

MCA/M09
Computer Fundamentals & Problem Solving Using C
Paper: MCA-101

5416

Time : Three Hours

[Maximum Marks : 80]

Note :- Attempt **FIVE** questions in all selecting **ONE** question from each unit. Question number **1** is compulsory.

- 1.(i) During execution of the following program segment, how many lines of asterisks displayed :

```
for (i = 0; i < 10; ++i)
    for (j = 0; j < 5; ++j)
        printf ("*****\n");
```

3
- (ii) If the value of n is 4 and m is 5, what will be the value of following expression: ++(n * m); Explain your answer. 3
- (iii) Will the following expression evaluate to true or false? Explain your answer: ((0.1 + 0.1 + 0.1 + 0.1 + 0.1) == 0.5)). 3
- (iv) Why does not array declaration as a function parameter indicate a size? 3
- (v) What is the purpose of strcmp function? What is returned by it? 3
- (vi) What is the associativity of operators? 3
- (vii) What is the use of register storage class? 3
- (viii) Define recursion. 3

UNIT-I

- 2 Differentiate between following:
 - (a) Top-down and Bottom-up programming
 - (b) Application software and system software
 - (c) Limited entry and extended entry decision table. 14
- 3
 - (a) What are the common errors committed by the programmers? Discuss.
 - (b) What is debugging? Discuss the techniques and guidelines.
 - (c) Write a short note on structured programming. 14

UNIT-II

- 4 Write a program in C to sort a given array of integers using selection sort technique. Draw its flowchart also. 14
- 5
 - (a) What do you understand by short circuit expressions? Explain using suitable examples.
 - (b) What is hierarchy of operators? Discuss.
 - (c) Discuss the bitwise operators using suitable examples. 14

UNIT-III

- 6
 - (a) Discuss the syntax and semantic of switch statement using suitable example.
 - (b) Write a recursive function to perform binary search on an array of integers. 14
- 7
 - (a) Differentiate between break and continue statement using suitable examples.
 - (b) Write a function count () to keep the count of how many times it is invoked i.e. if it is invoked nth times then it should return n. 14

UNIT-IV

- 8
 - (a) Write a program in C to print the subscripts i.e. indexes of largest and smallest number in a 2-D array of integers.
 - (b) What is a string? Write your own function to count the length of a string just like strlen library function. 14
- 9
 - (a) Write a program in C to compute the uppercase letters in a text file.
 - (b) Differentiate between array, struct, and union. Use suitable examples. 14