Here are some exercise questions for candidates learning functions in Python:

Beginner Level

1. **Greet User:**

   o Create a function named greet that takes a single argument name as input.

   o The function should print a greeting message to the console, such as "Hello, [name]!".

2. **Calculate Area of a Rectangle:**

   o Create a function named calculate_area_rectangle that takes two arguments: width and height.

   o The function should calculate and return the area of the rectangle.

3. **Check Even or Odd:**

   o Create a function named is_even that takes a single argument number as input.

   o The function should return True if the number is even and False otherwise.

4. **Celsius to Fahrenheit:**

   o Create a function named celsius_to_fahrenheit that takes one argument celsius as input.

   o The function should convert the temperature from Celsius to Fahrenheit and return the converted value.

Intermediate Level

1. **Factorial:**

   o Create a recursive function named factorial that takes a single argument n as input.

   o The function should calculate and return the factorial of n.

2. **Fibonacci Sequence:**

   o Create a function named fibonacci that takes a single argument n as input.

   o The function should return the nth number in the Fibonacci sequence.

3. **Check Prime Number:**

   o Create a function named is_prime that takes a single argument number as input.

   o The function should return True if the number is prime and False otherwise.

4. **Find Maximum of Three Numbers:**

   o Create a function named find_max that takes three arguments: num1, num2, and num3.

   o The function should return the maximum of the three numbers.

Advanced Level

1. **String Reversal:**

   o Create a function named reverse_string that takes a string as input and returns the reversed string.

2. **Palindrome Check:**

   o Create a function named is_palindrome that takes a string as input.

   o The function should return True if the string is a palindrome (reads the same forwards and backwards) and False otherwise.

3. **Generate Random Password:**

   o Create a function named generate_password that takes an integer length as input.

   o The function should generate and return a random password of the specified length, including letters (both uppercase and lowercase) and digits.

4. **File Reading and Writing:**

   o Create a function named read_file that takes a filename as input and returns the contents of the file as a string.

   o Create another function named write_to_file that takes a filename and a string as input and writes the string to the file.

Remember to:

- **Encourage clear and concise code:** Emphasize the importance of using meaningful variable names and writing well-documented code.

- **Test thoroughly:** Encourage candidates to write unit tests to verify the correctness of their functions.

- **Consider edge cases:** Ask candidates to think about potential edge cases and how their functions would handle them (e.g., invalid input, empty strings, etc.).