**Answer ONLY ONE Question in each section**

**1. Section A: Functions**

a) A particular talent competition has five judges, each of whom awards a score between 0 and 10 to each performer. Fractional scores, such as 8.3, are allowed. A performer's final score is determined by dropping the highest and lowest score received, then aver- aging the three remaining scores. Write a program that uses this method to calculate a contestant's score. It should include the following functions:
• void getJudgeData() should ask the user for a judge's score, store it in a reference parameter variable, and validate it. This function should be called by main once for each of the five judges.
• void calcScore() should calculate and display the average of the three scores that
remain after dropping the highest and lowest scores the performer received. This function should be called just once by main and should be passed the five scores. The last two functions, described below, should be called by calcScore , which uses the returned information to determine which of the scores to drop.
• int findLowest() should find and return the lowest of the five scores passed to it.
• int findHighest() should find and return the highest of the five scores passed to it.

b) You are to write a function to play a random number guessing game. Your program should generate a random number between 1 and 1000 and ask the user to guess what the number is. If the user's guess is higher than the random number, the program should display "Too high, try again." If the user's guess is lower than the random number, the program should display "Too low, try again." If the user's guess is equal to the random number, then an appropriate message should be displayed. The program should use a loop that repeats until the user correctly guesses the random number.

**2. Section B: Recursion**

a) Write a program to calculate the GCD of two numbers using recursive functions.
b) Write a program to calculate exp(x,y) using recursive functions.
c) Write a program to print the Fibonacci series using recursion.

**3. Section C: Array**

a) Write a program to print the position of the smallest number of n numbers using arrays.
b) Write a program to find the second largest of n numbers using an array.
c) Write a program to find whether the array of integers contains a duplicate number.
d) Write a function that accepts three arguments: an array, the size of the array, and a number n . Assume that the array contains integers. The function should display all of the numbers in the array that are greater than the number n .