

II B. TECH II SEMESTER REGULAR EXAMINATIONS, AUGUST 2021
ADVANCED DATA STRUCTURES
(Common to CSE and IT Branches)

Time: 3 hours

Max. Marks: 60

Note: Answer **ONE** question from each Unit (**5 × 12 = 60 Marks**)

UNIT - I

1. Write short notes on the following: [12M]
(i) Dictionaries (ii) Hashing (iii) External Hashing.

(OR)

2. a) List the different hash functions. [6M]
b) Summarize various Collision Resolution Techniques. [6M]

UNIT – II

3. a) Define binomial heap ? Explain binomial heap operations with an example. [6M]
b) What is binary heap? Explain the procedure to insert an element into binary heap. [6M]

(OR)

4. a) What is priority queue? What are its applications? [6M]
b) Write algorithms for operations on priority queue. [6M]

UNIT – III

5. a) What is B-tree? Construct B-tree of order 3 for the following data [6M]
45,23,29,37,9,79,39,47.
b) What is binary search tree (BST). Write an algorithm to delete an element [6M]
from BST.

(OR)

6. a) Define Red-Black Tree. Construct the red-black tree for the following list [6M]
with proper rotations and colouring: 7,5,6,3,9,14,15.
b) What is an AVL search tree? How do you define the height of it? Explain [6M]
about the balance factor associated with a node of an AVL tree.

UNIT –IV

7. a) Describe Bellman Ford algorithm with an example. [6M]
b) Describe single source shortest path with an example. [6M]

(OR)

8. a) Define connected and bi-connected components of a graph? Explain the [6M]
procedure to find whether graph is connected or not.
b) What data structure is used for disjoint set? Explain with an example. [6M]

UNIT –V

9. a) Illustrate insertion, deletion, searching on Digital Search Tree. [6M]
b) Discuss about Boyer –Moore algorithm along with an example. [6M]

(OR)

10. a) Define Compressed Binary Tries. How is it different from Binary Tries? [6M]
b) Compare algorithm Brute force and Knuth- Morris-Pratt algorithm. [6M]

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