

**MCA (Revised)**  
**Term-End Examination**  
**June, 2011**

**MCS-011 : PROBLEM SOLVING AND  
PROGRAMMING**

Time : 3 hours

Maximum Marks : 100

(Weightage 75%)

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**Note :** Question number 1 is **compulsory**. Answer **any three** questions from the rest.

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1. (a) What is an algorithm ? Explain basic features of an algorithm. 5
- (b) Write a C program to check whether a given string is a palindrome or not. 10
- (c) Consider the following program segment in programming language C : 6

```
-----  
sum = 0;  
for(i=1; i ≤ 10; i++)  
sum + = i;
```

Write an equivalent program segment using

- (i) do - while  
(ii) while

- (d) What is a syntax - error ? Give an example of syntax error in a C - program. 4
- (e) Explain different arithmetical and logical operators available in C, with the help of examples. 10
- (f) Explain the use of *malloc* function in C programming. 5
2. (a) What is an array ? Write a C program to add two matrices of  $3 \times 3$  using arrays. 10
- (b) What is the scope of a variable ? Explain difference between global and local variable with example program. 10
3. (a) What is a string ? Write a function in C for string concatenation. Without the use of inbuilt string function. 10
- (b) What is a macro ? Explain how a macro is defined in C. Also explain major differences between a macro and a function. Explain a situation when macro should be preferred over function with an example. 10

4. (a) What is a file in C programming ? Explain the use of fopen function in file handling. Explain different mode in which a file can be opened. **10**
- (b) What is a pointer ? Write a C program using pointer to print the name and price of the items sold in a retail shop on a specific date. **10**
5. (a) What is a structure ? Explain how a structure is declared in C. Write a program in C using structure to store records of students in a class of 20 students. **10**
- (b) Write a C program to demonstrate the use of switch - case statement. **5**
- (c) What is recursion ? Write a recursive C program to find the factorial of a given number. **5**
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