

Code No.: R22CS203ES

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I-B.TECH-II-Semester End Examinations (Regular) - September- 2023
DATA STRUCTURES
(Common for ECE, CSE, IT)

[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) List out the applications of data structures? [1M]
- b) Define What is ADT? [1M]
- c) Write the representations of Dictionaries? [1M]
- d) What do you mean by a collision? [1M]
- e) Define BST and mention few properties of BST? [1M]
- f) Define AVL tree. [1M]
- g) What are the applications of Graph data structures? [1M]
- h) What is meant by heap sorting? [1M]
- i) Define pattern matching. [1M]
- j) Define tries and its types? [1M]

PART-B

(50 Marks)

2. What is Linear Data Structures? Explain different Linear data structures with example? [10M]
- OR**
3. Explain Stack using arrays with an example? [10M]
4. Explain the dictionaries with an example (i). Linear list representation (ii) Skip list representation [10M]
- OR**
5. Describe with an example about the collision resolution strategies with examples. [10M]
6. What is a binary search tree (BST) and specify the steps showing the construction of a BST for the following data 18, 08, 11, 10, 5, 06, 31, 19, 22, 28, 14, 15 [10M]
- OR**
7. Construct a B-tree of order 3 with the following elements 10,20,5,18,3,12,16,22,25,3,40 and after creating of B-tree delete 5, 12, and 40. [10M]
8. Explain In detail about graph traversal methods? [10M]
- OR**
9. What is Quick sort? Explain in detail about quick sort implementation for given elements 10,15,12,9,16,11? [10M]
10. Differentiate between standard tries and compressed tries? [10M]
- OR**
11. Explain about KMP pattern matching algorithm with an example. [10M]
