

**MCA (Revised) / BCA (Revised)**

**Term-End Examination**

**June, 2016**

12106

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

*Time : 3 hours*

*Maximum Marks : 100*

*(Weightage 75%)*

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**Note :** *Question no. 1 is compulsory. Attempt any three questions from the rest.*

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1. (a) Explain how you will analyse the efficiency of an algorithm. 10
- (b) Design a flow chart and write an algorithm to calculate the factorial of a given number using recursion. 10
- (c) Explain the concept of pointer to an array. Using this write an interactive program in "C" to find out the string length of a given string, as input. 10
- (d) Write a program in "C", using structures, to calculate the Gross income and Net income if the Attendance, Basic pay, Grade pay, Deductions and Allowances are given as input. 10

2. (a) Write a program to read the full-name from the keyboard and display its corresponding short name. 10

*Ex* : I/P : ANIL KUMAR GULATI

O/P : A K GULATI

- (b) Write a program to display the string "UNIX" in the following format : 10

U  
UN  
UNI  
UNIX  
UNIX  
UNI  
UN  
U

3. (a) What is the use of "continue" statement and explain it with the help of an example ? 5

- (b) Explain any four string functions with an example for each. 10

- (c) How will you write a function *with no arguments and with return value* ? Also, write an example function – definition for this. 5

4. (a) Write a program to swap two values of variables, using pointers. 10
- (b) Write a program, using structures to read and display data for 10 students. 10

*Hint : Assumptions can be made wherever necessary.*

5. (a) Write a *macro* to display the string "COBOL" in the following format : 10

```
C
CO
COB
COBO
COBOL
COBOL
COBO
COB
CO
C
```

- (b) Write a program to multiply two matrices of size  $M \times N$  and  $N \times P$  respectively. 10
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