BT-1/D-22   41038

PROGRAMMING FOR PROBLEM SOLVING
ES-105A

Time : Three Hours]   [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Solve the following :   9
    (i) $(38)_9 - (378)_9$
    (ii) $(9CD7.BA)_{16} + (EDF5.4D)_{16}$
    (iii) $(ACFF.CD5E)_{16} = (?)_8$.

    (b) What is the difference between an algorithm and pseudocode ? Also write an algorithm and pseudocode for solving a quadratic equation.   6

2. (a) Solve the following :
    (i) $(5437.656)_8 = (?)_{10}$ 4
    (ii) $(577)_{10} - (1063)_{10}$ using 9' complement with proper steps.   5

    (b) Write an algorithm for multiplication of two matrix.

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Unit II

3. **(a)** Write a C program to find GCD of two numbers using ternary operator and for loop. **8**

(b) Write a C program to calculate m value using while and do while loop. **7**

4. **(a)** Write a C program to generate and print the numbers between 100 and 200 which are divisible by 3 but not divisible by 4. **7**

(b) Describe the pretest, posttest, counter-controlled and condition-controlled loops with examples. **8**

Unit III

5. **(a)** Write a program to check whether sting is palindrome or not, without using string function. **8**

(b) Write a C program to accept an integer number and print the digits using words (for example 426 is printed as Four Two Six). **7**

6. **(a)** What is Recursion ? Write a program to find the Fibonacci series using recusion. **7**

(b) Write a program to enter some text through keyboard. Insert a dot (.) after every three words in the text. The first character after every dot should be converted to capital. **8**

Unit IV

7. (a) How the array can be handled by the pointers in C language ? Explain.   8

     (b) Write a C program to create a text file and read the text from the created file and count the number of vowels and consonants present in the file.   7

8. (a) Write a program that changes every 5th character of data file into uppercase.   8

     (b) Write a program to sort the array using call by reference.   7