Functions

Score: 17/17

1. What is the main purpose of a generator function in Python?

- To perform mathematical calculations in Python
- To store a fixed set of values in memory
- To generate a series of values over time
- To execute a block of code repeatedly

Explanation

Correct answer: The main purpose of a generator function in Python is to generate a series of values over time, allowing the iteration through a sequence of items one at a time without holding the entire sequence in memory. The use of yield statement differentiates a generator function from a regular function.

2. What is the output of the following generator function? def my_generator(): yield 1 yield 2 yield 3

- 6

[1, 2, 3]

1, 2, 3

1 2 3

Explanation

Correct answer: The given generator function will yield 1, 2, and 3 in separate iterations when called using next() function or in a for loop.

3. **When using a lambda function in Python, what is the primary benefit?**

Ability to define complex functions

Ability to execute functions concurrently

Ability to create anonymous functions quickly

Ability to handle exceptions efficiently

Explanation

Correct answer: The primary benefit of a lambda function in Python is its ability to create anonymous functions

quickly without the need for a formal def block. It is particularly useful for short, one-time-use functions.

4. In Python, how is the map() function used?

- To reduce the elements of an iterable
- To filter elements based on a condition
- To apply a function to each item of an iterable
- To generate a series of values over time

Explanation

Correct answer: The map() function in Python is used to apply a given function to each item of an iterable (such as a list, tuple, etc.) and returns a list of the results.

5. What will be the output of the following code snippet? def square(x): return x * x numbers = [1, 2, 3, 4] squared_numbers = map(square, numbers) print(list(squared_numbers))

- [[1, 4, 9, 16]]
- [1, 4, 9, 16]

[1, 2, 3, 4]

[2, 4, 6, 8]

Explanation

Correct answer: The given code will output a list of squared numbers, i.e., [1, 4, 9, 16] after applying the square function to each element of the 'numbers' list using the map() function.

6. What is the purpose of the reduce() function in Python?

To apply a function to each item of an iterable

To filter elements based on a condition

To reduce the elements of an iterable to a single value

To generate a series of values over time

Explanation

Correct answer: The purpose of the reduce() function in Python is to continually apply a function to the elements of an iterable, reducing them to a single cumulative value.

7. **Which of the following is true about the filter() function in Python?**

- It applies a function to each item of an iterable
- It reduces the elements of an iterable to a single value
- It creates an iterator of elements for which a function returns true
- It generates a series of values over time

Explanation

Correct answer: The filter() function in Python constructs an iterator from elements of an iterable for which a function returns true. It filters the elements based on a specified condition and returns a new iterator with the elements that satisfy the condition.

8. **What will be the result of the following code snippet? numbers = [1, 2, 3, 4, 5] filtered_numbers = filter(lambda x: x % 2 == 0, numbers) print(list(filtered_numbers))**

- [1, 3, 5]
- [2, 4]

[2, 4, 6]

[1, 2, 3, 4, 5]

Explanation

Correct answer: The given code will output a list of filtered numbers containing only the even numbers from the 'numbers' list, i.e., [2, 4]. The lambda function is used to check for the condition x % 2 == 0.

9. Which of the following statements about generator functions in Python is false?

They allow iteration through a sequence of items one at a time

They make use of the 'yield' statement to produce values over time

They always use the 'return' keyword to yield values

They can help reduce memory consumption in certain cases

Explanation

Correct answer: The false statement is: Generator functions always use the 'return' keyword to yield values. In reality,

generator functions use the 'yield' statement to produce a series of values over time, not the 'return' keyword.

10. Which of the following is a valid way to create a generator function in Python?

- Using the 'async' keyword at the beginning of a function
- Using the 'generator' keyword before the function definition
- Using the 'yield' keyword within a function
- Using the 'iter' keyword at the beginning of a function

Explanation

Correct answer: The valid way to create a generator function in Python is by using the 'yield' keyword within a function, allowing it to yield values one at a time during iteration.

11. What will the following code output? my_list = [1, 2, 3, 4, 5] result = (x2 for x in my_list) print(next(result))**

- 15
- 1

[1, 4, 9, 16, 25]

5

Explanation

Correct answer: The given code will output the square of the first element of 'my_list', i.e., 1, since the generator expression (x**2 for x in my_list) is used to create a generator that yields square of each element when called using next() function.

12. In the context of lambda functions in Python, what does the term 'anonymous function' mean?

A function that is difficult to understand

A function with no parameters

A function without a return statement

A function without a formal function name or def block

Explanation

Correct answer: In the context of lambda functions in Python, the term 'anonymous function' refers to the ability to create functions without providing a formal function

name or def block, allowing for the creation of short, throwaway functions without the overhead of formal function definition.

13. What is one advantage of using the map() function over a list comprehension in Python?

- Map function returns a single cumulative value
- Map function can filter elements based on a condition
- Map function can apply the same function to multiple iterables
- Map function allows easy iteration through the sequence of items

Explanation

Correct answer: One advantage of using the map() function over a list comprehension in Python is its ability to apply the same function to multiple iterables (e.g., lists) simultaneously, which can be especially useful when the logic for transforming the elements is complex.

14. Which keyword is used to define a generator function in Python?

- async

yield

def

generator

Explanation

Correct answer: The keyword 'def' is used to define a generator function in Python, similar to how it is used to define a regular function, but the presence of 'yield' statement within the function makes it a generator function.

15. Which of the following is a valid use of the reduce() function in Python?

Calculating the average of elements in a sequence

Concatenating strings in a list

Finding the maximum or minimum value in a sequence

Filtering elements based on a condition

Explanation

Correct answer: A valid use of the reduce() function in Python is to find the maximum or minimum value in a sequence, which can be achieved by defining the appropriate comparison function and applying it using reduce().

16. What does the filter() function return in Python?

A list of all elements in the iterable

A single cumulative value

An iterator of elements for which a function returns true

A boolean value based on the function's condition

Explanation

Correct answer: The filter() function returns an iterator containing the elements of the original iterable for which the specified function returns true.

17. What is the primary purpose of the 'yield' keyword in Python?

To terminate the execution of a function

To return a single value from a function

To enable a function to yield values over time

To handle exceptions within a function

Explanation

Correct answer: The primary purpose of the 'yield' keyword in Python is to enable a function to yield a series of values over time, thus allowing the function to be paused and resumed, making it an essential aspect of defining generator functions.