

MCA (Revised) / BCA (Revised)

Term-End Examination

June, 2015

02493

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

Time : 3 hours

Maximum Marks : 100

(Weightage 75%)

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

1. (a) Explain the different storage classes in 'C' programming language. 5
- (b) What is the difference between "while-do" and "do-while" loop ? 5
- (c) Design a flowchart and then write a program in 'C' to convert a given complete string to upper case. 10
- (d) What do you mean by "array of pointers" ? Write a program in 'C' to calculate the sum of the corresponding elements of two arrays of integers of same size. 10

- (e) List and explain the precedence of Arithmetic, Logical and Relational operators in 'C'. 10
2. (a) What is the difference between '&' and '&&' in 'C'? Explain with an example. 5
- (b) Write a loop that calculates the sum of n elements of the following series :
 $1 + 4 + 7 + 10 + 13 \dots$
Use the loop during programming in the following two different ways : 10
- (i) Using while loop
- (ii) Using do-while loop
- (c) What do you mean by scope of a variable? Differentiate between global and local variables giving an example of each. 5
3. (a) Write a program in 'C', using structures to generate a report for n students which displays the Roll No., Class, Subjects, Marks, Total, Grade, etc. Assumptions can be made wherever necessary. 10

- (b) Write a program in 'C' to print the following output 'n' rows. For example, if $n = 3$, the following should be output by the program : 10

```
    1
   1 2 1
  1 2 3 2 1
   1 2 1
    1
```

4. (a) Explain the meaning and usage of each of the following function prototypes : 5×2=10

- (i) getch()
- (ii) strcmp()
- (iii) getchar()
- (iv) gets()
- (v) puts()

- (b) Write a program to multiply 2 matrices of size 3×3 . 10

5. (a) A 'C' program contains the following declaration :

```
int arr [3] [2] = {{3, 1}, { 4, 1}, {3, 2}};
```

What is the meaning of the following : 1×5=5

- (i) *(arr + 1)
- (ii) *(* (arr) + 2) + 1
- (iii) *(* (arr) + 1)
- (iv) arr
- (v) (* (arr) + 1) + 1

(b) Write a recursive program in 'C' to check whether a given string is a palindrome or not. 10

(c) Explain the syntax of switch case statement in 'C' language. Also compare the performance of *switch case* with *if else* statement. 5
