

21P163

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Name:

Reg.No:

FIRST SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS - PG)

(Regular/Supplementary/Improvement)

CC19U CSS1 C02 - ADVANCED DATA STRUCTURES

(Computer Science)

(2019 Admission onwards)

Time : 3 Hours

Maximum : 30 Weightage

Part-A

Answer any *four* questions. Each question carries 2 weightage.

1. What is Algorithm? Explain its objectives and quality of a good algorithm.
2. What is 2D array? Express the concept of sparse matrix.
3. Explain with example algorithm of Quick Sort.
4. Implement sparse matrix using linked list.
5. Explain Tower of Hanoi using recursion.
6. Explain how to build a min/max heap.
7. Discuss binary heap with examples.

(4 × 2 = 8 Weightage)

Part-B

Answer any *four* questions. Each question carries 3 weightage.

8. What are Characteristics of Data Structure and explain its categories and operations.
9. Discuss permutation and combination in counting.
10. Explain operations performed on queue using array and linked list.
11. Explain binary tree and its operations.
12. Give a note on Red Black tree and Splay trees.
13. Explain hashing in data structure with examples. Discuss different hash functions.
14. Explain heap in data structure and the operations performed in heaps.

(4 × 3 = 12 Weightage)

Part-C

Answer any *two* questions. Each question carries 5 weightage.

15. Mention the difference between Linear search and Binary Search with algorithms and examples and complexities.
16. Explain concept of graph and its usage in Data Structure.
17. Give short note on a) Open chaining b) Rehashing c) Double hashing d) Quadratic probing.
18. Give short note on a) Fibonacci heap b) Splay trees c) Skew heap

(2 × 5 = 10 Weightage)
