SP-27

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Seat No.	

S.Y. B.Tech. (Computer Science and Engineering)
(Semester - III) (CBCS) Examination, January - 2024
DATA STRUCTURES
Sub. Code: 73278

Day and Date : Saturday, 06 - 01 - 2024 **Total Marks : 70**

Time : 10.30 a.m. to 1.00 p.m.

Instructions : **1)** **Q. 1 is compulsory.**
2) **Attempt any four questions from Q. 2 to Q. 6.**
3) **Figures to the right indicate full marks.**

Q1) Write short note on any 2. **[10]**

a) Circular Linked List.

b) Heap sort.

c) Merge sort algorithm.

d) Complexity and its types.

Q2) a) List the operations that can be performed on Data Structures. **[7]**

b) Write a C program or Pseudo code to implement circular queue using array. **[8]**

Q3) a) Define Graph. List and explain the applications of graph. **[7]**

b) Write a C program or Pseudo code to implement following operations on the Binary Search Tree. **[8]**

i) Insertion in BST.

ii) Inorder Traversal of BST.

Q4) a) Explain various Types of Linked Lists with appropriate diagrams. **[8]**

b) Write a C Program or Pseudo Code for implementation of Linear Queue using Linked List. **[7]**

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Q5) a) Draw the BST for the given input: **[7]**

10, 1, 5, 15, 10, 20, 2, 16, 7, 20, 2, 1

Write the inorder traversal of the BST.

b) List and explain the various representations techniques of Graph with appropriate diagrams for each. **[8]**

Q6) a) Explain the Selection sort with appropriate example showing all the steps and passes for sorting the given array. **[7]**

b) Write a C program or Pseudo code for following operations on a Singly Linked List: **[8]**

i) Insert a new node at given location in list.

ii) Delete at start of list.

iii) Display the elements of list.

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