**Logical and Pattern-Based Programming Questions:**

1. **Write a program to check if a number is prime without using the modulus operator.**
2. **Write a program to print the Fibonacci sequence up to N numbers using iteration.**
3. **Write a program to calculate the power of a number using recursion.**
4. **Write a program to find the greatest common divisor (GCD) of two numbers using the Euclidean algorithm.**
5. **Write a program to find the LCM of two numbers without using built-in math functions.**
6. **Write a program to check whether a given number is a palindrome without using any string functions.**
7. **Write a program to merge two sorted arrays into a single sorted array.**

Here are 10 popular and challenging programming questions selected from the operations related to lists, dictionaries, sets, and strings, without using built-in functions:

**1. Merge Two Lists into One without Using Built-in Functions**

* **Concepts:** List merging, iteration

**2. Find the Maximum Element in a List without Using Built-in Functions**

* **Concepts:** List traversal, comparison

**3. Remove Duplicates from a List without Using Built-in Functions**

* **Concepts:** List iteration, conditional checks

**4. Check if a List is Sorted in Ascending Order**

* **Concepts:** List traversal, comparisons

**5. Merge Two Dictionaries into One without Using Built-in Functions**

* **Concepts:** Dictionary iteration, key-value pair handling

**6. Find the Intersection of Two Dictionaries (Common Keys and Values)**

* **Concepts:** Dictionary iteration, conditional checks

**7. Find the Union of Two Sets without Using Built-in Functions**

* **Concepts:** Set operations, iteration

**8. Check if Two Sets Are Disjoint (No Common Elements)**

* **Concepts:** Set comparison, iteration

**9. Reverse a String without Using Built-in Functions**

* **Concepts:** String manipulation, iteration

**10. Check if Two Strings Are Anagrams of Each Other**

* **Concepts:** String manipulation, sorting, comparison

These questions combine fundamental operations and algorithmic challenges across lists, dictionaries, sets, and strings, providing a good mix of complexity and essential concepts.