Code No: 156EH **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, July - 2023
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 Min Heap.	[2]
b)	List down the applications of Binomial Heap.	[3]
c)	Write your understanding on lookup in hash table.	[2]
d)	Brief on "linear probing".	[3]
e)	List out the limitations of B-Trees that are overcome by 2-3 trees.	[2]
f)	Write the advantages of AVL trees.	[3]
g)	List out the advantages of tries.	[2]
h)	Compare digital search trees and AVL trees.	[3]
i)	Write any two algorithms that are used to find pattern matching in strings.	[2]
j)	What are the implications of bad heuristics of Boyer-Moore Algorithm?	[3]

PART – B

(50 Marks)

2.a)	List the properties of Fibonacci Heaps.	
b)	Illustrate and write the procedure to insert node in the Fibonacci Heap.	[5+5]
	OR	
3.a)	Write down the properties of Binomial Heap.	
b)	Write the algorithm to extract the minimum key from a Binomial Heap.	[5+5]
4.	Write the importance of Hash Functions and describe Mid-Square method.	[10]
	OR	
5.	Discuss the methods that handle collision. Illustrate the behavior through explanation and appropriate diagram.	[10]
6.	Discuss the general behavior of Red-Black tree and write the algorithm that implements the operation of insertion.	[10]
	OR	
7.a)	List the applications of Splay trees.	
b)	Justify "AVL trees are self-balanced trees".	[5+5]

8.a) Write the properties of Multiway trie.
b) Write the algorithm to check if the Patricia trie is not empty. [5+5]

OR

9.a) Write the algorithm to insert a node in suffix Trees.
b) List the applications of Standard Trie. [5+5]

10. Write the Harspool search algorithm that helps to find the pattern matching. [10]

OR

11. Write the general behavior of Boyer-Moore pattern matching algorithm, use diagrams to illustrate the same. [10]

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