

Question Paper

Exam Date & Time: 21-Nov-2018 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES FIRST SEMESTER B.SC. Applied Sciences in Engg. END - SEMESTER THEORY EXAMINATIONS NOVEMBER - 2018 PROBLEM SOLVING USING COMPUTERS [ICS 111]

Marks: 100

Duration: 180 mins.

Answer 5 out of 8 questions.

- 1) List any six differences between High Level Language and Machine Level Language. (6)
 - A)
 - B) (i) Differentiate RAM and ROM. (at least three differences) (8)
(ii) What do you mean by Cache memory?
 - C) Draw a flowchart to find the largest of any 3 given numbers. (6)
- 2) Write an algorithm to find whether a given number is palindrome or not. (6)
 - A)
 - B) Write and explain all relational operators. (6)
 - C) Give general syntax and flowchart of switch statement and explain with suitable example code. (8)
- 3) Write a C++ program to generate first N even numbers. (6)
 - A)
 - B) What do you mean by type casting? Explain with the help of an example. (6)
 - C) Explain the following looping constructs with proper syntax and sample code: (8)
 - (i) do-while
 - (ii) for
- 4) Define an array. With appropriate examples explain about the declaration and initialization of 1D and 2D arrays. (6)
 - A)
 - B) Write a C++ program to read a string and reverse the string without using string handling function. (6)

- C) Write a C++ program to sort the array of elements using Bubble sort method. (8)
- 5) Write a complete C++ program to read any two matrices, multiply them and display the result in Matrix form. (8)
- A)
- B) Give snap shots of binary search of element 62 in the array: (6)
58, 62, 75, 88, 92, 105.
- C) What do you mean by function prototype? Give an example for the same. Mention the need for function prototype. (6)
- 6) Write a C++ program to compute the roots of a quadratic equation by taking care of different categories of roots. (8)
- A)
- B) Explain the following concepts of OOP: (6)
(i) Objects (ii) Data Encapsulation (iii) Polymorphism
- C) Write a C++ program to declare and input 1D array of size N. Use pointer to point to this array and compute the sum of array elements using pointer. (6)
- 7) Distinguish between POP and OOP. (6)
- A)
- B) What do you mean by Pass by reference method? Write and explain function swap() to exchange the values of any 2 variables using this method. (6)
- C) Define C++ class. With sample code mention how to define the member function outside the class (8)
- 8) Define a class complex with two data members real and imaginary. Write member functions to: (12)
- A)
- (i) Read the complex number
- (ii) Display complex number
- (iii) Compute the sum of any two complex numbers.
Write a main function to test the class.
- B) What do you mean by function overloading? Write a C++ program to compute the area of square, rectangle and triangle using function overloading. (8)

-----End-----