

Code No: 156EH**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, August/September - 2024****ADVANCED DATA STRUCTURES
(Computer Science and Business Systems)****Time: 3 Hours****Max. Marks: 75**

- Note:** i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) List down the properties of Max Heap. [2]
- b) List down the applications of Fibonacci Heap. [3]
- c) Write your understanding on index in hash table. [2]
- d) Brief the situation of collision. [3]
- e) List out the limitations of Binary Search Trees that are overcome by B-tree. [2]
- f) Write the advantages of Splay trees. [3]
- g) What are the disadvantages of tries? [2]
- h) Compare digital search trees and binary trees. [3]
- i) Define Brute Force approach. [2]
- j) State the heuristics that are used to reduce the search using Boyer-Moore algorithm. [3]

PART – B**(50 Marks)**

- 2.a) List the properties of Leftist Tree.
 - b) Illustrate and write the procedure of merging leftist trees. [5+5]
- OR**
- 3.a) Discuss the Union operation in Binomial Heap.
 - b) List the differences between Min Heap and Max Heap. [5+5]
4. List the types of Hash Functions and describe any two of them. [10]
- OR**
5. List the methods to handle collision and illustrate the behavior of one of the methods through explanation and diagram. [10]
 6. Discuss the general behavior of AVL tree and write the algorithm that implements the operation of insertion. [10]
- OR**
- 7.a) List and briefly explain the applications of B trees.
 - b) Justify “Splay trees are self-adjusted trees”. [5+5]

- 8.a) Write the properties of Patricia trie.
b) Write the algorithm to check if the Patricia trie is empty. [5+5]
- OR**
- 9.a) Write the algorithm to insert a node in Trie.
b) List the applications of Trie. [5+5]
10. Write the KMP search algorithm that helps to find the pattern matching. [10]
- OR**
11. Write the general behavior of Rabin Karp pattern matching algorithm, use diagrams to illustrate the same. [10]

---ooOoo---

used paper Aug-2024