SECOND SEMESTER

BCA-210 SYSTEM SOFTWARE

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks : 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

(A) Instructions for the Paper setter:
The question paper will consist of five sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 15% of the total marks (12 marks) each. Section E will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
1. Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A
Language Processor
Introduction, Language Processing activities, Fundamentals of Language processing fundamentals of language specification.
Data structure for language processing, Search Data Structure of assembler, design of two pass assembler.

SECTION B
Scanning, Parsing, Assembler, Elements of Assembly language programming a simple assembly scheme, pass structure of assembler, design of two pass assembler.

SECTION C
Macro definition and cell, macro expansion, method macro cell, compiler and interpreters aspects of compilation, Memory allocation, completion of Extensions, Compilation of control structures.

SECTION D
Linkers :- Relocation and linking concepts, Design of Linker, Self Relocation program.
Software Tool :- Software Tool for program development, Editors, Debug, Monitors.

References:

1. D. M. Dhamdhere, "System Programming and operating system"(2nd Edition), TMH.
2. Donovan, "System Programming", TMH 1991
3. Aho and ullman, "Principal of compliers", Naroja Publishing House.

BCA-220 OOPS CONCEPTS WITH C++

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks : 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

(A) Instructions for the Paper setter:
The question paper will consist of five sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 15% of the total marks (12 marks) each. Section E will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
1. Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A
OOP paradigm, Advantage of OOP, Differentiate between functional programming and OOP approach, characteristics of object oriented language object, Definition of class, object, Inheritance, Abstraction, Encapsulation, Dynamic Binding, Manage passing, Polymorphism.

SECTION B
Introduction to C++, Identifier and Keywords, Constants, C++ operator, Type conversion, Variable declaration, Statements expression, condition expression, Loop statement (for, while, do while), break, continue statement.

SECTION C
Array:- Definition of Array, Programming with single dimensional array, 2-D array, multidimensional array, function :- Function declaration, prototyping calling, Friend function, Inline function, Virtual function, call by value, call by reference.

SECTION D
Classes, member function, Objects, nested classes, Inheritance, Function overloading, operator overloading virtual function, files stream, binary file operation, opening & closing file.

References:

1. Yashvant Kanetkar, "Let us C++", BPB.
2. Robert Lofore, "Object oriented Programming in Turbo C++", Galgotia publications 1994.
3. Bjarne Strawrup, "The C++ Language", Addison-Wesley, 1995.

BCA-230 P SOFTWARE LAB - I (PC SOFTWARE & HTML)

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks : 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

(A) Instructions for the Paper setter:
The question paper will consist of five sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 15% of the total marks (12 marks) each. Section E will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
1. Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

MS DOS
Concept of files and directories, Basic DOS commands for handling files and directories, Use of wild cards, Batch files, AUTOEXEC.BAT file, Creation of batch files, replaceable parameters, Editing and function keys, DOS editor, Configuring DOS, Role of CONFIG.SYS file.

WINDOWS 98
Installing WINDOWS with set-up, Staring and quitting WINDOWS, Basic elements of WINDOWS, Working with menus dialogue boxes, Window applications, Windows explorer, My Computer, Recycle bin. Programs, Favorites, My Documents.
Settings- Control Panel, Printers, Taskbar and Start menu, Folder Options, Active Desktop.
Find, Help, Run.
Accessories – Entertainment, Games, System tools, Internet tools, Calculator, Calendar, Clock, Card file, Notepad, Writepad, Recorder etc.,

MS WORD and POWER POINT
Salient features of MS WORD, Installation of MS WORD, Starting and quitting of MS WORD, File, Edit, View, Insert, Format, Tools, Tables, Window, Help options and all of their features, Options and sub options etc. Transfer of files between MS WORD and other word processors and software packages.
Salient features of POWER POINT, Installation, Starting and quitting, File, Edit, View, Insert, Format, Tools, Slide Show, Window, Help options and all of their features, Options and sub options etc. Transfer of files between POWER POINT and other word processors and software packages.

EXCEL
Spread Sheet. Getting started with Excel worksheet, Entering data into work sheet, Editing cell addressing, Ranges and range names, Commands, Menus, Copying and moving cell contents, Inserting and deleting rows and columns, Column width control, Cell protection, Printing reports, Creating and displaying graphs, Statistical functions.

BCA-240 P SOFTWARE AB – II (C & C++)

Maximum Time : 3 Hrs.
Total Marks : 100
Minimum Pass Marks : 40%

University Examination : 70 Marks
Continuous Internal Assessment : 30 Marks

This laboratory course will comprise as exercises to supplement what is learnt under paper BCA-120:(Computer Fundamental and Programming) and BCA220:(C++).

SECTION A
Space and time complexity, Asymptotic notations (Ω,θ, O, ω,○)
Arrays, Searching Arrays, One Dimension and two Dimensional Arrays. Stack, Infix to Postfix, Postfix Evaluation of Queues, D-Queue, Priority Queue, Singly Link list, Comparison.

SECTION B
Basic concept of Trees, Tree representation by link list and by arrays, Tree reversals, Binary tree, Binary search tree (Insertion, Deletion, Traversals), AVL.

SECTION C
Graph concepts, Adjacency list and adjacency matrix representation, Hamiltonian and Euler's circuit, DFS, BFS, Dijkastra's algorithm, Prims & Kruskal's algorithm.

SECTION D
Linear search, Binary search, Bubble sort, selection sort, Insertion sort, Quick sort, Heap sort, Merge sort, Radix sort, Comparison in turns of space & time complexity.

Reference:

1. Schaum's outlines & Lipschutz, "Data structure", TMH.
2. G.S. Baliya, "Data structure".
3. Schaum's series, "Data structure Algorithms & Applications in C++", TMH.