MCA (Semester I) Examination 2004-2005

MCA-102: Introduction to Programming Language Through C

Time: *Three* hours **Maximum Marks: 70**

Note: Answer **Five** Questions in all, including Question No.1, which is compulsory.

Figures on the right-hand side margin indicate Max Marks for each Question.

1. Answer all the parts: (**3+3+4+4=14**)

(a) What are High Level Programming Languages? Give two examples. What are the benefits of using High Level Programming Languages?

(b) What will be the value of K in the following C expression? Given num=30.

K = (num>5?(num<=10?100:200):500)

(c) What is an Abstract Syntax Tree? Construct the Abstract Syntax Tree for the Infix expression: b*b-4*a*c.

(d) What will be the output of following C Programme?

```
main()
{
  int i=1, j=1;
  for ( ; ; )
   {
     if (i>5)
          break;
     else
           j+=1;
     printf ("\n %d", j);
     i+=j;
     }
   }
```

2. (a) What are Compilers and Interpreters? How are they different? Give two examples each of Compiled and Interpreted languages. (**7**)

(b) Differentiate between Call by value and Call by reference methods of parameter passing to a function giving an example of each. (**7**)

3. (a) What do you mean by Scope of a variable? Differentiate between Global and Local Scope of variables giving an example of each. (**7**)

(b) Explain with examples the syntax & working of following C constructs: while …, do…..while, For….. (**7**)

4. (a) What are Storage classes in C? Explain the method of declaration and working of the four storage classes in C. (**7**)

(b) What is recursion? Write a recursive function in C to compute the Factorial value of an integer. The Factorial of an integer n is defined as n X (n-1)X (n-2)X…..X1. (**7**)

5. (a) Define an Array? Write a Programme in C to sort an array of integers in ascending order. (**7**)

(b) What is a pointer variable? How is a Pointer Variable declared? How is the address of a variable determined? How pointer can be used to pass an entire array to a function in C? (**7**)

6. (a) Explain the usage of following Console I/O functions in C: scanf ( ), printf ( ), getch ( ), getche ( ), getchar ( ), gets ( ), puts ( ). (**7**)

(b) Write a Programme in C to copy one file to another. The Programme should read the filenames at command line. (**7**)

7. Write short notes on any two of the following: (**7 X 2 = 14**)

(a) Structured Programming.

(b) C preprocessor.

(c) Structures and unions in C.

(d) Strings & String Functions in C.