



R20 Regulation
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 3P3FC

B.Tech III Semester Regular Examinations, February 2022
DATA STRUCTURES
(Information Technology)

Maximum Marks: 70

Date: 25.02.2022 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Define Inheritance.
- 2 Compare space complexity and time complexity.
- 3 Define Singly Linked List.
- 4 Define Adjacency Matrix and its representation with example.
- 5 Define B+ Tree.
- 6 Define Circularly Queue.
- 7 Define Hashing.
- 8 List the uses of hash table.
- 9 Distinguish between BFS and DFS.
- 10 Define Binary tree.

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 Differentiate inheritance and polymorphism with an example
OR
10M
- 12 Discuss in detail about Big O, Big Omega and Theta notations.
10M
- 13 Discuss about Doubly linked implementation of ADT?
OR
10M
- 14 A. Convert infix to postfix expression with an algorithm.
B. Convert Postfix to infix expression with an algorithm.
5M
5M
- 15 Discuss Binary tree in linked representation with its operation.
OR
10M
- 16 Explain Insertion & Deletion for a Max Heap and construct Max heap for the following elements: 2,7,4,10,8,6.
10M
- 17 Write in detail about Linear Search & Binary Search
OR
10M
- 18 State and explain Selection sort with an example.
10M
- 19 Discuss the Breadth First Search and Depth First Search.
OR
10M
- 20 Demonstrate the insertion, deletion operation on AVL Tree.
10M