

MCA (Revised) / BCA (Revised)

Term-End Examination

11020

June, 2017

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) Design an algorithm and draw a corresponding flow chart to convert a decimal number to its binary equivalent. 10
- (b) Write a C program (use a switch statement for selection) to add or subtract 2 matrices having order  $3 \times 3$ , depending upon the choice made by the user. 10
- (c) Write and explain the following types of functions with the help of an example program for each : 10
- (i) Function with no arguments and no return value.
- (ii) Function with arguments and no return value.

- (d) Using pointers, write a C program to swap the values of two variables. 5
- (e) Mention the rules for using the Big-O notation. 5
2. (a) Without using the inbuilt string functions like `strcat( )` and `strlen( )`, write C programs for the following : 10
- (i) To concatenate 2 strings
- (ii) To find the length of any given string
- (b) Define the term 'variable'. What are the rules to be followed to name a variable in "C"? Write the syntax to declare a variable and also mention how to assign values to it (initialize them). 10
3. (a) Write a program in "C", using structures, to find the sum of the Assignment and Term End Exam marks (for IGNOU MCA or BCA first semester courses) for 5 students. 10
- (b) Explain the concept of "file handling" in C programming. Explain the use of `fopen( )` and `fclose( )` functions associated with it. Also mention various modes in which a file can be allowed to open with an example for each. 10

4. (a) Explain different arithmetic, logical and relational operators in C, with the help of examples. 10
- (b) Write and explain the use of the following in C programming, with an example for each : 10
- (i) Break statement
  - (ii) Continue statement
  - (iii) malloc ( )
  - (iv) void
5. Explain the following with the help of suitable example for each : 4×5=20
- (a) Automatic Variables
  - (b) Global Variables
  - (c) Static Variables
  - (d) Register Variables
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