Course Code: 1930511 **Roll No:** **MLRS- R19**

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
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II B.Tech I Sem Supplementary Examination, July-2022

Data Structures

(CSE & IT)

Time: 3 Hours. **Max. Marks: 70**

Note: 1. Answer any FIVE questions.
2. Each question carries 14 marks and may have a, b as sub questions.

1	a)	Explain pointer implementation of queue data structure.	7M	CO1	BL2
	b)	Explain ***push()*** and ***pop()*** functions of stack data structures with array implementation.	7M	CO1	BL2
2		Explain the operations ***insert a node, delete a node, search a node*** and ***print linked list*** with respect to single linked list implementation.	14M	CO1	BL2
3	a)	Insert the keys ***10, 15, 16, 20, 30, 25, 26, and 36*** into a hash table of size M = 10. Apply quadratic probing in case of collision. Use hash function as h(k)= k % M.	7M	CO2	BL3
	b)	Assume a table has 8 slots. Using chaining, insert the following elements into the hash table. ***66,66,18,72,43,65,6,17,10,5,64,16,71, and 15*** are inserted in the order. Consider Hash function ***: h(k) = k mod m, where m=8***	7M	CO2	BL3
4		Apply double hashing method to insert the following keys: ***76, 93, 40, 47, 10, 55. Use h(k) = k mod 7 and g(k) = 5 - (k mod 5).***	14M	CO2	BL3
5	a)	Explain insertion operation in AVL tree by giving example.	7M	CO3	BL2
	b)	Explain about concept of spay tree with an example.	7M	CO3	BL2
6		Construct Binary search tree with the following keys: ***10 ,4,15,17,2,6,1,23,9,5,14,16***. Apply ***in-order, pre-order*** and ***post-order*** traversal techniques on constructed Binary search tree. Explain what kind of transformations needs to apply if we want to delete node with key ***6***.	14M	CO3	BL3
7	a)	Discuss different graph traversal methods.	7M	CO4	BL2
	b)	Explain merge sort method. Apply this to sort the following values and show different stages in it : 45,12,78,23,5,8,19,90,38,61,84,50.	7M	CO4	BL3
8		Differentiate standard tries, compressed tries and suffix tries.	14M	CO5	BL2

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