Question Paper

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTER FOR APPLIED SCIENCES
I☐ SEMESTER B.Sc. (Applied Sciences) in ENGG. - END SEMESTER THEORY EXAMINATION - APRIL/MAY 2019
PROBLEM SOLVING USING COMPUTERS [ICS 111]

Marks: 100   **Duration: 180 mins.**

Answer 5 out of 8 questions.

Missing data, if any, may be suitably assumed

1)
   A) Differentiate between
      i) Machine level language and High level language
      ii) Compiler and Interpreter   (10)

   B) Draw the flowchart to find Fibonacci series up to a given limit.   (10)

2)
   A) Write an algorithm to find all kinds of roots of a quadratic equation.   (10)

   B) Write short notes on:
      i) Symbolic Constant
      ii) Reference variable   (10)

3)
   A) Evaluate the code/expression :   (10)

i)   (25/3) %2

ii)   int I,j,k;
     I=j=k=5;
     cout<<I;

iii)   int x,y,z;
      x=1;
      y=2;
      z= ++x + - -y;
      cout<<z;

iv)   int a=5;
     int b=15;
     cout<< (a & b);

v)   int i=5;
    while(i < 1);
    i++;
    cout<<i;

B)   Differentiate between exit controlled and entry controlled loop with the help (10) of flowchart and example code snippet.

4)   Illustrate sorting of data list { 11, 2, 69,15} using selection sort algorithm. (10) Show all the steps clearly.

A)

B)   Write a complete C++ program to insert an element in the unsorted 1D (10) array .

5)   Write a complete C++ program to multiply two 2D matrices. Program should (10) have code to check for multiplication rule.

A)

B)   Write a complete C++ program to find the position of first occurrence of a (10) given substring in the main string.

6)   Define the Employee structure with name, employee-code and salary as it's (12) data members. Declare an array to hold n Employees records. Display the array in the sorted order on the basis of employee-code. Write Complete C++ program to demonstrate the same.

A)

B)   What is a pointer? Write complete C++ program to display 1D array (8) elements with the help of a pointer.

7)   Describe different category of functions with the help of syntax (prototype) (20) and example code.

8)

A) Differentiate between object oriented programming and procedure oriented programming (10)

B) What is inheritance? What are the different types of inheritance defined in C++? (10)

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