

MCA (Revised)

Term-End Examination

December, 2012

MCS-011 : PROBLEM SOLVING AND
PROGRAMMING

Time : 3 hours

Maximum Marks : 100

(Weightage 75%)

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

1. (a) Draw a flowchart and then develop an interactive 'C' program which finds whether a given integer number is prime or not. Make the use of a function subprogram. 10
- (b) Differentiate between various storage classes in 'C'. 5
- (c) Write down a recursive function in 'C' to calculate the factorial of a given number. 5
- (d) Explain the concept of pointer to an array. Write a program in 'C' to copy the contents of an array to another array using pointers. 10
- (e) Write a 'C' program that will enter a line of text, store it in an array and then display backwards. The length of the line should be undefined (being terminated by ENTER key), but less than 80 characters. 10

2. (a) Explain null pointer assignment. Also give an example of use of null pointer. **4**
- (b) Write a macro for the following : **2x3=6**
- (i) to find square of a given number.
- (ii) to find smallest of 3 given number.
- (c) Write a program in 'C' to enter two 4×4 matrices and to display the product of these matrices. Explain and give suitable documentation. **10**
3. (a) Write a program and flowchart to display the following : **8**
- ```

 A
 B A B
 C B A B C
 B A B
 A

```
- (b) Give the syntax of getch() and gets(). Give examples also. **4**
- (c) Explain the action of do-while statement. With an example. **3**
- (d) What is the difference between a call by value and call by reference? Explain with examples. **5**
4. (a) Write a C program to create a file and copy the contents of another given file into this newly created file. **8**
- (b) What is # ifdef ? Give an example to explain use of # ifdef. **4**

- (c) Differentiate between a structure and a union. Write a structure for a student and write a 'C' program to display the marks of the student for five subjects and also calculate the percentage of marks obtained. 8
5. (a) Give the syntax and examples of usage of scanf( ) and printf( ). 4
- (b) Give 5 distinctive features of 'C' which states it to be a structured programming. What are the differences between a low level, a middle level and a high level language. Give examples. 6
- (c) Write a program to display the following patterns : 5
- ```

1 2 3 4 5
  2 3 4 5
    3 4 5
      4 5
        5

```
- (d) What is array of pointers to string? Declare an array of pointers to string having names of your five friends. 5
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