

**MCA (Revised)**  
**Term-End Examination**  
**December, 2006**

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

Time : 3 hours

Maximum Marks : 100

(Weightage 75%)

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

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1. (a) Write an algorithm and draw a corresponding flow chart to print the sum of all integers starting from 2 to the given positive integer  $x$  where  $x \geq 2$ . 10
- (b) Write a recursive program in 'C' to find the L.C.M. (Least Common Multiple) of two given numbers. 10
- (c) Write a program in 'C' to print the following format : 10

```
      C
     C C C
    C C C C C
   C C C C C C C
  C C C C C C C C C
 C C C C C C C C C C
```

- (d) Write a non-recursive procedure in 'C' for calculating power of a number 'm' raised by another number 'n' i.e.  $m^n$ . 10
2. (a) Design an algorithm and draw corresponding flow chart to print the value of the number in words when the number entered is in the range of 1 to 299. 10
- (b) Using pointers, write a program in 'C' to count the occurrence of each character in a given string. 10
3. (a) Write a program in 'C' that accepts 10 words of varying length and arranges the words in the descending order of word length. Use arrays. 10
- (b) Write a program in 'C' for the multiplication of two matrices. 10
4. (a) Write a program in 'C' to check whether a given string is palindrome. *Use pointers.* 10
- (b) Write a program in 'C' for the addition of two polynomials. *Use Arrays and Structures.* 10
5. (a) Write a program in 'C' that accepts two files as input and creates a new file whose contents include the contents of two input files. 10

- (b) Consider a data file containing some records of type  
STUDENT : 5+5=10

Struct STUDENT

```
{  
    char Name[20];  
    int Roll_No;  
    float marks;  
};
```

- (i) Write a function, which takes file name as an argument and returns the number of records in that file.
- (ii) Write a function, which takes two arguments : filename and Roll\_No(s) and deletes the corresponding records with these Roll\_Nos from that file.