of computer output, types of output, how to present information – Tabular format, Graphics format, color presentation, screen design, Design of Input and Output controls, data capture guideline, design of source documents.

TEXT BOOK

1. System Analysis and Design – Awadh Elias; Galgotia Publication.

REFERENCE BOOK

1. Analysis & Design of Information system – James A. Senn –McGraw Hill

CS – 404 COMPUTING AND ITS APPLICATION (For Hons. Course Only)

Effective from Session 2011-2012

Maximum Marks: 35

Minimum Pass Marks: 12

UNIT-I

Discrete Structures – Introduction to Logic, Sets and Functions, Mathematical reasoning: Recursion, Recursive definitions, recursive algorithms. Relations: definition, Importance, Properties of relation, Unary, Binary, Ternary relations and n-ary relations and their applications, Graph terminology, representing graphs, graph types, graph models.

UNIT -II

Complexity and Algorithm Analysis – Introduction, The need for Analysis, Algorithm growth, Complexity analysis, Order Analysis: Objectives of time analysis of algorithms, Big-oh and Theta notations.

UNIT -III

Information Security – Introduction to Information Security, Security Technologies, Encryption techniques.

UNIT -IV

Emerging Trends in Computing – Introduction to Distributed Computing, Grid Computing, & Cloud Computing.

UNIT -V

Data mining and Data Warehousing – Introduction & Applications, Multidimensional Data Model, OLAP Operations, Data Warehousing Architecture, Data Warehouse Backend Process, KDD vs. Data Mining, Data Mining Techniques, Issues and challenges in Data Mining, Data Mining applications - Case studies.

Books :

1. Concepts in computing - Kenneth Hoganson, First Indian Edition, Jones & Bartlett Publishers, Inc., 2010.
2. Data Mining Techniques - Arun K Pujari, University Press.

Reference Books :

1. Kenneth H. Rosen “Discrete Mathematics and its Applications” , 5th edition , Tata McGraw-Hill Edition.
2. C.L. Liu, "Elements of Discrete Mathematics". 4th edition, TataMcGraw-Hill publication.
3. Cormen, Leiserson, and Rivest. Algorithms, MIT Press 2001
4. William Stallings, "Cryptography and Network Security", 3. rd. Edition, Pearson Education.

B.Sc. V SEM
CS-501
Java Programming -I

Theory: Max marks-35 Min marks-12

UNIT-I

Introduction to JAVA , from C to JAVA, Byte Code, The JAVA buzzwords: Simple, Object-oriented, Robust, secure, portable, Multithreaded, Architecture-Neutral, Interpreted and High performance, Distributed, Dynamic, Java Virtual Machine.

UNIT -II

Object-oriented programming principles, Creating, Compiling and running Java programs, white spaces, Identifiers, Literals, comments, separators, Java keywords, Data types, variables and arrays. Operators- Arithmetic, Bitwise, Relational, Boolean, Assignment, ?: and Operator precedence, Control Statements: Selection Statements, iterations statement and jump statements.

UNIT -III

Introducing classes, general form of class, declaring objects, member of a class, Introducing methods, constructors, this keyword, garbage collection, finalize() method, overloading method, overloading constructors, using object as a parameter & returning objects, Introducing access control, static keyword, final keyword, Nested & inner classes, string classes.

UNIT -IV

Inheritance Basics, using super, creating multilevel key, constructor calling, method overriding, dynamic method, dispatch, abstract classes, using final and inheritance.

Packages, access protection, importing packages, interfaces, defining, implementation and applying interfaces, variable in interfaces & inheriting interfaces

UNIT -V

Exception Handling fundamentals, using try & catch, multiple catch clauses, nested try statement, use of throw, throws and finally.

Text Books:

1. Java 2: Herbert Schildt, "The Complete Reference", TATA McGRAW HILL

Reference Books:

1. CAY S. HORSTMANN & GRAY CORNELL Core Java 2: Volume-I
Fundamentals; Pearson Education
2. E. BALAGURUSAMY, "Programming with Java", TATA McGRAW HILL

B.Sc. V SEM
CS- 502
Web Technology & Programming
Theory: Max marks-35 Min marks-12

UNIT- I

Client server computing concepts, Distributed Computing on the internet, Introduction Web Pages and HTML, An overview of HTML, adding some structure to a page, formatting Text & Pages, linking Pages to the world, including pictures in a page, creating lists, arranging items within tables, getting feedback with forms, splitting a page into frames

UNIT- II

Site design and Navigation – The Home Page as a Site Guide, Navigator through your site- Graphics, Text, frames, consistency, Introduction to Java Script, JavaScript in web pages, advantages of java script, writing java script into HTML, data types & literal, type casting, creating variables, Array, operators and expressions, java script programming constructs.

UNIT-III

Functions-built in, user define functions, placing text in a browser, dialog boxes. The java script Document Object Model, Handling events using Java script

UNIT- IV

Cascading Style Sheets, Class, using the SPAN tag, External Style sheets, using the DIV tag, using DHTML in Internet Explorer, using DHTML navigator, working with Text-Dynamically changing Content.

UNIT-V

Putting it on web: getting your Domain Name, finding a web space provider, testing responsiveness to your needs, uploading your pages

Text Books:

1. Ivan Bayross ,”**Java Script, HTML, DHTML and PHP**”, BPB Publication
2. “**HTML Complete**”, BPB Publication

Reference Books:

1. David A. Crowder , “**Creating Web Sites Bible**”, Wiley-India

CS-503 Practical Exercise on Java & Web Programming

Maximum Marks: 50

Minimum Pass Marks:17

1. Create a webpage that prints your name to the screen.
2. Create a webpage that print the numbers 1 - 10, each number being a different color.
3. Print a paragraph with 4 - 5 sentences. Each sentence should be a different font.
4. Print two lists with any information you want. One list should be an ordered list, the other list should be an unordered list.
5. Print a paragraph that is a description of a book, include the title of the book as well as its author. Names and titles should be underlined, adjectives should be italicized and bolded
6. Print some preformatted text of your choosing
7. Create a page with a link at the top of it that when clicked will jump all the way to the bottom of the page. At the bottom of the page there should be a link to jump back to the top of the page
8. Display an image that has a border of size 2, a width of 200, and a height of 200.
9. Display five different images. Skip two lines between each image. Each image should have a title
10. Display an image that when clicked will link to a search engine of your choice
11. Add a simple table to for storing Train information (Train No, Name, Source, Destination,Time) without borders. Do the following
 1. Add border value of 1, save and view.
 2. Add a border value of 5, save and view.
 3. Make the top row a table header, save and view.
 4. Align all data elements to the middle of their cells, save and view.
 5. Divide Time into Departure Time, Arrival Time.
12. Write a Javascript, which calculate sum or product depending on the drop down menu selection of two numbers, accepted using textbox and display the result in the third textbox. The action performs on click event on button.
13. Write a Javascript which displays current date and time when page loads.
14. Write a Javascript that prompts the user for his or her name as the page load (via dialog box) and then welcome the user by name in the body of the page.
15. Create a Webpage using two image files, which switch between one another as mouse pointer mover over the images.
16. Create a HTML form that has number of textboxes like First Name, Last Name, Address and Pincode. Write a Javascript code to verify following onclick event of a button :
 1. Pop Up an alert indicating which textbox has left empty and set focus on that specific textbox.
 2. Give message "Thank You" if all text boxes are filled
 3. Pop Up an alert message if text within Pin code is not numeric value and greater than 6 digits and set focus on it till it is given proper value.
17. Write a Javascript, which calculate factorial a number, accepted using textbox and display the result in second textbox. The action performs on click event on button.
18. Write a javascript which reverse the number accepted in textbox.

Practical on Java Programming –I

1. Programs using constructor and destructor
2. Creation of classes and use of different types of functions
3. Count the number of objects created for a class using static member function
4. Write programs on interfaces
5. Write programs on packages
6. Write programs using function overloading
7. Programs using inheritance
8. Write a program using exception handling mechanism

B.Sc. V SEM
CS-504
COMPUTER GRAPHICS AND MULTIMEDIA
(For Hons. Student only)

Theory: Max marks-35 Min marks-12

UNIT- I

Definition, Application, Pixel, Frame Buffer, Raster and Random Scan display, Display devices- CRT, Color CRT Monitors, Scan Conversion of line- DDA algorithm of line drawing, Scan conversion of circle- Bresenham's circle generating algorithm, Polygon Filling-Scan line polygon filling algorithm.

UNIT II

2- Dimensional transformation, Translation, Rotation, Scaling, Homogeneous Coordinates, Reflection, Shear. 3-dimensional transformation, Translation, Rotation Scaling, Reflection, Shear.

UNIT III

Window to view port transformation, clipping, line clipping, Cohen –Sutherland line clipping, Polygon clipping, Sutherland and Gary Hodgman polygon clipping algorithm.

UNIT IV

Hidden Surface removal—Depth comparison, Z-Buffer Algorithm , Back-Face Removal, The Painter's Algorithm, Scan-Line Algorithm, Subdivision Algorithm.

UNIT V

Light and Color, Different color models, RGB, CMY, YIQ. Introduction to multimedia, Computer animation, Raster animation, Computer animation languages

Text Books:

Computer Graphics by Donald Hearn and M. Pauline Baker.

Reference Books:

1. Computer Graphics by Zhigang Xiang and Roy Plasock , Schaum's Outlines.

B.Sc. V SEM
CS-505
Operating System Concepts
(For Hons. Student only)

Theory: Max marks-35 Min marks-12

UNIT –I

Operating system Basics ,History of operating systems, Mainframe Operating Systems, Server Operating Systems, Multiprocessor Operating Systems , Personal Computer Operating Systems , Real-Time Operating Systems, Embedded Operating Systems, Smart Card Operating Systems. OPERATING SYSTEM CONCEPTS (Definition and examples of these topics)–Processes, Deadlocks , Memory Management ,Input/Output, Files ,Security , Shell, kernel, system calls..

UNIT –II

Process Management: Process states, concurrent processes, process control block and its role.Process Scheduling: FCFS, Round Robin, SJF, Priority Scheduling. Cooperation among the processes, Interprocess Communication, Threads, Deadlocks: Characterization, Methods for Handling Deadlocks

UNIT –III

Memory Management: Address Binding - Dynamic Loading and Linking, Contiguous Allocation - Internal & External Fragmentation. Non-Contiguous Allocation: Paging and Segmentation Schemes. Virtual Memory: Demand Paging - Page Replacement - Page Replacement Algorithms - Thrashing

UNIT –IV

File System: File Concepts, Access Methods, Directory Structures, Protection, File System Structures, Allocation Methods, Free Space Management.

UNIT- V

I/O System: Overview, I/O hardware, polling, interrupts, device driver, direct memory access, Hard Disk Scheduling: FCFS, SSTF, SCAN, C-SCAN. Examples related to disk arm movement.

Text Books:

A. Silberschatz P.B.Galvin, Gange, "Operating System Concepts", 6th Edn., John Wiley & Sons., 2002.

Reference Books:

H.M. Deitel, An Introduction to Operating System, Second Edition, Addison Wesley, 1990.

B.SC V SEM
CS-506
Programming in VB and VB.Net
(For Hons. Student only)

Theory: Max marks-35 Min marks-12

UNIT I

Introduction to Graphical user interface (GUI), The Visual basic environment, How to use VB compiler to compile/debug and run the programs, Modular Environment, Creating an application, Working with forms.

UNIT II

Controls: TextBoxes, ListBox, ComboBox, CheckBox, Button, ScrollBar, SliderControl, Option Buttons, Setting a border & style, Designing User Interface, Keyboard access, tab controls, Default & cancel property, Coding for controls.

UNIT III

Variables, Constants, Calculation Variables, Declaring Variables, Scope of variables, variables-Public, private, Static, Data types, Naming rules/conventions Constants, Val Function, Arithmetic Operators, Formatting Data, Arrays.

UNIT IV

Introduction to VB.NET, Programming Platform -.NET Framework, .NET Architecture, The Just-in-time compiler, VB.NET Development Environment, Creating Application, Introduction to Controls in VB.NET.

UNIT V

VB.NET Language –Variables, Declaring variables, datatypes, Visual Development and Event drive programming-methods and events, Handling and using interfaces, Class Library overview, Understanding Built-in classes, Creating User Defined classes, Understanding Constructors and instance variables, Introduction to ADO.NET

Text Books:

1. Evangelos petroustos, “Mastering in VB”, BPB Publications
2. “Beginning VB.NET 2005”, WROX Publication

CS-507 Practical on Computer Graphics

Maximum Marks: 50

Minimum Pass Marks:17

1. Program for DDA line drawing
2. Program for Bresenham's line drawing
3. Program for Bresenham's Circle
4. Program for polygon scan line filling
5. program for translation transformation for an object
6. Program for rotation transformation for an object
7. Program for scaling transformation for an object
8. Program for polygon drawing
9. Program for Cohen –Sutherland line clipping
10. Program for polygon clipping

CS-508 Practical on VB & VB.Net

Maximum Marks: 50

Minimum Pass Marks:17

1. Visual Basic Practical's:
 1. Create a window application for simple Calculator.
 2. Create a window application to compare b/w two no, compare b/w 3 no.
 3. Create a program with a textbox and one button control to check whether a number is Prime or Not.
 4. Create a program with a textbox and one button control to check no is even or odd.
 5. Create a program with a textbox and one button control check the year is leap year or Not.
 6. Create a windows application to calculate simple interest.
 7. Create a windows application to calculate factorial of a number.
 8. Create a windows application to calculate for storing and displaying 10 numbers in an Array.
 9. Create a windows application to calculate for sorting 10 numbers stored in an array.
 10. Create a windows application to calculate to generate Fibonacci series.
 11. Create a windows application to calculate for swapping two numbers.
 12. Create a windows application to calculate Sum and Average of 10 numbers stored in a array.

2. VB.NET Practical's:
 1. Create a program to determine whether a given angle forms a valid triangle.
 2. Create a program which allow user to select gender using checkbox control.
 3. Create a program to change the case of text box according to selected radio button.
 4. Create a program to determine input number is prime or not.
 5. Create a windows application that contains a list box and a button. The click event of the button inserts odd nos between 1 to 100 in the listbox.
 6. Create a program with a textbox and two button control to set the buttons to open a file and to save a file.
 7. Create a windows application that contains text boxes and a button. The click event of the button displays the percentage of student on the basis of marks entered in the text boxes.

B.SC VI SEM
CS-601
Java Programming -II

Theory: Max marks-35 Min marks-12

UNIT-I

Applet Basics, Applet architecture, applet life cycle, applet skeleton, applet display methods, requesting repainting, HTML APPLET Tag, passing parameters to Applets.

Swing fundamentals, Labels, Buttons, Borders, Scroll bars, sliders, progress Bars, Managing Components with Panels, Panes & Tooltips, Lists, Text components, working with Menus, Tables and Trees, Dialogs.

UNIT-II

Event handling, event handling mechanisms, event classes, event listener interfaces, using the event delegation model, Adapter classes.

UNIT-III

JDBC (Java Database Connectivity), Design & uses of JDBC, Structured Query Language (SQL) Basics, database URLs, making the connection, executing action commands, query with JDBC, advance SQL types, populating a database, executing queries, metadata, result sets.

UNIT-IV

Servlets: Introduction, life cycle of servlet, servlet API, javax.servlet package, servlet parameters, javax.servlet.http package, handling http requests & responses, using cookies, session tracking, and security issues.

UNIT-V

Java Server Pages (JSP) introduction & overview, implicit objects, scripting, standard actions, directives. Server Side Component Architecture-Session Beans, Entity Beans, Persistent Entity Beans, Transactions.

Text Book:

JAVA 2: The Complete Reference Fifth edition, Herbert Schildt, Tata McGraw hill publications

Reference Books:

1. Java: How to program sixth edition, H. M. Deitel & P. J. Deitel, Preason education
2. Core JAVA 2: Volume II Advanced features, Cay S. Horstmann & Gray Cornell, Pearson education
3. Ed Roman, "Mastering Enterprise Java Beans", John Wiley & Sons Inc., 1999.
4. Swing: A beginner's Guide, Herbert Schildt, McGraw hill professionals

B.Sc. VI SEM
CS-602
Data & Network Communication

Theory: Max marks-35 Min marks-12

UNIT -I

Data Communication Component, Distributed processing, network criteria, protocol and standards, Line configuration, Topologies, Transmission mode, Categories of networks, Inter-networks.

UNIT – II

The OSI model, Function of the layers, TCP/IP Protocol suite, Analog - Digital data & signals, Periodic and Aperiodic signals, Time and Frequency Domains, Composite Signals.

UNIT – III

Digital to Digital Conversion, Analog to digital conversion, Digital to analog Conversion, Analog to Analog conversion, Digital data transmission, DTE- DCE Interface, EIA449, EIA530, X.21 Standards, Modems, Cable Modem.

UNIT – IV

Transmission media - Introduction, Guided Media, Unguided Media, Transmission Impairment, Performance, Wavelength, Shannon capacity, Media Comparison, Multiplexing – FDM, WDM, TDM, Multiplexing Application, DSL and types of Digital subscriber lines.

UNIT - V

Error detection and correction, types of errors, detection, vrc, lrc, crc, error correction, LAN Project 802, IEEE 802.x, LLC,MAC,PDU, Ethernet , Token Bus, Token Ring. FDDI, LAN Comparison.

TEXT BOOK

Data Communication and Networking – Forouzan – Tata McGraw Hill.

REFERENCE BOOK:

Computer networks – Tannenbaum-Pearson Education

**B.SC VI SEM
CS-604
Computer Architecture
(For Hons. Only)**

Theory: Max marks-35 Min marks-12

UNIT-I

Introduction to computer Organization and Architecture: structure and function. A Brief History of computers, their designing for performance, pentium and power Pc evolution ,Computer Components, computer functions, interconnection structure ,Bus Interconnections, PCI, Futurebus.

UNIT-II

Computer Memory system, Semiconductor main memory, cache memory, advance DRAM organization, Magnetic Disk, RAID, Optical memory, Magnetic tap.

UNIT -III

Machine Instruction Characteristics, types of Operands, type of Operations, Assembly language, addressing, Instruction formats.

CPU Structure & Function: Process Organization, register organization, The Instruction Cycle, Instruction Pipelining, The Pentium Processor, The Power PC Processor

UNIT-IV

Micro Operations, Control of the CPU, Hardwired Implementation, Basic Concepts of Microprogrammed control, Microinstruction sequencing, Microinstruction execution, applications of microprogramming.

UNIT-V

External Devices, I/O Modules , Programmed I/O, Interrupt-Driven I/O, Direct Memory Access, I/O Channel and Processors, External Interface, The MESI protocol Vector computation, parallel processors.

Text Books:

1. Computer Organization & Architecture by William Stallings fifth Edition) 1999 PHI (Text).
2. Computer Organization & Architecture by Heyes (Tata McGraw Hill)

Reference Book:

1. Computer Architecture and Organisation, Nicholas carter, Schaum Series Adaptation, 2nd Ed. 2010

B.SC VI SEM
CS-605
Scientific Computing
(For Hons. Only)

Theory: Max marks-35 Min marks-12

UNIT-I

Numerical computation : Computer Arithmetic: floating point number operations, normalization and their consequences, : Floating point represent of Numbers – Sources of Errors – Non-Associativity of Arithmetic – Propagated Errors – Pitfalls in Computation.
 Bisection, False position, Newton Raphson, Secant method, Graffes root squaring method, Convergence of solution.

UNIT-II

Simultaneous Linear equations : Solution of simultaneous liner equations - Gauss elimination method, Gauss- Seidal iterative method. Gauss Jordan elimination method. Triangularization method and Pivaoting condensation. III conditions equations and refinement of solutions.

UNIT-III

Numerical Differentiation and Integration :Solutions of Differential equation. Trapezoidal rule, Simpson 1/3 rule, Simpson 3/8 Eulers method, Runga - Kutta method, Predictor - Corrector method

UNIT-IV

Interpolation and Approximation : Polynomial interpolation, Newton difference formula, Newton divide formula, Newton forward formula, Newton backward formula, Langrange Formula. Approximation of function by Taylor series.

UNIT-V

Curve fitting method : Least square method, Nonlinear cure fitting. Data fitting, Cube Splines and Approximation Chebyshey Polynomials. Automatic error monitoring

TEXT BOOK:

Computer Oriented Numerical Methods By V. RAJARAMAN.

REFERENCE BOOKS:

1. Numerical methods for Scientific and Engineering Computation by M.K.Jain, S.R.K.Iyengar, R.K. Jain.
2. Method of Numerical Analysis By SHASTRI.
3. Computer Based Numerical Algorithm By KRISHNAMURTHY.
4. Computer Oriented Numerical Methods By BALAGURUSWAMI.

B.SC VI SEM
CS-606 Introduction to Software Engineering

Theory: Max marks-35 Min marks-12

UNIT I

SOFTWARE PROCESS Introduction –S/W Engineering Paradigm – life cycle models (water fall, incremental, spiral, WINWIN spiral, evolutionary, prototyping, object oriented) - system engineering – computer based system – verification – validation – life cycle process – development process –system engineering hierarchy.

UNIT II

SOFTWARE REQUIREMENTS Functional and non-functional - user – system –requirement engineering process – feasibility studies – requirements – elicitation – validation and management – software prototyping – prototyping in the software process – rapid prototyping techniques – user interface prototyping -S/W document. Analysis and modeling – data, functional and behavioral models – structured analysis and data dictionary.

UNIT III

DESIGN CONCEPTS AND PRINCIPLES Design process and concepts – modular design – design heuristic – design model and document. Architectural design – software architecture – data design – architectural design – transform and transaction mapping – user interface design – user interface design principles. Real time systems - Real time software design – system design – real time executives – data acquisition system - monitoring and control system. SCM – Need for SCM – Version control – Introduction to SCM process – Software configuration items.

UNIT IV

TESTING Taxonomy of software testing – levels – test activities – types of s/w test – black box testing – testing boundary conditions – structural testing – test coverage criteria based on data flow mechanisms – regression testing – testing in the large. S/W testing strategies – strategic approach and issues - unit testing – integration testing – validation testing – system testing and debugging.

UNIT V**SOFTWARE PROJECT MANAGEMENT**

Measures and measurements – S/W complexity and science measure – size measure – data and logic structure measure – information flow measure. Software cost estimation – function point models – COCOMO model- Delphi method.- Defining a Task Network – Scheduling – Earned Value Analysis – Error Tracking - Software changes – program evolution dynamics – software maintenance – Architectural evolution. Taxonomy of CASE tools.

TEXT BOOK

1. Roger S.Pressman, Software engineering- A practitioner’s Approach, McGraw-Hill International Edition, 5th edition, 2001.

REFERENCE BOOKS

- 1 Software engineering,- . Ian Sommerville Pearson education Asia, 6th edition, 2000.
2. Pankaj Jalote- An Integrated Approach to Software Engineering, Springer Verlag, 1997.
3. “Software Engineering – An Engineering Approach”, James F Peters and Witold Pedryez, John Wiley and Sons, New Delhi, 2000.

CS 604-Practical on JAVA Programming – II

Maximum Marks: 50

Minimum Pass Marks:17

1. Write a program to design a form using components textbox, text field, checkbox, buttons, list and handle various events related to each component.
2. Write a program to design a calculator using Java components and handle various events related to each component and apply proper layout to it.
3. Write a program to display any string using available Font and with every mouse click change the size and / style of the string. Make use of Font and Font metrics class and their methods.
4. Write a program to create a menu bar with various menu items and sub menu items. Also create a checkable menu item. On clicking a menu I tem display a suitable Dialog box.
5. Write a program to increase the font size of a font displayed when the value of thumb in scrollbar increases at the same time it decreases the size of the font when the value of font decreases.
6. Write an Application program / Applet to make connectivity with database using JDBC API
7. Write an Application program/ Applet to send queries through JDBC bridge & handle result.
8. Write a program to demonstrate the use of scroll panes in Swing.
9. Write a servlet for demonstrating the generic servlet class.
10. Write a servlet for demonstrating the generic servlet class.
11. Write a servlet to demonstrate the Http Servlet class using do Get ().
12. Write a servlet to demonstrate the Http Servlet class using do Post ().
13. Write a servlet to demonstrate the cookie.

CS 605-Practical on Scientific Computing

Maximum Marks: 50

Minimum Pass Marks:17

1. Bisection Method : To find a real root of $f(x) = 0$
2. Fixed point iteration : To find a solution of $x=g(x)$
3. Method of false position : To find a root of $f(x)=0$
4. Newton Raphson Iteration :

$$P_{i+1} = P_i - \frac{f(P_i)}{f'(P_i)} \quad ; i=1,2,3,\dots$$
5. Lagrange Interpolation.
6. Newton's divided interpolation.
7. Differentiation using limits.
8. Differentiation using N+1 nodes.
9. Differentiation using extrapolation.
10. Composite Trapezoidal Rule.
11. Composite Simpson Rule.
12. Euler's Method : To find approximation solution of $dy/dx = f(x,y)$.
13. Taylor method of order 4.
14. Range-Kutta Method of order 4.
15. Golden search for a minimum.

16. Evaluation of a Taylor's series.

17. Polynomial Calculation - Synthetic division.