Time : 3 Hours   **Total Marks : 80**

N.B.:(1) Question No 1 is Compulsory.
      (2) Attempt any three questions out of the remaining five.
      (3) All questions carry equal marks.
      (4) Assume suitable data, if required and state it clearly.

Q1   **Attempt the following**   **(05 Marks each)**
    a) Write an algorithm to check entered number is Prime or not.
    b) Write a C program to take the details of two books such as name of book, author name and book id using structure. Display the same details.
    c) Write a short note on "Derived Data Types in C".
    d) Write a C program to create a file and write data into file.

Q2   **Solve any Two**   **(10 Marks each)**
    a) Write a program to find largest and smallest elements of an array.
    b) Explain One dimensional and Two dimensional array with example.
    c) Write a C program to display following pattern using nested loops.

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Q3   **Solve any Two**   **(10 Marks each)**
    a) What is recursion? Write a program using recursion to find the factorial value of given integer number.
    b) Explain Nested loops in C. Write a program to find factorial value of first 10 numbers.
    c) Write an algorithm to sort n numbers in ascending order.

Q4   **Solve any Two**   **(10 Marks each)**
    a) What is function in C? Write a C program to swap the values of two variables using call by Reference.
    b) What is Flowchart? Draw all basic symbols of flowchart and write its purpose.
    c) Explain i) Relational Operators
              ii)Conditional Operators

Q5   **Solve any Two**   **(10 Marks each)**
    a) Write a C program to count the number of Upper Case and Lower Case characters from a given sentence.
    b) Explain for loop, while loop and do-while loop with example.
    c) Explain with example Formatted Input and Output functions in C.

Q6   **Write short note on**   **(05 Marks each)**
    a) continue and break statement.
    b) pointers in C.
    c) union in C.
    d) switch statement .