Code No.: R22CS58101PC | R22 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–M.TECH–I–Semester End Examinations (Regular) - March- 2024
ADVANCED DATA STRUCTURE AND ALGORITHMS
(CSE)

[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 Heap. [1M]
   b) Distinguish between the min heap and max heap. [1M]
   c) List the properties of Hash Function. [1M]
   d) Define Hash Table. [1M]
   e) Compare 2-3 tree and B Tree. [1M]
   f) What are the different rotations in splay tree? [1M]
   g) List the applications of Pattern Matching. [1M]
   h) What is the purpose of Digital Search Tree? [1M]
   i) What do you mean by graph traversals? [1M]
   j) Define Dynamic Programming. [1M]

PART-B **(50 Marks)**

2. Evaluate Heap sort with your own example. [10M]

OR

3. Illustrate the Fibonacci Heap structure in detail. [10M]

4. Compare and contrast Multiplication Method and Folding method with examples. [10M]

OR

5. Explain Collisions that can occur in detail with an example. [10M]

6. Create a tree that satisfies the features of red black tree. [10M]

OR

7. Explain in detail about the AVL Trees. [10M]

8. Explain Boyer-Moore Algorithm in detail. [10M]

OR

9. Illustrate multiway tries in detail with an example. [10M]

10. Construct the Pseudocode for the Depth-First Search Traversal Technique. [10M]

OR

11. Demonstrate Topological Sorting with an example. [10M]

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