1-mark MCQ questions with answers :

1) Which of the following is a valid variable name in Python?

a) 2value
b) value_2
c) class
d) @value

Answer: b) value_2

2) Which of the following Python sequence methods is used to find the number of times a specified value occurs in a list?

a) find()
b) count()
c) index()
d) len()

Answer: b) count()

5 marks questions with answers :

1) Question:
Explain *type coercion* in Python with an example. Mention one scenario where coercion is possible and one where it will throw an error.

Answer:

- Type **coercion** means converting a variable of one data type into another.
- Syntax: datatype(object)

Example of successful coercion:

```
salary_tier = "25"

salary_tier = int(salary_tier)

print(salary_tier + 5)
```

Here, the string "25" is successfully converted into an integer.

Example of failed coercion:

```
salary_tier = "twentyfive"

salary_tier = int(salary_tier)
```

This throws an error because "twentyfive" cannot be converted into an integer.

Thus, coercion works only when the string is a valid representation of the target data type.

2) Question:

Differentiate between index() and count() methods in Python sequences with suitable examples.

Answer:

- **index()** returns the *first position* where the specified element occurs.
- **count()** returns the *number of occurrences* of the specified element.

Example:

```
numbers = [10, 20, 30, 20, 40, 20]

print(numbers.index(20))

print(numbers.count(20))
```

- Here, index(20) gives 1 because the first 20 is at position 1.
- count(20) gives 3 because the value 20 occurs three times.

Thus, index() is useful when you need the *location* of an element, while count() is useful when you need the *frequency*.