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B.M.S COLLEGE FOR WOMEN, AUTONOMOUS
BENGALURU – 560004
SEMESTER END EXAMINATION – JANUARY/FEBRUARY 2023

B.Voc - IT - I Semester

DATA STRUCTURE
(NEP Scheme 2021-22 onwards F+R)

Course Code: BVIT1DSC03

Duration: 2 ½ Hours

QP Code: 1035

Max. Marks: 60

Instructions: Answer all the sections

PART-A

Answer any TEN questions. Each question carries TWO marks.

(10X2=20)

1. Define Data Structures.
2. List any four linear data Structures operations.
3. What are asymptotic Notations? Define any one notation.
4. Define Linked List.
5. What is sparse matrix?
6. Define Circular Queue.
7. Write the applications of Tree Sort algorithm.
8. What are the properties of B-Tree?
9. What is Priority queue?
10. Mention the time complexity of Insertion sort algorithm.
11. Define AVL Trees.
12. What is array counting or histogramming?

PART-B

Answer any FIVE questions. Each question carries FOUR marks.

(5X4=20)

13. What is an algorithm? Explain Complexities of an Algorithm.
14. Explain Singly Linked List.
15. Explain Polish notation.
16. Write the applications of STACK data structure.
17. Write an algorithm to insert a new element at the beginning of a linked list.
18. Explain In-order traversal of binary search tree.
19. Write a note on Divide and Conquer approach.

PART-C

Answer any TWO questions. Each question carries TEN marks

(2X10=20)

20. Define a Graph. Write Breadth First Search (BFS) algorithm.
21. Explain Collision Resolution with Open Addressing.
22. Write selection sort algorithm and sort the given array elements using selection sort.

14	33	27	10	35	19	42	44
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23. Explain towers of Hanoi problem

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