Assignment-1

1. Write a Python program to declare three variables: an integer, a float, and a string. Print their values and data types.
2. Assign the value 50 to a variable x. Assign x to another variable y. Print both variables and explain the output.
3. Swap the values of two variables without using a third variable.
4. Write a program to store your name, age, and percentage marks in variables and display them in a single line.
5. What will be the output of the following code? Explain your answer.

```
a = 10
b = a
a = 20
print(a, b)
```

6. Write a Python expression to calculate the area of a rectangle using variables length and breadth.
7. Evaluate the following expressions and write the output:

```
a = 10
b = 3
print(a + b * 2)
print((a + b) * 2)
```

8. Write a program to convert Celsius to Fahrenheit using an expression.
9. Find the result of the following expressions:

```
5 + 2 ** 3
10 / 3
11  3
```

10. Write an expression to calculate simple interest using the formula:

    SI = (P × R × T) / 100

11. Write a program to calculate the average of three numbers using expressions.
12. Write a Python program to read two numbers and print their sum, difference, product, and quotient.
13. Write a program to check whether a given number is even or odd using expressions and statements.
14. Write a Python program to assign values to variables and display them using a single print statement.
15. Predict the output of the following code:

```
x = 5
x = x + 2
x = x * 3
print(x)
```

16. Write a program that uses an assignment statement and an expression statement to calculate the square of a number.

17. Predict the output and justify:

```
a = 5
b = a
a += 3
print(a, b)
```

18. What will be printed? Explain variable binding.

```
x = 10
y = x
x = x + 1
y = y + 1
print(x, y)
```

19. Without executing, determine the output:

```
a = b = c = 10
b += 5
print(a, b, c)
```

20. Explain why the following code gives an error. Identify the exact error.

```
x = 10
print(y)
y = 20
```

21. Consider:

```
a = 100
b = a
del a
print(b)
```

Will this code run? Why?

22. Evaluate step-by-step:

```
result = 10 + 2 ** 3 * 4 // 5 - 3
print(result)
```

23. Predict the output:

```
print(5 + 4 > 3 * 3 == 9)
```

24. Evaluate and explain short-circuit behavior:

```
x = 0
print(x != 0 and 10 / x > 1)
```

25. Determine the result:

```
a = 7
b = 2
print(a / b, a // b, a % b)
```

26. What will be printed and why?

```
print(3 * 2 ** 3)
```

27. Predict output and explain:

```
x = 5
```

```
    y = x
y += 1
print(x, y)
```

28. What will happen here?

```
a = 10
a = a + 1 = 20
```

29. Evaluate:

```
x = 3
y = 4
x, y = y, x + y
print(x, y)
```

30. Identify which lines are expressions and which are statements. Justify.

```
x = 10
x + 5
print(x)
```