

Q1: Describe the syntax for the following in-built functions & explain with examples.

(a) abs()

- **Syntax:** abs(x)
- **Description:** Returns the absolute value of a number.
- **Example:** abs(-10) will output 10.

(b) len()

- **Syntax:** len(iterable)
- **Description:** Returns the length of an iterable (e.g., string, list).
- **Example:** len("Hello") will output 5.

(c) any()

- **Syntax:** any(iterable)
- **Description:** Returns True if any element of the iterable is true; otherwise, returns False.
- **Example:** any([0, False, 5]) will output True.

(d) ord()

- **Syntax:** ord(char)
- **Description:** Returns the Unicode code point of a given character.
- **Example:** ord('A') will output 65.

(e) chr()

- **Syntax:** chr(x)
- **Description:** Converts an integer (Unicode code point) to its character equivalent.
- **Example:** chr(65) will output 'A'.

(f) pow()

- **Syntax:** pow(x, y)
- **Description:** Returns the value of x raised to the power of y.

- **Example:** `pow(2, 3)` will output 8.
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Q2: Explain different data types supported by Python.

- **Integer:** Represents whole numbers (e.g., 10, -5).
 - **Float:** Represents decimal numbers (e.g., 3.14, -0.99).
 - **String:** Represents text data (e.g., "hello", 'world').
 - **Boolean:** Represents truth values (True, False).
 - **List:** Ordered and mutable collection (e.g., [1, 2, 3]).
 - **Tuple:** Ordered and immutable collection (e.g., (1, 2, 3)).
 - **Set:** Unordered collection of unique items (e.g., {1, 2, 3}).
 - **Dictionary:** Unordered collection of key-value pairs (e.g., {"key": "value"}).
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Q3: Write names of any two Python editors (IDE).

1. PyCharm
 2. Jupyter Notebook
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Q4: What is the output of `print(str[2:5])` if `str = 'Hello World'`?

- **Explanation:** String slicing extracts a substring. The slice 2:5 means start from index 2 and go up to (but not including) index 5.
 - **Output:** 'llo'
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Q5: What is string slicing? Explain with examples.

- **Definition:** String slicing extracts a part of a string using a specified range of indices.
- **Syntax:** `string[start:end:step]`
- **Example:**

```
string = "Python"  
print(string[1:4]) # Output: 'yth'  
print(string[:3]) # Output: 'Pyt'  
print(string[::-2]) # Output: 'Pto'
```

Q6: Explain Python applications with examples.

1. **Web Development:** Using frameworks like Django and Flask.
 - Example: Creating a blog website with Django.
2. **Data Analysis:** Using libraries like Pandas and NumPy.
 - Example: Analyzing sales data using Pandas.
3. **Machine Learning:** Using libraries like TensorFlow and scikit-learn.
 - Example: Building a model to predict house prices.
4. **Automation:** Automating tasks using libraries like Selenium.
 - Example: Automating web scraping tasks.
5. **Game Development:** Using libraries like Pygame.
 - Example: Developing a 2D game using Pygame.