**19P162** (Pages: 2) Name: …….……

Reg. No…….……...

**FIRST SEMESTER M.Sc. DEGREE EXAMINATIONS, NOVEMBER 2019**

(CUCSS PG)

**CC19P CSS1 C02 - ADVANCED DATA STRUCTURES**

(Computer Science)

(2019 Admission Regular)

Time: Three Hours Maximum: 30 Weightage

## PART A

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

1. Write a short note on Abstract Data Type.
2. Explain recursive list.
3. Differentiate between B tree and B+ tree.
4. Write a brief note on graph data structure and its operations.
5. Explain about hash table and rehashing.
6. Describe about skew heap.
7. Explain the representation of heap using array.

**(4 × 2 = 8 Weightage)**

## PART B

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

8. Describe the implementation of stack using linked list a with an example.
9. (a) Explain time complexity and space complexity of algorithm with an example.

   (b) Explain the objective and quality of algorithm.
10. Explain the implementation of circular queue and dequeue using linked list.
11. Explain Huffman algorithm for extended binary tree.
12. (a) Define Recursion. Write a recursive algorithm to print the fibonacci series.

    (b) Explain the types and applications of recursion .
13. (a) Describe queue data structure and operations on it.

    (b) Explain how a stack can be used to evaluate postfix expressions.
14. Explain sparse matrix- representation using array and linked list.

**(4 x 3 = 12 Weightage)**

## PART C

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

15. Explain any four sorting algorithms with examples.
16. What is BST? Explain the traversal and operations on BST.

17. Explain linear probing, quadratic probing, double hashing algorithms and their implementations.
18. Explain Min-Max heaps, leftist heaps, binomial heaps and fibonacci heaps with examples.

**(2 x 5 = 10 Weightage)**

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