Reg. No.



VII SEMESTER B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING) MAKEUP EXAMINATIONS, DECEMBER 2019

DATA STRUCTURES AND ALGORITHMS [ELE 4018]

REVISED CREDIT SYSTEM

Time:	3 Hours	Date: 26 December 2019	Max. Marks: 50	
Instructions to Candidates:				
	 Answer ALL the questions 	5.		
	 Missing data may be suital 	bly assumed.		
1A.	Define "order of growth"	of an algorithm.	(02)	
1B.	Explain the concept of as	plain the concept of asymptotic analysis of algorithms.		
1C.	Solve the following recurrences using Master's theorem:			
	a. $T(n) = 4 T(n/8) + n^2$	b. $T(n) = 6 T(n/3) + n$	(02)	
1D.	Write iterative and recurs number. Determine the t	sive algorithm to calculate the factorial of ime complexity of the code.	a given (03)	
2A.	What is an Abstract Data	Type? Explain with a suitable example.	(02)	
2B.	What are the advantages structures using static ar	and disadvantages of implementing data rays?	(02)	
2C.	Write pseudocode algorith operations using array da	hms to implement enqueue and dequeue ata-structure.	(03)	
2D.	Write a pseudocode algo the algorithm on the follo	rithm to evaluate a given postfix string. I wing expression: (Assume single digit nun	llustrate nbers)	
	32+41-*47+/		(03)	
3A.	Create a Binary Search T 76, 23, 89, 115, 98, 39, created.	ree for the following sequence of numbers 41, 56, 69, 48. Obtain the traversal for	: 45, 36, the tree (03)	
3B.	With the help of neat ske linked lists.	tches explain the concept of different type	s of (02)	
3C.	Write a pseudocode algo complexity of the algorith	rithm to merge two linked lists. What is t nm.	the time (03)	
3D.	What is hashing? What a	re the features of a good hash function?	(02)	
4A.	What are the different wa of suitable example.	ays of representing a graph? Explain with	the help (02)	
4B.	Write a graph traversal a a QUEUE.	lgorithm in pseudocode that is implemente	ed using (03)	

4C.	Write a pseudo-code algorithm to find the maximum value from a given random selection of numbers using Divide-and-Conquer method.		
4D.	Determine the time complexity of the algorithm in Q4C using Master's theorem.	(02)	
5A.	Compare divide-and-conquer and dynamic programming algorithmic techniques with the help of a suitable example.	(03)	
5B.	Write a pseudocode to implement Floyd-Warshall's "All pairs shortest path" algorithm.		
5C.	Write a pseudo-code recursive algorithm to implement Matrix-chain multiplication.		
5D.	Explain NP, NP-Hard type of problems.	(02)	