R20

Code No: R20A0503

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech I Semester Supplementary Examinations, June 2025

Data Structures Using Python

(CSE, IT, CSE-CS, CSE-AIML, CSE-DS, CSE-IOT & B.Tech-AIDS)

Roll No										

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

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

***

			BCLL	CO(s)	Marks
		SECTION-I			
1	***A***	Discuss about types of methods in python? Give example for each	**L1**	**CO-I**	**[7M]**
	B	Explain the concept of polymorphism in Python with examples. How does Python implement polymorphism with functions and classes?	**L2**	**CO-I**	**[7M]**
		OR			
2	***A***	What is abstraction in Python, and how are abstract classes used to implement it?	**L2**	**CO-I**	**[7M]**
	B	Describe multiple inheritance in Python. How can a child class inherit from more than one parent class? Use an example to explain how Python resolves conflicts when the same method exists in multiple parent classes**.**	**L1**	**CO-I**	**[7M]**
		SECTION-II			
3	***A***	Explain the Python Dictionary Comprehension with examples	**L1**	**CO-II**	**[7M]**
	B	What is a tuple? How are tuple literals defined and written?	**L2**	**CO-II**	**[7M]**
		OR			
4	***A***	Write a Python program that prints the intersection of two lists. (without using list comprehension/sets***)***	**L3**	**CO-II**	**[7M]**
	B	Compare string slicing with other string manipulation techniques in Python, such as string methods (e.g., split(), join(), and replace()).	**L2**	**CO-II**	**[7M]**
		SECTION-III			
5	***A***	Discuss the advantages of arrays over linked lists. Write an algorithm to insert new element in a specified position	**L4**	**CO-III**	**[7M]**
	B	Write an algorithm for the quick sort? Explain with example	**L3**	**CO-III**	**[7M]**
		OR			
6	***A***	Given sorted elements, which searching technique would be used to find a specific element? Explain your choice with an example.	**L4**	**CO-III**	**[7M]**
	B	Explain bubble sort with an example?	**L2**	**CO-III**	**[7M]**
		SECTION-IV			
7	***A***	Explain about operations on queue using linked list?	**L3**	**CO-IV**	**[7M]**

	B	Explain about insertion and deletion operations on circular linked list	**L2**	**CO-IV**	**[7M]**
		OR			
8	***A***	Explain about following operation on doubly linked list **1.** Insertion at front 2. Insertion at middle 3. Deletion at end	**L3**	**CO-IV**	**[7M]**
	B	Develop an algorithm to convert infix expression to postfix expression	**L5**	**CO-IV**	**[7M]**
		SECTION-V			
9	***A***	Create a binary tree with the following traversals Inorder: B,C,A,E,G,D,H,F,I,J Preorder:A,B,C,D,E,G,F,H,I,J	**L6**	**CO-V**	**[7M]**
	B	Explain about Breadth First Search with suitable examples.	**L2**	**CO-V**	**[7M]**
		OR			
10	***A***	Explain about AVL double rotations with examples?	**L2**	**CO-V**	**[7M]**
	B	Explain about insertion and deletion operations on Binary search trees	**L2**	**CO-V**	**[7M]**

***