B. Tech III Semester End Examinations, August 2021

DATA STRUCTURES (19AES0503T)

(Common to CE, CSE, ECE and ME)

Time: 3 Hours | Max. Marks:70

PART-A (10 x 2 = 20M)

(Compulsory Question)

Answer the following.			Unit	Marks
1	a)	What is array?	1	(2M)
	b)	What is quick sort?	1	(2M)
	c)	Define Queue?	2	(2M)
	d)	Give memory diagram of linked stack?	2	(2M)
	e)	Define AVL trees.	3	(2M)
	f)	What are Binary Search Trees?	3	(2M)
	g)	Define minimum cost spanning tree?	4	(2M)
	h)	Define hashing?	4	(2M)
	i)	What is internal sorting?	5	(2M)
	j)	What are the advantages of indexing over sequential file.	5	(2M)

PART-B (5 X 10 = 50M)

(Answer One FULL Question from each Unit; ALL questions carry EQUAL Marks)

	UNIT - I	
2	Explain how arrays can be dynamically allocated and change their sizes.	10 M
	(OR)	
3	Sort the elements using heap sort 54, 5, 13, 31, 24, 87, 45, 58, 25, 64 and 86	10M
	UNIT - II	
4	Explain the operations of singly linked list.	10M
	(OR)	
5	Explain the operation of doubly linked lists.	10M
	UNIT - III	
6	Construct AVL tree using the following elements 15, 20, 24, 10, 13, 7, 30, 36, 25, 42, 29	10M
	(OR)	
7	Construct a B- tree of order 3 for the following elements 105, 25, 31, 5, 7, 89, 73, 65, 45, 51, 18, 16, 38.	10M
	UNIT - IV	
8	Explain how to construct transitive closure for a given graph.	10M
	(OR)	
9	Explain the collision resolution techniques in hashing?	10M
	UNIT - V	
10	Explain indexed sequential file organization with an example.	10M
	(OR)	
11	Explain the external sorting technique with an example.	10M