D 114552   (Pages : 2)   Name...

Reg. No.....................................

FIRST SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2024

(CBCSS)

Computer Science

CSS1C02—ADVANCED DATA STRUCTURES

(2019 Admission onwards)

Time : Three Hours   Maximum : 30 Weightage

Part A

Answer any **four** *questions.*

1. Define Data Structure.

2. What is an ADT ?

3. List out any three differences between stack and queue.

4. State the merits of linear representation of binary tree.

5. Build Binary Search Tree corresponds to the preorder traversal of nodes.

      { 15, 10, 8,12, 20,16,25 }.

6. What do you mean by hash table ?

7. Give a note on splay tree.

(4 × 2 = 8 weightage)

Part B

Answer any **four** *questions.*

8. Discuss about characteristics of data structures.

9. What is stack ? Explain its application.

10. Discuss recursion with example.

11. Explain about binary tree representation.

12. Define separate chaining. What are the advantages and disadvantages separate chaining ?

Turn over

13. Write a short note on representation of binary heap.

14. Construct a Max heap for the given array of elements:

    1, 5, 6, 8, 12, 14, 16.

                                                                    (4 × 3 = 12 weightage)

Part C

Answer any **two** *questions.*

15. How will you evaluate quality of algorithms ? Discuss in detail.

16. Define doubly linked list. Explain how to insert and delete an element at the end of the list.

17. Write an algorithms for binary tree traversal and explain.

18. Briefly explain about Fibonacci heaps with an example.

                                                                    (2 × 5 = 10 weightage)