MCS-011

M. C. A. (REVISED)/B. C. A. (REVISED) (MCA/BCA)

Term-End Examination
December, 2020

MCS-011 : PROBLEM SOLVING AND PROGRAMMING

Time : 3 Hours　　　　　*Maximum Marks : 100*

Weightage : 75%

Note : (*i*)　*Question No. 1 is compulsory.*

(*ii*)　*Answer any* **three** *questions from the rest.*

1. (a) Write an algorithm and draw corresponding flowchart to find the largest number among 3 numbers given as input. 　10

(b) Explain the conditional operator in C with the help of an example. Compare it with if...else statement. 　5

(c) Explain the following user-defined data types :   5

    (i)   typedef

    (ii)   enum

(d) What is the difference between a High-level language and a Low-level language ? Why C language is referred to as Middle-level language ?   5

(e) Write a program using pointers, to swap the values of 2 variables.   5

(f) Write a program using file-handling concept, to read and count the no. of characters in a .dot file.   10

2. (a) Explain type-cast and size-of operators in C with an example to each.   5

(b) Write a C program to sort the given array of integers in ascending order, using any of the sorting algorithm. Explain the logic. 10

(c) Define a preprocessor in C. How is it implemented ? Explain with the help of an example.   5

3.　(a)　Write a C program using structures, to find the total, average and grade for 5 students.

10

　　　Note : Assumptions can be made wherever necessary and write them.

　(b)　Write a program to :　　　　　　10

　　　(i)　　　Find the length of a string.

　　　(ii)　　Print the reverse of the string.

4.　(a)　Write a simple menu program, using *switch* statement to select an operator on two 3 × 3 matrices :　　　10

　　　(i)　　　Addition of two matrices

　　　(ii)　　Subtraction of 2 matrices

　(b)　Write a C program to display the following pattern using "for" loop :　　10

```
5
5   4
5   4   3
5   4   3   2
5   4   3   2   1
```

5. Write short notes on the following with the help of an example mentioning their use in the programs : $10 \times 2 = 20$

(a) getch( )

(b) void( )

(c) gets( )

(d) + + (increment operator)

(e) − − (decrement operator)

(f) % operator

(g) break statement

(h) # define

(i) fseek( )

(j) Goto statement