Con. 6927–13.   GS–5508

(REVISED COURSE)

(3 Hours)   [Total Marks : 80

N.B.   (1) Question No. **1** is **compulsory**.
           (2) Attempt any **three** questions from remaining.
           (3) **All** questions carry **equal** marks.
           (3) Assume suitable **data** wherever **necessary**.

1. (a) Explain the purpose of following standard library functions –   3
           (i) Floor ( )   (ii) ceil ( )   (iii) sqrt ( )
    (b) Explain how problem is defined with a help of suitable example.   4
    (c) Explain difference between for, while and do while loop.   3
    (d) Explain difference between call by value and call by reference.   4
    (e) Explain any three string standard library functions.   3
    (f) Explain reference and de-reference operators with example.   3

2. (a) Explain various storage classes used in c with example.   5
    (b) Write a program to calculate sum of list by passing array to a function.   5
    (c) Write a c-program to create an array of structure to store the details of almost 100   10
        employees. And sort it according to employee ID. Employee details are as follows :
           (i) Employee Name
           (ii) Employee ID
           (iii) Employee Salary.

3. (a) Write an algorithm and draw flowchart to calculate roots of quadratic equation.   6
    (b) Write a program to display pascal triangle.   6
                 A
                 A B
                 A B C
                 A B C D
                 A B C D E
    (c) Explain recursion concept. Write a program to display Fibonacci series using recursion.   8

4. (a) Write an algorithm to sort set of numbers in ascending order. For above problem   6
        in which cases time complexity is calculated.
    (b) Write a program to display armstrong nos between 1 to 1000.   6
    (c) Write a program to calculate matrix multiplication and transpose for a matrix.   8

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5. (a) Write a output for following program :–   6
```
# include <stdio·h>
Void main ( )
{
    int  x = 10, y, z;
    z = y = x;
    y- = - - x;
    z - = x - -;
    x - = - - x - x - -;
    printf ("x = %d y = %d z = %d," x, y, z);p
}
```
   (b) WAP to calculate sum of series   6
        $1/2 + 3/4 + 5/6 + \ldots\ldots + n$ terms.
   (c) Write a program to sort list elements in descending order.   8

6. (a) Explain difference between switch statement, ladder of if else and nested if else.   6
    (b) Write a recursive program to calculate factorial of accepted number.   6
    (c) Write a program to validate whether accepted string is palindrome or not.   5
    (d) Explain how to read the contents of file and write into the file with Syntax.   3