MCA (Revised) / BCA (Revised)
Term-End Examination
December, 2017

□4770

MCS-011 : PROBLEM SOLVING AND PROGRAMMING

Time : 3 hours   *Maximum Marks : 100*
                                    (Weightage : 75%)

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

1. (a) Write an algorithm and draw corresponding flow chart to check whether the given number is prime or not.   *10*

    (b) Write a program to search an element in a given list of elements using linear search.   *10*

    (c) Differentiate between a macro and a function. To illustrate, write a macro and a function to swap values of 2 variables x and y.   *10*

    (d) Write a program to read a file and count the number of lines in the file.   *10*

    Note : Should not use an in-built function.

2. (a) What are Linker errors ? Also explain Logical and Runtime errors. *10*

(b) Using structures, write a C program to calculate the Gross salary and Net salary, if Basic, Grade Pay, TA and DA are given. Deductions like Loans, Tax, LIC, etc. need to be considered, if any. *10*

Note : *Assumptions can be made wherever necessary and list them.*

3. (a) Explain *For* loop and *Do* loop control statements with an example for each. *10*

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

4. (a) Explain the categories of functions. Also illustrate a *"function with arguments and has no return value"*. *10*

(b) What is Recursion ? Write a program to find the factorial of a number. *10*

5. (a) What are Unions ? Give an example code segment to initiate a union and to access a member of a union. *10*

(b) Write a program to test whether the given string is a number palindrome or not. *10*