**PRASAD V POTLURI SIDDHARTHA INSTITITE OF TECHNOLOGY (AUTONOMOUS)**

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**ADVANCED PYTHON PROGRAMMING LAB (23CS6451)**

**Internal Exam Question Paper**

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| **Syllabus** | | |
| **Expt.**  **No.** | **Contents** | **Mapped CO** |
| **1** | 1. Write a program to calculate the square of even numbers in a list and sum them using map, filter, and reduce. 2. Write a program to validate email addresses using regular expressions. | **CO1,CO2,CO3,CO4, CO5** |
| **2** | 1. Write a Python program to replace multiple spaces with a single space in a given string. 2. Write a program to extract phone numbers from a string using regular expressions. | **CO1,CO2,CO3,CO4, CO5** |
| **3** | 1. Write a program to find all words starting with a specific letter from a given text. 2. Write a Python program to extract dates from a text using regex. | **CO1,CO2,CO3,CO4, CO5** |
| **4** | 1. Write a Python program to save data into a JSON file, read it back, and modify the contents. 2. Write a Python program to demonstrate array creation, reshaping, and indexing using NumPy. | **CO1,CO2,CO3,CO4, CO5** |
| **5** | 1. Write a program to demonstrate mathematical and aggregation operations using NumPy. 2. Write a Python program to create and manipulate a structured NumPy array. | **CO1,CO2,CO3,CO4, CO5** |
| **6** | 1. Write a Pandas program to create a Data Frame and demonstrate data selection and indexing. 2. Write a Pandas program to perform data cleaning and string operations. | **CO1,CO2,CO3,CO4, CO5** |
| **7** | 1. Write a Pandas program to perform grouping and aggregation operations on a DataFrame. 2. Write a Pandas program to demonstrate simple data visualization using matplotlib. | **CO1,CO2,CO3,CO4, CO5** |
| **8** | Write a basic Python program to establish a TCP connection between the client and the server. | **CO1,CO2,CO3,CO4, CO5** |
| **9** | Write a basic Python program to establish a UDP connection between the client and server. | **CO1,CO2,CO3,CO4, CO5** |