Con. 5529–13.   (REVISED COURSE)   **GX–10151**

(3 Hours)   [Total Marks : 80

N.B. : (1) Question No. **1** is **compulsory**.

(2) Attempt any **three** questions from remaining **five** questions.

(3) Figures to **right** indicate **full** marks.

(4) Assume **suitable** data if **necessary**, but justify the **same**.

1. (a) What do you mean by algorithm ? which points you should consider while developing   **4**
   the algorithm.

   (b) Find the roots of quadratic equation. Is the above problem definition is   **4**
   complete ? if not, make this problem definition complete.

   (c) State any 2 library functions in math.h along with its uses.   **4**

   (d) What do you mean by static and auto storage class. explain.   **4**

   (e) Difference between while and do.. while loop.   **4**

2. (a) Write a program in C to cyclically rotate the elements in array. Program should   **10**
   accept a choice in which direction to rotate i.e. left or right. Depending on choice
   it should perform cyclic rotation.
   Suppose array A contains elements {1, 2, 3, 4, 5} then if choice is rotate right
   o/p should be {5, 1, 2, 3, 4} and if choice is rotate left then o/p should be
   {2, 3, 4, 5, 1}

   (b) Write a program to generate prime nos between 1 to 100.   **10**

3. (a) What do you mean by recursion ? Write a program, which will accept 2 nos from   **10**
   user say x and y. and calculate x^y. Program should make use of recursion.
   If x is 3 and y is 4 then output should by 3^4 i.e. 81.

   (b) Write a program to sort given nos in descending order.   **10**

4. (a) What do you mean by struct ? What do you mean by nested structure ? A sport club   **10**
   of cricket needs to maintain data about players. Description of it is given below.
   Club want to maintain players name, age, no of matches played, no of runs, and
   average. For above description declare a structure and comment about size of
   structure of your declaration.

   (b) Write a program which will accept 2 dimensional square matrix and find out   **10**
   transpose of it. Program should not make use of another matrix.

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5.   (a)   Write a program to generate followig patterns.   **10**

        (1)   5

            4   4

            3   3   3

            2   2   2   2

            1   · 1   1   1   1

        (2)   1

            2   2

            3   3   3

            4   4   4   4

            5   5   5   5   5

  (b)   Write a program to check whether given string is palindrome or not.   **10**

6.   (a)   What are the different ways for parameter passing to a function. Explain along with   **10** example.

  (b)   What do you mean by FILE ? What are the different functions available to read   **10** data from the file ? Specify the different modes in which files can be opened along with syntax.