MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
II B.Tech II Semester Supplementary Examinations, April 2023
Data Structures Using Python
(EEE, ME, ECE & AE)

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 different data types that can be used in Python with suitable examples.   **[7M]**

   b Compare different operators in python and estimate the precedence of execution.   **[7M]**

OR

2 a Explain about the various logical operators used in Python programming for boolean types with suitable examples.   **[8M]**

   b Explain about the following base conversion functions along with suitable examples: **[2M]**
         i)   bin()   **[2M]**
         ii)   oct()   **[2M]**
         iii) hex()

SECTION-II

3 a Write a Python script that prints prime numbers that are less than 20.   **[7M]**

   b Write a program in Python to print the following Pattern.   **[7M]**

```
*

* *

* * *

* * * *
```

OR

4 a Explain the significance of for loop with else in Python programming with an example.   **[7M]**

   b Write a Python program, which takes a character as input from the keyboard, and convert it into capital letter if it is a small letter and Vice-Versa.   **[7M]**

SECTION-III

5 a Using the concept of functions, write a Python program to calculate the area of a circle, square and rectangle.   **[7M]**

   b Describe lambda functions in Python with suitable examples.   **[7M]**

OR

6 a Explain the different types of parameters used in Python functions with suitable examples.   **[7M]**

b Create a user defined fruitful function to test whether a given year is a leap year or not. **[7M]**

SECTION-IV

7 a Describe the following with suitable examples:
- i)   Creating the list **[2M]**
- ii)   Accessing values in the lists **[2M]**
- iii)   Updating the list **[2M]**
- iv)   Deleting the list elements **[2M]**

  b Write a Python program to accept student name and marks from the keyboard and creates a dictionary. Also, display student marks by taking student name as input. **[6M]**

OR

8 a What are the differences between lists and tuples? Explain in detailed manner. **[7M]**

  b Write a Python program to perform union, intersection and difference operation using set. **[7M]**

SECTION-V

9 Write a Python program to store 'n' numbers in a list and sort the list using Selection sort technique. **[14M]**

OR

10 a Write a Python program to store 'n' numbers in a list and sort the list using Quick sort technique. **[7M]**

  b Explain about the need of Linked lists. Illustrate the operations on linked lists with the help of suitable diagrams. **[7M]**

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