D 52792 **(Pages : 2)** **Name.....**

Reg. No.....

FIRST SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2023

(CBCSS)

Computer Science

CSS1C02—ADVANCED DATA STRUCTURES

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

Part A

Answer any **four** *questions.*

1. Mention the objectives of studying data structures.
2. Write a brief note on Sparse matrix with its example.
3. Define dequeue.
4. What are the postfix and prefix forms of the expression ? A + B*(C-D)/(E-F).
5. What do you mean by height balanced tree ? Give example.
6. What is rehashing ?
7. Distinguish binomial heap and binary heap ?

(4 × 2 = 8 marks)

Part B

Answer any **four** *questions.*

8. List out the areas in which data structures are applied extensively.
9. What is stack ? Explain its application.
10. Discuss about linear search with its example.
11. Give a brief note on Red Black tree ? with its examples.
12. Write about Digital search tree.
13. Describe extendable hashing.
14. What is a skew heap used for ?

(4 × 3 = 12 marks)

Turn over

Part C

Answer any **two** *questions.*

15. Compute complexity of linear and binary search algorithm.

16. Compare recursive with non recursive algorithm.

17. Describe how graphs can be represented in adjacency matrix and in adjacency list.

18. Consider the following Max heap :

    50, 30, 20, 15, 10, 8, 16.

    Delete a node with value 50.

(2 × 5 = 10 marks)