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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
II B.Tech I Semester Supplementary Examinations, June 2024
Data Structures Using Python
(CSE, IT, CSE-CS, CSE-AIML & 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.

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SECTION-I

1	*A*	Explain about class and object in python with an example.	**[6M]**
	B	Explain polymorphism with class methods in python with an example?	**[8M]**

OR

2	*A*	Explain different types of methods in python with an example.	**[6M]**
	B	Describe various forms of inheritance in python with example.	**[8M]**

SECTION-II

3	*A*	Define Non-Linear Data Structure. Explain any two Non-Linear Data Structures with an example.	**[7M]**
	B	Write in brief about Dictionaries in python. Write operations with suitable examples.	**[7M]**

OR

4	*A*	Explain about comprehensions and its types in python with an example.	**[7M]**
	B	Differentiate between Lists and Tuples in Python with an example.	**[7M]**

SECTION-III

5	*A*	What is an array? What are the operations performed on arrays.	**[5M]**
	B	Write a Python program for Insertion Sort.	**[9M]**

OR

6	*A*	Write a Python program to implement the binary search.	**[7M]**
	B	Sort the following list of elements by using Selection sort 30, 56, 78, 99, 12, 43, 10, 24, 85	**[7M]**

SECTION-IV

7	*A*	Explain insert and delete operations in doubly linked list.	**[5M]**
	B	Write a python program to implement Queue using Singly linked list.	**[9M]**

OR

8	*A*	Given a doubly linked list for the following elements in order: 2, 3, 4, 5, 6, 7, 8, 9. Explain the steps to delete element 8.	**[5M]**
	B	Write a python program to implement stack using Singly linked list.	**[9M]**

SECTION-V

9	*A*	Explain BFS Graph Traversal with an example. List two applications of graphs.	**[5M]**
	B	Construct the binary tree whose following traversals are given: inorder : DFEIHBAJCNOMK postorder: FIHEDBJONMKCA	**[9M]**

OR

10 **A** Give any two representations of graph. Demonstrate DFS using suitable example. **[5M]**

B Show each step of the AVL Tree built from a sequence of insertions corresponding to the following keys 44,17,32,78,50,54,62,48,88? Delete the elements 62, 17 and 48 from the AVL tree. **[9M]**

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