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328552(28)

B. E. (Fifth Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(Et&T Engg. Branch)

DATA STRUCTURES & PROGRAMMING with C++

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each unit is compulsory carrying 2 marks. Attempt any* ***two*** *parts from (b), (c) and (d) carrying 7 marks each.*

Unit-I

1. (a) Define classes and objects in object oriented programming.

(b) What is a friend function? Write a program to declare friend function in two classes.

(c) Create a class ONE which contains int A as a data member. Create class Two which contains int B as a data member. Write a function to swap the value of A and B.

(d) Explain the basic concepts of object oriented programming.

Unit-II

2. (a) What is function overriding?

(b) Define inheritance? Explain different types of inheritance.

(c) Write a program to find the area of rectangle and circle using the concept of function overloading.

(d) Define operator overloading? Write a program to overload '+' operator to add two complex numbers.

Unit-III

3. (a) What do you understand by pointers?

(b) Write a program in C++ to show the use of pure virtual function.

(c) Explain this pointer. Write a program to show the use this pointer.

(d) Explain pure-abstract classes with suitable program.

Unit-IV

4. (a) Defie Stack and Queue.

(b) Define Sorting. Explain bubbles sort with an example.

(c) Explain the concept of linear search. Write a program to search an element in an array of integers using linear search.

(d) Define Queue. Write a C++ program to add an element in a queue and delete an element from the queue.

Unit-V

5. (a) What is input and output stream?

(b) Define template. How function templates are implemented to swap two numbers?

(c) Explain the concept of exception handling mechanism in C++. Write a program to declare try, throw and catch keywords.

(d) Explain the following function with example : (any **two**)

(i) tellp( )

(ii) seekp( )

(iii) tellg( )

(iv) seekg( )