

Code No.: R22AI203ES

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H.T.No.

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CMR ENGINEERING COLLEGE : HYDERABAD

UGC AUTONOMOUS

I-B.TECH-II-Semester End Examinations (Supply) - February- 2024

DATA STRUCTURES THROUGH C++

(Common for CSC, CSD, CSM)

[Time: 3 Hours]

[Max. Marks: 60]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 10 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(10 Marks)

1. a) Define Big 'Oh' notation. [1M]
- b) List the different ways to handle exceptions [1M]
- c) Differentiate stack and queue data structure. [1M]
- d) List the operations of queue. [1M]
- e) Define a heap tree. [1M]
- f) List the applications of trees. [1M]
- g) Classify the different sorting methods [1M]
- h) What is the difference between linear search and binary search? [1M]
- i) Differentiate cyclic and acyclic graph [1M]
- j) What is AVL Tree? [1M]

PART-B

(50 Marks)

2. What is inheritance? Explain the different types of inheritance. [10M]
- OR**
3. Write a C++ Program to Illustrate Friend Function. [10M]
- 4.a) Write a C++ program to perform insertion on a single linked list. [5M]
- b) Write a C++ program to perform deletion on a single linked list. [5M]
- OR**
- 5.a) Write a C++ program to check whether the stack is full or empty. [5M]
- b) Describe about queue ADT in detail. [5M]
6. Explain the operations of threaded binary tree. [10M]
- OR**
7. Explain preorder, inorder and postorder traversal of a binary tree. [10M]
8. Discuss quick sort algorithm and explain with suitable example. [10M]
- OR**
9. Explain binary search technique with suitable example. [10M]
10. What is undirected graph? How DFS to be performed on undirected graph. [10M]
- OR**
11. Define binary search tree. Construct a binary search tree for the following elements [10M]
10,20,30,40,28,15,60,
