मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान, भोपाल – 462003
MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY BHOPAL- 462003

(गणित जैव सूचना विज्ञान एवं संगणक अनुप्रयोग विभाग)
DEPARTMENT OF MATHEMATICS, BIOINFORMATICS & COMPUTER APPLICATIONS

Programme (PG) : **Master of Computer Applications**

Year : **First Year**   Semester : **II**

Course Code : **CA 208**   Course Title : **Programming Lab in Python**

Course Coordinator: **Dr. Dheeraj K. Dixit**

List of Experiments

S.No.	Name of the Experiment
1.	Demonstrate about fundamental Data types in Python programming. (i.e., int, float, complex, bool and string types)
2.	Demonstrate the working of following functions in Python. i) id( ) ii) type( ) iii) range( )
3.	Write a Python program to demonstrate various base conversion functions.
4.	Write a Python program to demonstrate various type conversion functions.
5.	Demonstrate the following Operators in Python with suitable examples. i) Arithmetic Operators ii) Relational Operators iii) Assignment Operator iv) Logical Operators v) Bit wise Operators vi) Ternary Operator vii) Membership Operators viii) Identity Operators
6.	Write Python programs to demonstrate the following: i) input( ) ii) print( ) iii) 'sep' attribute iv) 'end' attribute v) replacement Operator ({ })
7.	Demonstrate the following Conditional statements in Python with suitable examples. i) if statement ii) if else statement iii) if – elif – else statement
8.	Demonstrate the following Iterative statements in Python with suitable examples. i) while loop ii) for loop
9.	Write a Python program to compute the GCD of two numbers
10.	Write a Python program to find largest number among three numbers.

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S.No.	Name of the Experiment
11.	Demonstrate the following kinds of Parameters used while writing functions in Python. i) Positional Parameters ii) Default Parameters iii)Keyword Parameters iv) Variable length Parameters
12.	Write a Python program to return multiple values at a time using a return statement.
13.	Write a Python program to demonstrate Local and Global variables
14.	To find largest of n given numbers using list and function.
15.	Implement the following Searching and Sorting techniques in Python by using functions. i) Linear Search ii) Binary Search iii) Selection Sort iv) Bubble Sort v) Insertion Sort vi) Quick Sort
16.	To write a python program for tower of Hanoi Scenario.
17.	WAP to detect a cycle in a linked list.
18.	WAP to find the length of the cycle in the linked list.
19.	WAP to find the intersection point of two linked list.
20.	WAP to insert value in sorted way in linked list.
21	WAP to reverse a linked list using recursion.
22	WAP to reverse a linked list using loop.
23	WAP to sort a stack
24	WAP to reverse a stack.
25	WAP to check is parenthesis is balanced
26	Implement a queue using 2 stacks.
27	Implement a queue using a single stack.
28	Implement stack using 2 queues
29	WAP to find the height of a binary tree.
30	WAP to insert an element into a binary search tree
31	WAP to delete an element into a binary search tree.

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32	To define a class with constructor and create objects.
33	To define a new class from one or more existing classes.
34	To overload the binary operators to perform operations on objects
35	Write a class called Address that has two attributes: number and street name. Make sure you have an __init__ method that initializes the object appropriately
36	To implement a loan calculator using Tkinter.
37	Introduction to Numpy: Creating and Manipulating Arrays
38	Pandas: Data Manipulation and Analysis - Import Pandas and create a DataFrame from a dictionary or a CSV file. - Explore DataFrame attributes and methods to understand the structure of the data.
39	Matplotlib: Data Visualization using Line, Scatter Plots, Bar Plots and Histograms etc.
40	Project submission: Each Student is required to create data visualization using a dataset of their choice