EXPERIMENT INDEX

Sr. No.	Experiment Name	Description	DOP	DOS	Marks (15)	Signature
1	Python Patterns & Loops	a) To print the pattern * b) To print the pattern 1 2 3 4 5 6 7 8 9 10 c) To print the pattern 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5 d) To print the pattern 0 0 1 0 1 2 0 1 2 3 0 1 2 3 4 e) To print the pattern A A B A B C A B C D A B C D E f) To print the pattern A B C D E F G H I J K L M N O g) To print the pattern * * * * * * * * * * h) to print pattern 1 2 3 4 5 1 2 3 4 1 2 3 1 2 1 i) to print the pattern * j) Write a python program using nested for loop to print a table of NUMBERS from 2 to 10				
2	Python Turtle Graphics	a) Draw following drawings using Python turtle ● Circle ● Filled Circle ● Nested Circles ● Rectangle [with loop and without using loop] b) Draw pattern using shapes of Pentagon, Hexagon, Octagon, Nonagon and Decagon in python Turtle				

		c) What is the output of programs TurSpirography.py and turSpiral.py uploaded on G class room d) Generate any one pattern of your choice using python turtle				
3	Python Lists & Functions	a) To check whether a given no is prime or not. b) To create a Fibonacci series of n terms. c) To create 5 different list using list comprehension method d) Create list, add random 25 numbers in list and print largest number from list e) To check whether a given number is present in the list or not? first accept elements in the list. f) To demonstrate any 10 methods of List g) To add two list [adding elements of list] and concatenate two list h) To implement a stack using a list. Define push and pop functions i) To implement a game [Rock, Paper, Scissor] using a list. the game should keep on executing as long as player says 'y' j) To sort a given number list in ascending order using functions. Take numbers from user				
4	Python Strings	a) Remove all spaces from a sentence b) Find the duplicate characters in a string. c) Check if a string is a palindrome. d) Capitalize the first character of each word in a sentence. e) Sort words alphabetically in a sentence. f) Demonstrate 10 string functions. g) Count the number of vowels in a string. h) Check if two strings are anagrams. i) Demonstrate string slicing. j) Check if a substring is present in a string. k) Convert a string to uppercase or lowercase. l) Find the length of a string. m) Check if a string starts or ends with a certain substring. n) Count the number of occurrences of a substring. o) Sort the words in a sentence. p) Implement a Ceasar cipher. q) Jumbled words game. r) Count the frequency of each character in a string. s) Word cloud generator (Simple version) t) Reverse each word in a sentence.				
5	Python Dictionaries	a) To create a dictionary with any key value pairs. b) To create 3 dictionaries using the dictionary comprehension method. c) To create a dictionary with any 5 key value pair. Print the dictionary. Add an element in a dictionary and delete an element				

		d) Write a program to demonstrate any 10 methods on dictionary e) To implement Ceasar cipher using dictionary				
6	Python Tuples, Sets, Pickling, Dictionary	a) Write a python program to create a tuple having numbers till 20. Print half of its values in 1 line and another half in the next line. b) Write a python program to create a tuple having all numbers from 1 to 100. Now create another tuple whose values are even numbers in the first tuple. c) Write a python program to concatenate two tuples. d) Write a python program to accept elements in the form of tuple and display their sum and average. e) Write a python program to find the first occurrence of an element in a tuple. f) Write a python program to pickle List, dictionary, tuple and string. g) Write a python program to demonstrate 2 methods of the tuple. h) Write a python program to demonstrate 5 methods of set. i) Write a python program to pickle tuples and strings. j) Write a python program to implement snake ladder game using python dictionary				
7	Python File Handling	a) Write a python program to read the contents of a file. b) Write a python program to write into the file. c) Write a python program to count the occurrences of a given word in a text file. d) Write a python program to count total no. Of blank spaces in file and replace the blank spaces with a hashtag. e) Write a python program to copy content from one file to another file. f) Write a python program to copy an image file. g) Write a python program to convert lower case characters of one file to upper case characters in another file. h) Write a python program to write into the file, read the content of the file and append into the file until the user enters @. i) Write a python to count no. Of lines, no. Of words, no. Of characters in a text file. j) Write a python program to take input from a user encrypted and save it in a file, later read the contents of the file and display the decrypted messages.				
8	Socket Programming	a) Socket Programming in Python – Server sending your details to client b) Two way communication – Socket Programming in Python (Server client both sending one message) c) Chat server in Python (until client says ‘over’)				

		d) Send one file from client to server. (Not from Server as demonstrated) e) Implement Secure Server in Python				
	Mid-term Test	Send your name and roll number from server to client using socket programming				
9	Python SQLite3	Write different program to demonstrate a) Create Table b) Insert operation c) Select operation d) Update operation e) Delete operation				
10	Python Modules & Packages	Write a Python program to demonstrate the concept of packages and modules. Create a self-defined package containing at least three different classes, each in a separate module. Then, import and use these classes in another program. Explain the steps and code of the program in your own words.				
11	Python OOP Concepts	Demonstrate following OOP concept: a) Class & Object b) Constructor c) Class Variable/Class method d) Inheritance e) Super method				
12	Python Advanced OOP Concepts	Demonstrate following advanced OOP concept: a) Polymorphism b) Constructor with Inheritance c) Method overloading d) Method overriding				
13	Python Numpy	a) What Is Python Numpy? b) Write a python program using Numpy to create 1D array, 2 D array and 3 D array. c) Write a python program to demonstrate the following functions ● dtype ● zeros ● reshape ● asarry ● arange ● empty ● ones d) Write python program to print the indices of max element of the array and max element of each row and column e) Write a program to find the minimum, maximum as well the sum of the numpy array f) Write a program to find the square root, standard deviation of the array using numpy				

		g) Write a program to sort an array using numpy. sort entire array and sort row and column wise h) Write a program to find the mean of array in the given list i) Write a program to add rows to numpy array k) Write a program to add column to numpy array l) Write a program to reverse an array using numpy m) Multiply two matrices using numpy n) Add two matrices using numpy o) Subtract two matrices using numpy p) Transpose a matrix using numpy				
14	Python Matplotlib	a) What Is Python Matplotlib? b) Write python program to plot given types of plots. ● Bar Graph ● Histogram ● Scatter Plot ● Pie Chart				
15	Simulating Law of Large Numbers (LLN)	Simulating the Law of Large Numbers Using Pandas and Matplotlib for Random Sampling, Mean Calculation, and Visualization.				
		Average (15)				

ASSIGNMENT INDEX

Sr. No.	Assignment Name	Description	DOP	DOS	Marks (5)	Signature
1	Python Regular Expressions (RegEx)	Write a program for the following and explain each and every line of all the programs. a) Write a Python program using the re module to check if a given string starts with the letter 'A'. b) Write a Python program using the re module to extract all digits (0-9) from a given string. c) Write a Python program using the re module to check if a given string contains only alphabets (A-Z, a-z) without any numbers or special characters. d) Write a Python program using the re module to check if an input string is a valid email address. e) Write a Python program using the re module to check if a word ends with 'ing'				
2	Python Mini Project	Title: _____ _____ ____				
		Average (5)				

TERM WORK

EXPERIMENT (15)	ASSIGNMENT (5)	ATTENDANCE (5)	TOTAL (25)	Signature