Code No.: CS203ES | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–B.TECH–II–Semester End Examinations (Supply) - March- 2023
DATA STRUCTURES
(Common for all)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 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 **(20 Marks)**

1. a) List the applications of the queues. [2M]
   b) Write the operations of the stack. [2M]
   c) Difference between skip list and linked list. [2M]
   d) Define the hash table. [2M]
   e) Difference between AVL tree and heap. [2M]
   f) Why AVL tree is better than BST? [2M]
   g) Define a graph. [2M]
   h) Compare and contrast the DFS and BFS. [2M]
   i) Difference between KMP and Boyer Moore. [2M]
   j) List the disadvantages of suffix tries. [2M]

PART-B **(50 Marks)**

2. Write a program to implement given scenario using stack operations. Use stack operation to push these characters 'o, p, e, r, a, t, i, o, n', perform pop operation three times and then push 'o, r 'characters and finally display stack content. [10M]

OR

3. Define single linked list and Write structure of the single linked list with neat sketch. [10M]

4. Explain the double hashing with example. [10M]

OR

5. Define rehashing. Explain the extendible hashing. [10M]

6. Construct a Red-Black tree with the following elements 40, 16, 36, 54, 18, 7, 48, 5. Delete the element 18 and add element 66. [10M]

OR

7. What is AVL tree? Explain the balancing methods of AVL trees with an example. [10M]

8. Perform merge sort algorithm with the following elements. [10M]
   (10, 15, 62, 25, 18, 16, 2, 20, 4)

OR

9. Explain the graph implementation in data structure. [10M]

10. Difference between standard trie and compressed trie. [10M]

OR

11. Discuss the boyer moore algorithm. [10M]

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