Question Paper

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
END SEMESTER THEORY EXAMINATION - DECEMBER 2022
I SEMESTER B.Sc.(Applied Sciences) in Engg.

PROBLEM SOLVING USING COMPUTERS [ICS 111]

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

Answer all the questions.

1)	A)	Differentiate between Machine-level language and High-level language. (Three points).	(2.5)
	B)	Write an algorithm to find all kinds of roots of a quadratic equation.	(5)
	C)	Short note on: inline function( ) [include: prototype and example code]	(2.5)
2)	A)	Differentiate between exit-controlled and entry-controlled loops with the help of a flowchart and example code snippet.	(5)
	B)	Write a complete C++ program using a switch to check whether a given character is a vowel or a consonant.	(2.5)
	C)	Define a function: float NORM (int [ ][ ], int, int) to find the norm of a matrix. { no need to write main( ), Norm: square root of the sum of the square of all the elements of a matrix}	(2.5)
3)	A)	Define the following with the help of prototype and example code: i) strcat( ) ii) strcmp( )	(3)
	B)	Write a complete, function-oriented C++ program for Binary search. Define Binary_Search( ) function, call the function in the main( ), and display the result of the search in the main( ).	(7)
4)	A)	Illustrate sorting of data list {5, 20, 10, 11, 2} using bubble sort algorithm. Show all the steps clearly	(4)
	B)	What is a pointer? Explain with an example. What are the different arithmetic operations allowed on pointers [with reasons]? Write a complete	(4)

C++ program to display 1D array elements with the help of a pointer.

C) Give the output: (2)

i) int a,b,c,d;
a=5; b=3;
c=a&b; d=a|b;
cout< < c< < d;
ii) int a,b,c,d;
a=1; b=2;
c=a/b; d=a++;
cout< < c< < d< < a;

5)

A) What is a structure? Define Student structure with name, ID, and CGPA as (6) its data members. Create n elements array of type Student, read students' details from the user, and display the details of the student with the highest CGPA

B) What are the different features of object-oriented programming? (4)

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