

MCA (Revised) / BCA (Revised)

Term-End Examination

03515

June, 2018

**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 the corresponding flowchart to calculate the factorial of a given number. 10

- (b) Write a program to find the maximum marks among the given marks of 10 students. 10

- (c) Write a macro to display string "Cobol" in the following pattern : 10

```
C
C O
C O B
C O B O
C O B O L
C O B O L
C O B O
C O B
C O
C
```

- (d) Write a program to copy the file contents of file1 to another file, file2. Write the complete program using files concept of C programming. 10
2. (a) Define a pointer. How is a pointer variable different from an array ? Illustrate the pointers concept with the help of a program in C. 10
- (b) Write a program to calculate an air ticket fare after discount, given the following conditions :
- If passenger is
- (i) below 14 years then there is 50% discount on fare.
 - (ii) above 50 years, 20% discount.
 - (iii) above 14 and below 50 then 10% discount only. 10

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

3. (a) Explain **GOTO**, **BREAK** and **CONTINUE** statements with an example for each. 10
- (b) Write a program to find the string length without using **strlen()** function. 10
4. (a) Explain function call by reference. What are the advantages and disadvantages of it ? Illustrate with the help of a code segment written in C. 10
- (b) Write a program in C to take the marks of 4 courses (TEE and Assignments individually for each) and calculate the Total, Percentage and Grade. 10

Note : 40% is the pass marks for each component (TEE and Assignments) of a course.

Grade : A – Distinction – More than 75%
B – Very Good – 60% to 74.9%
C – Good – 50% to 59.9%
D – Average – 40% to 49.9%
E – Unsuccessful – Less than 40%

5. (a) Write a program in C language to multiply two matrices A and B of size 3×3 . 10
- (b) Differentiate between sequential and random access files. 5
- (c) Write short notes on the following : $2 \times 2 \frac{1}{2} = 5$
- (i) 3-dimensional arrays and their significance.
- (ii) Ternary operator with an illustration.
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