



R17 Regulation

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

Subject code: 1P3EB

B.Tech II Year I Semester Supplementary Examinations, February 2021

DATA STRUCTURES THROUGH C++
(Computer Science and Engineering)

Maximum Marks: 70

Date: 22.02.2021 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 What is operator overloading?
- 2 Explain constructors and destructor.
- 3 Define stack ADT.
- 4 Define sparse matrices.
- 5 What is complete binary tree?
- 6 Explain path compression.
- 7 Define hash function
- 8 Explain radix sort.
- 9 Define graph ADT.
- 10 Explain the concept of AVL trees.

Part-B

Answer All the following questions.

(10M X 5=50Marks)

- 11 a) Discuss in detail about parameter passing with suitable example program. (5M)
b) Differentiate between function overloading and function overriding. (5M)
OR
- 12 Briefly explain the concept of performance analysis. (10M)
- 13 Write a C++ program to demonstrate the double linked list for insertion and deletion operation. (10M)
OR
- 14 Write a C++ program demonstrating insertion and deletion operations for Circularly Linked List. (10M)
- 15 a) Explain the properties of binary tree ADT. (5M)
b) Explain the concept of Max-heap. (5M)
OR
- 16 Write a C++ program in binary tree traversal for post order and pre order. (10M)

- 17 Write a C++ program to demonstrate overflow handling. (10M)
OR
- 18 Define Quick sort in details. Explain with an example. (10M)
- 19 Write an algorithm to traverse a graph using depth first search. (10M)
OR
- 20 Write short notes on Red-black tree with suitable example. (10M)