QP Code: Reg. No | | | | | | | | | | | AY 24

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR

(GIET UNIVERSITY)

M.Tech. (First Semester) Regular Examinations, February – 2025

24MCSPC11002 – Advanced Data Structures

(CSE)

Time: 3 hrs Maximum: 60 Marks

Answer ALL questions

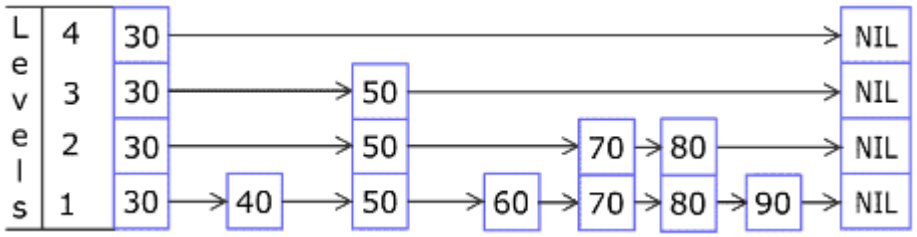
(The figures in the right-hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

		CO #	Blooms Level
Q.1.	Answer ***ALL*** questions		
a.	Explain good hash function.	CO3	K2
b.	Give a brief description about 2-3 tree.	CO2	K2
c.	List out the properties of a priority search tree.	CO3	K1
d.	Explain the search function in a quad tree.	CO4	K2
e.	Write the role of rotations in balancing AVL and red-black trees.	CO2	K1

PART – B **(10 x 5 = 50 Marks)**

		Marks	CO #	Blooms Level
	Answer ***ALL*** the questions			
2. a.	Explain collision resolution techniques in hashing and find its time complexity.	10	CO2	K2
	(OR)			
b.	Construct a red black tree from the following: - 10,18,14, 7,15,16,30,25,40,50, 60,2,1,70	10	CO3	K3
3.a.	Write down the deletion algorithm of a skip list. delete the element 80 from the given skip list.	10	CO2	K4



(OR)

c.	Brief the properties of AVL trees	5	CO3	K2
d.	Construct the AVL tree from the following set of values: 10,20,30,15,25,5,12,35,40,32,50,11	5	CO3	K3
4.a.	Explain about the KMP pattern matching algorithm. Illustrate the operations of KMP pattern matching algorithm with example.	10	CO3	K3
	(OR)			
c.	Briefly explain the k-D Trees with an example.	5	CO4	K3
d.	Explain how to construct a Priority Search tree with an example.	5	CO4	K3

5.a.	Explain how to solve the assignment problems when some assignments are prohibited.	10	CO3	K3
	(OR)			
c.	Define abstract data type. Explain with example of each? Write its application.	5	CO4	K2
d.	Explain the table size and time complexity in hashing.	5	CO2	K2
6.a.	Differentiate one Dimensional Range Searching and Two Dimensional Range Searching with an example?	10	CO4	K2
	(OR)			
c.	List out some real time application of tree data structure.	5	CO4	K2
d.	Differentiate between static and dynamic hashing	5	CO4	K3

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