FIRST SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

(CBCSS - PG)

(Regular/Supplementary/Improvement)

CC19P 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 ADT ? Explain with examples.

2. Explain the basic counting techniques.

3. Explain working of binary search.

4. Differentiate double linked list and circular linked list.

5. Evaluate (A+B)^C^D*E-F/G to postfix and prefix using stack.

6. Explain how to build a min/max heap.

7. What is skew heap? Explain.

(4 × 2 = 8 Weightage)

Part-B

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

8. Explain Time complexity and space complexity of algorithms.

9. Explain the concept of array and briefly ellaborate its operations.

10. Mention algorithm of Merge Sort with example.

11. Give a note on Red Black tree and Splay trees.

12. Explain Kruskals and Prims Algorithm for minimum spanning tree.

13. Define hash table, hash function, and discuss different hash functions.

14. Explain splay trees and its operations.

(4 × 3 = 12 Weightage)

Part-C

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

15. Explain concept of Queue and its operations and its applications.

16. Explain the concept of Binary Search Tree with its operations.

17. Give short note on a) closed addressing b) extended hashing c) double hashing d) quadratic probing

18. Explain a) Min -Max heap   b) Binary heap   c) Skew heap

(2 × 5 = 10 Weightage)

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