

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIRST SEMESTER M.C.A DEGREE EXAMINATION (Regular), FEBRUARY 2022**(2021 SCHEME)****Course Code: 21CA102****Course Name: Advanced Data Structures****Max. Marks: 60****Duration: 3 Hours****PART A***(Answer all questions. Each question carries 3 marks)*

1. Compare and contrast Linked Stack and Linked Queue.
2. Write an algorithm to perform 'Union' of two sets.
3. What do you mean by Balanced tree?
4. Define suffix tree.
5. Differentiate max heap and min heap.
6. Point out the properties of Binomial heap.
7. State the principles of Topological sorting.
8. Describe Graph traversal methods.
9. Define contract data.
10. List and explain any three hash functions.

PART B*(Answer one full question from each module, each question carries 6 marks)***MODULE I**

11. Define a circular linked list. Write an algorithm to insert and delete elements in a circular linked list. (6)

OR

12. Briefly explain about set implementation using bit string. Show the representation of Disjoint sets. (6)

MODULE II

13. Elaborate with example the insertion and deletion in a balanced tree. (6)

OR

14. Define Red Black tree. What are its properties? Describe the rotations possible in Red Black tree. (6)

MODULE III

15. Describe any two operations on mergeable heaps. (6)

OR

16. Analyze Binomial heap operations and Fibonacci heap operations. (6)

MODULE IV

17. Compare and contrast Prim's algorithm and Kruskal's algorithm with example. (6)

OR

18. Briefly explain Dijkstra's single source shortest paths algorithm. (6)

MODULE V

19. Explain the methods of collision resolving using hash table. (6)

OR

20. Describe Block chain architecture in detail. (6)
