Q1. How do you comment code in Python? What are the different types of comments?

ANS-In Python, you can add comments to your code using the # symbol. There are two types of comments:

1. Single-line comments:

In [1]:
```python
# This is a single-line comment
```

2.Multi-line comments (Docstrings):

In [2]:
```python
"""
This is a multi-line comment or docstring.
It can span multiple lines.
"""
```

Out[2]: '\nThis is a multi-line comment or docstring.\nIt can span multiple lines.\n'

Q2. What are variables in Python? How do you declare and assign values to variables?

ANS-Variables in Python are used to store and manage data. You can declare and assign values to variables like this:

In [5]:
```python
# Declaration and assignment
variable_name = 10

# Multiple declarations and assignments
a, b, c = 1, 2, 3
```

Q3. How do you convert one data type to another in Python?

You can convert one data type to another using type conversion functions. Some common type conversion functions are:

In [ ]:
```python
# Convert to integer
int_variable = int(float_variable)

# Convert to float
float_variable = float(int_variable)

# Convert to string
string_variable = str(float_variable)
```

Q4. How do you write and execute a Python script from the command line?

To write and execute a Python script from the command line, follow these steps: Create a Python script (e.g., myscript.py) using a text editor. 1.Add your Python code to the script. 2.Open the command line. 3.Navigate to the directory where your script is saved. 4.Run the script using the command python myscript.py.

Q5. Given a list my_list = [1, 2, 3, 4, 5], write the code to slice the list and obtain the sub-list [2, 3].

```
In [8]:  my_list = [1, 2, 3, 4, 5]
         sub_list = my_list[1:3]
         print(sub_list)  # Output: [2, 3]
```

```
[2, 3]
```

Q6. What is a complex number in mathematics, and how is it represented in Python?

ANS-In mathematics, a complex number is a number of the form a + bi, where a and b are real numbers, and i is the imaginary unit (sqrt(-1)). In Python, complex numbers are represented using the j suffix.

```
In [10]:  complex_num = 3 + 4j
          print(complex_num)  # Output: (3+4j)
```

```
(3+4j)
```

Q7. What is the correct way to declare a variable named age and assign the value 25 to it?

```
In [11]:  age = 25
```

Q9. Create a variable named name and assign your full name to it as a string. How would you print the value of this variable?

```
In [12]:  name = "Your Full Name"
          print(name)
```

```
Your Full Name
```

Q10. Given the string "Hello, World!", extract the substring "World".

```
In [13]:  hello_world = "Hello, World!"
          substring = hello_world[7:12]
          print(substring)  # Output: World
```

```
World
```

Q11. Create a variable named "is_student" and assign it a boolean value indicating whether you are currently a student or not.

```
In [14]:  is_student = True  # or False, depending on your student status
```