MCA/D06
Computer Fundamentals and Problem Solving using C
MCA -101

Time : 3 Hours   MM:50

Note:- Attempt Five questions in all, Selecting at least one question from each unit. All Question carry equal marks.

UNIT-I

1(a) Identify the stages involved in solving a Programming problem from problem definition stage to correct and valid program   6.5
 (b) What do you mean by "Problem Analysis"? Comment on the statement: Think First, Code Later'.   3.5

2(a) Formally an algorithm is defined as "an ordered sequence of well-defined and effective operations that, when executed, will always produce a result and terminate in a finite amount of time'   6

(b) How do you measure programs quality? Discuss?   4

3(a) Draw a block diagram of a Computer and explain its functioning, specially the process of execution of a program.   6

(b) Discuss various parameters used to classify computers.   4

4   Differenite between the following:-
     (a)   Top-Down and bottom-up Programming
     (b)   Structured and Modular Programming
     (c)   Sorting and Merging
     (d)   Decision Table/ Flow –Chart/ Algorithm   2.5 each

UNIT-II

5(a) Describe the general structure of C Programs   5
 (b) Explain the following jump statements
      goto, break, continue, return, exit( )   5

6(a) Discuss the importance of data types in 'C'.   4
 (b) What do you mean by Operator Precedence? Discuss the hierarchy of all operators.   6

7(a) Explain and discuss the various control structures available in C with the help of suitable examples.   5
 (b) Write a program in 'C' to convert a decimal number into a binary number. 5

UNIT-III

8(a)   Explain how functions are helpful in extendibility of C language.   4

(b)   What is purpose of the word void? Where is this function used?   3

(c)   How does a structure differ from an array? Can individual members be initialized within a structure type declaration?   3

9(a)   What is pointer? How is it initialized? What is the relationship between the address of a variable V and the corresponding pointer variable PV?   4

(b)   Main is a user-defined function. How does it differ from other user defined functions?   3

(c)   When a program is terminated, all the files used by it are automatically closed. Why is it necessary to close a file during the execution of a program?   3

10(a)   Can multiple case labels be associated with one alternative in a switch statement? If Yes, then give example.   4

(b)   Write a function in 'C' using pointers to add two matrices and to return the resultant matrix to the calling function.   6