1. Basic Programs (Python)

1. Write a program to print “Hello World”.
2. Write a program to add two numbers.
3. Write a program to swap two numbers using a temporary variable.
4. Write a program to find the size of int, float, char, and complex types.
5. Write a program to calculate the area of a circle.
6. Write a program to convert Celsius to Fahrenheit.
7. Write a program to find the ASCII value of a character.
8. Write a program to find the sum of two floating-point numbers.

2. Conditional Statements (Python)

1. Write a program to check whether a number is even or odd.
2. Write a program to check whether a number is positive, negative, or zero.
3. Write a program to find the largest among three numbers.
4. Write a program to check whether a year is a leap year or not.
5. Write a program to check whether a character is a vowel or consonant.
6. Write a program to find whether a number is divisible by 5 and 11 or not.
7. Write a program to calculate the grade of a student based on marks.

3. Looping (for, while)

1. Write a program to print numbers from 1 to 10.
2. Write a program to find the sum of first N natural numbers.
3. Write a program to find the factorial of a number.
4. Write a program to generate a multiplication table of a number.
5. Write a program to count the digits in a number.
6. Write a program to reverse a number.
7. Write a program to check whether a number is palindrome or not.
8. Write a program to check whether a number is prime or not.
9. Write a program to find the sum of digits of a number.
10. Write a program to print Fibonacci series up to N terms.

4. Operators (Python)

1. Write a program to demonstrate the use of arithmetic operators.
2. Write a program to demonstrate relational operators.
3. Write a program to demonstrate logical operators.
4. Write a program to demonstrate increment and decrement logic.
5. Write a program to find the remainder without using the modulus operator.

5. Lists (Array Equivalent in Python)

1. Write a program to store and display elements of a list.
2. Write a program to find the sum of list elements.
3. Write a program to find the maximum and minimum element in a list.
4. Write a program to count even and odd numbers in a list.
5. Write a program to copy elements of one list to another.
6. Write a program to sort a list in ascending order.
7. Write a program to search an element in a list (Linear Search).
8. Write a program to perform Binary Search.

6. Strings (Python)

1. Write a program to find the length of a string.
2. Write a program to copy one string into another.
3. Write a program to concatenate two strings.
4. Write a program to compare two strings.
5. Write a program to reverse a string.
6. Write a program to count vowels, consonants, digits, and spaces in a string.
7. Write a program to check whether a string is palindrome or not.

7. Functions (Python)

1. Write a function to find the factorial of a number.
2. Write a function to calculate the sum of digits of a number.
3. Write a function to check whether a number is prime.
4. Write a function to find the largest number among three numbers.
5. Write a recursive function to print Fibonacci series.
6. Write a function to swap two numbers using function arguments.

8. References and Object References (Python Equivalent of Pointers)

1. Write a program to demonstrate variable references in Python (assigning and accessing).
2. Write a program to swap two numbers using references.
3. Write a program to demonstrate references to lists (mutable objects).
4. Write a program to access list elements using references.
5. Write a program to demonstrate modifying list elements via references.

9. Dynamic Memory Management (Python handles memory automatically, but we can simulate with lists)

1. Write a program to create a list dynamically with user input.
2. Write a program to initialize a list with default values using list comprehension.
3. Write a program to resize a list dynamically (append and extend).
4. Write a program to delete elements from a list dynamically.
5. Write a program to create a 2D list dynamically (list of lists).

10. Classes and Objects (Python Equivalent of Structures and Unions)

1. Write a program to define a class and access its attributes.
2. Write a program to initialize an object and display its attributes.
3. Write a program to pass an object to a function and modify its attributes.
4. Write a program to demonstrate memory sharing using class variables.
5. Write a program to create a list of objects and access their attributes.

11. File Handling

1. Write a program to create a file and write text into it.
2. Write a program to read text from a file.
3. Write a program to append text to an existing file.
4. Write a program to copy content from one file to another.
5. Write a program to count the number of characters, words, and lines in a file.