MCQ

1. What is the output of the following code snippet?

a = 4

b = 5

a += b * 2

print(a)

   a) **14**
   b) 10
   c) 2
   d) 20

2. Let a = 5 (101 in binary) and b = 3 (011 in binary). What is the result of the following operation?

   a = 5

   b = 3

   print(a ^ b)

   a) 4
   b) 5
   c) **6**
   d) 7

**Descriptive Type**

1. **Explain the difference between a list and a tuple in Python with one example each.**

   **Ans:**

**List:**

A list is a collection of items that is mutable (can be changed after creation).

Lists are defined using square brackets [ ].

Example:

my_list = [10, 20, 30]

my_list[1] = 25   # modifying element

print(my_list)    # Output: [10, 25, 30]

**Tuple:**

A tuple is a collection of items that is immutable (cannot be changed once created).

Tuples are defined using parentheses ( ).

Example:

my_tuple = (10, 20, 30)

# my_tuple[1] = 25  → This will give an error (since tuple is immutable)

print(my_tuple)   # Output: (10, 20, 30)

Key Difference: Lists are mutable, while tuples are immutable.


2. **Write a Python function that takes a number as input and returns whether it is even or odd. Explain the use of the if-else statement in your code.**

**Ans:**

```
def check_number(n):
    if n % 2 == 0:
        return "Even"
    else:
        return "Odd"
```

The function check_number takes a number n as input.

The condition if n % 2 == 0 checks if the number is divisible by 2.

If the condition is True, it returns "Even".

Otherwise, the else block executes and returns "Odd".