Code No: 183AM **R22**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year I Semester Examinations, February - 2024

DATA STRUCTURES

(Common to CSE, IT, CSIT, CE(SE), CSE(CS), CSE(DS), CSD)

Time: 3 Hours **Max. Marks: 60**

Note: This question paper contains two parts A and B.
i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

PART- A

(10 Marks)

1.a)	State the advantage of ADT.	[1]
b)	Differentiate arrays and linked lists.	[1]
c)	Define Hashing.	[1]
d)	What is skip list?	[1]
e)	How do you calculate the depth of a B-Tree?	[1]
f)	What is a binary search tree?	[1]
g)	Give example and applications of undirected graphs.	[1]
h)	How graph can be represented?	[1]
i)	Write the importance of suffix trie.	[1]
j)	What is pattern matching problem?	[1]

PART-B

(50 Marks)

2.	Describe the various operations of the list ADT with examples.	[10]
	OR	
3.a)	Describe the operations of queue with examples.	
b)	Explain the insertion and deletion operations on stack.	[5+5]
4.	How to implement dictionaries? Explain.	[10]
	OR	
5.	Explain Collision Resolution Techniques in Hashing.	[10]
6.a)	Explain Splay- trees with neat diagram.	
b)	Explain B+ trees and its operations.	[5+5]
	OR	
7.	Explain with a detailed note on AVL trees with its operations and example.	[10]

8.a) Write a routine for sorting elements using quick sort method. Explain the working of the routine with an example.

b) Discuss how to represent graph storage using Adjacency list. [5+5]

OR

9. What are the graph traversal methods? Explain it with example. [10]

10. Write the Boyer-Moore algorithm and explain with an example. [10]

OR

11.a) How Compressed Tries work? Explain its operations with an example.

b) Explain Standard Tries with an example. [5+5]

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