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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