St. Peter's Engineering College (Autonomous)	Dept.	:	CSE, CSM, EEE
Dullapally (P), Medchal, Hyderabad – 500100. I - Mid Term Examination – March 2024	Academic Year 2023-24		

Subject Code	:	AS22-05ES07	Subject	:	Data Structures			
Class/Section	:	II nd semester	Year	:	I	Semester	:	II
Duration	:	120 Min	Max. Marks	:	30	Date:	:	

BLOOMS LEVEL					
Remember	L1	Understand	L2	Apply	L3
Analyze	L4	Evaluate	L5	Create	L6

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PART – A (10x1M = 10M)
Note: Answer all Questions. Each Question carries equal marks.

Q. No	Question (s)	Marks	BL	CO
	UNIT – I			
1	a) Define the Big Theta Notation	1M	L1	C123.1
	b) What is performance analysis of an algorithm?	1M	L1	C123.1
	c) Define Big Oh Notation	1M	L1	C123.1
	d) List out the common operations performed on data structures	1M	L1	C123.1
	UNIT – II			
	e) What is the basic idea behind the linear search algorithm	1M	L2	C123.4
	f) What is the partition algorithm, and how is it used?	1M	L2	C123.3
	g) Why are insertion and deletion considered complicated operations in arrays?	1M	L4	C123.2
	h) How many types of array initialization exist and explain each?	1M	L3	C123.2
	UNIT – III			
	i) Write the syntax for declaring a node in linked list.	1M	L1	C123.3
	j) Write definition of linked list.	1M	L1	C123.3

PART – B (20M)

Q. No	Question (s)	Mark	BL	CO
	UNIT – I			
2	a) Differentiate between linear and non-linear data structures	4M	L3	C123.2
	b) Explain the concept of time complexity and provide examples of algorithms with different time complexities	4M	L4	C123.1
	OR			

3	What is a data structure? What are the types of data structures and what advantages do they offer?	**8M**	**L2**	**C123.1**
	UNIT – II			
4	a) What are the different methods for inserting elements into an array? Write a C Program for any one of method?	4M	L3	C123.2
	b) Define an array and explain the process of traversing a linear array with an example	4M	L2	C123.2
	OR			
5	Explain the process of Merge Sort with an example and mention its advantages?	8M	L4	C123.3
	UNIT – III			
6	What is Linked List? Explain different types of Linked List.	**4M**	L2	C123.3
	OR			
7	What are the advantages and disadvantages of Linked List.	**4M**	L3	C123.3

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