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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations December-2021

ADVANCED DATA STRUCTURES THROUGH C++

(Common to CSE & CSIT)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

1 a Describe about the parameter passing methods? Write a C++ program to swap two numbers using parameter passing method. 6M

b Write a C++ program to display the student result using Dynamic Memory Allocation. 6M

OR

2 a Describe 'this' pointer and friend function with suitable examples. 6M

b Explain about the Access Controls? How they can be used to provide the accessing benefit with an example. 6M

UNIT-II

3 a Explain about the Runtime polymorphism with suitable example 6M

b Define stream I/O? Explain the use of ifstream and ofstream classes? Write a C++ program to check whether the given file is available or not. 6M

OR

4 a What is a virtual function? Write the syntax and how the virtual functions are implemented in a class with an example 6M

b What is Inheritance? Explain types of Inheritances? Give an example of hybrid inheritance. 6M

UNIT-III

5 a Explain Selection Trees. Construct a Winner Tree and a Loser Tree by taking an example. 6M

b Illustrate in how many ways a Graph can be represented with example
a. Adjacency Matrix b. Incidence Matrix c. Adjacency List 6M

OR

6 a Explain Graph Terminology: 6M

i) Graph Definition ii) Directed Acyclic Graph iii) Isomorphic Graph
iv) Weighted Graph v) Digraph vi) Completely Connected Graph

b Explain about the Threaded Binary Tree (TBT) with an example. 6M

UNIT-IV

7 a Explain Pairing Heaps with an example. 6M

b Explain Binomial Heaps with an example. 6M

OR

8 a Construct a Max Heap for the following Elements: 6M

42 12 13 19 39 26 16 5 14 33

b Explain the role of a Complete Binary Tree in a Priority Queue along with its properties. 6M

UNIT-V

9 a Explain clearly the operations that can be performed on a B+ Tree with example. 6M

b Explain clearly the operations that can be performed on a B Tree with example. 6M

OR

10 a Explain Splay Trees with an example.

6M

b Explain different types of Rotations associated with AVL Tree with an example for each.

6M

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