Question Paper

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
END SEMESTER THEORY EXAMINATIONS - NOVEMBER 2019
I SEMESTER B.Sc.(Applied Sciences) In Engg
PROBLEM SOLVING USING COMPUTERS [ICS 111 - S2]

Marks: 50   **Duration: 180 mins.**

Answer all the questions.

Attempt ALL FIVE full Questions.
Missing data, if any, may be suitably assumed

1)
A) Differentiate between Interpreter and Compiler.(Any four points) (2)

B) Draw a flow chart to find all types of root of a quadratic equation. It should display the roots in appropriate format. (5)

C) Write short note on:
i) Reference variable
ii) Conditional Operator (Ternary Operator) (3)

2)
A) Differentiate between exit control and entry control loop with the help of flow chart and example code. (Example code should be logically complete.) (4)

B) Draw snap shots for Bubble Sort for the data: 5, 9, 2, 8, 1 (4)

C) Describe any one string inbuilt function with the help of prototype of the function and an example program. (2)

3)
A) What is a pointer? Write a complete C++ program to display array elements with the help of a pointer. (4)

B) Write a complete C++ program to find whether a given matrix is lower Triangular or not. The program should perform reading of the matrix element, check for square matrix and should display output "Lower Triangular" or "Non Lower Triangular". (4)

C) Write an inline function Area to compute the area of a cube. Write a main function to test the function. (2)

4)
A) Write a function **IsPrime** to check whether the given number is prime or not. Using this function, generate all prime numbers within the given limit, in the main( ) function. (5)

B) Write a complete C++ program to perform insertion in to the 1D array. The array should be populated at runtime and index of insertion and element to (5)

be inserted should also be dynamically inputted.

5)

A) Define the Book structure with title, author and price as data members and input( ), display( ) as member function. Create an array to hold n Books record and demonstrate utility of the member functions in the main( ) function. Books' record should be sorted on the base of price and sorted records should be displayed in the main( ) function. (6)

B) Define a class Complex to represent a complex number. Include the following members: (4)
Data members:
i) Real
ii) Imaginary
Member functions:
i) to assign initial values
ii) to display complex number in a suitable format
Write a main function to test the class.

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