

**B028315(028)**

**B. Tech. (Third Semester) Examination,  
Nov.-Dec. 2020**

**(New Scheme)**

**DATA STRUCTURE USING C++**

**(ET & T Engg. Branch)**

***Time Allowed : Three hours***

***Maximum Marks : 100***

***Minimum Pass Marks : 35***

***Note : Attempt all questions. Part (a) carries 4 marks and is compulsory. Attempt any two parts from part (b), (c) and (d) carrying 8 marks each.***

**Unit-I**

1. (a) What is default constructor and what is the advantage of having it.
- (b) Write a program using the concept of array of objects.

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- (c) Write a program in C++ to keep 1000 records of books [ACC-No, Name, Cost] and make a function to display all records.
- (d) What is a friend function? Write a program to declare friend function in two classes.

### Unit-II

- 2. (a) Differentiate between function overloading and function overriding.
- (b) Write a program using the concept of multiple inheritance.
- (c) Define operator overloading? Write a program to overload '+' operator to add two complex numbers.
- (d) Define inheritance? Explain different types of inheritance.

### Unit-III

- 3. (a) Explain the concept of abstract class in brief.
- (b) Define pointer. Explain memory management operator in C++.

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- (c) Explain this pointer. Write a program to use this pointer.
- (d) What is virtual function? Write a program to declare virtual display function in base class.

### Unit-IV

- 4. (a) Define data structure and its types.
- (b) Define sorting. Explain selection or bubble sort with an example.
- (c) Explain the concept of linear search. Write a program to search an element in an array of integers (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 are the advantages of link-list over array?
- (b) Explain Binary search tree with suitable example.
- (c) Explain different types of trees with example.

(d) Explain different traversing techniques for Graph.