For Loop Coding Interview Questions

Basic For Loop Interview Questions
1. Print numbers from 1 to N.

```
N = 10
for i in range(1, N+1):
    print(i)
```

2. Sum of first N natural numbers.

```
N = 10
total = 0
for i in range(1, N+1):
    total += i
print(total)
```

3. Print the multiplication table of a number.

```
num = 5
for i in range(1, 11):
    print(f"{num} x {i} = {num*i}")
```

4. Find factorial of a number.

```
n = 5
fact = 1
for i in range(1, n+1):
    fact *= i
print(fact)
```

Pattern Printing Questions
5. Print a right triangle of stars.

```
n = 5
for i in range(1, n+1):
    print('*' * i)
```

6. Print an inverted triangle.

```
n = 5
for i in range(n, 0, -1):
    print('*' * i)
```

7. Print a number pyramid.

```
n = 5
for i in range(1, n+1):
    print(' '.join(str(j) for j in range(1, i+1)))
```

Intermediate For Loop Logic Questions
8. Reverse a string using a loop.

```
s = "hello"
reversed_s = ""
for char in s:
    reversed_s = char + reversed_s
print(reversed_s)
```

9. Count vowels in a string.

```
s = "Interview"
count = 0
```

```python
    for char in s.lower():
        if char in 'aeiou':
            count += 1
    print(count)
```

10. Check if a number is prime.
```python
    n = 29
    is_prime = True
    for i in range(2, int(n ** 0.5) + 1):
        if n % i == 0:
            is_prime = False
            break
    print(is_prime)
```

Array / List For Loop Questions

11. Find the maximum number in a list.
```python
    nums = [4, 7, 1, 9, 2]
    max_num = nums[0]
    for num in nums:
        if num > max_num:
            max_num = num
    print(max_num)
```

12. Calculate average of numbers in a list.
```python
    nums = [10, 20, 30, 40]
    total = 0
    for num in nums:
        total += num
    average = total / len(nums)
    print(average)
```

13. Remove duplicates from a list using loop.
```python
    nums = [1, 2, 2, 3, 1, 4]
    unique = []
    for num in nums:
        if num not in unique:
            unique.append(num)
    print(unique)
```

14. Find the second largest number in a list.
```python
    nums = [10, 20, 4, 45, 99]
    first = second = float('-inf')
    for num in nums:
        if num > first:
            second = first
            first = num
        elif first > num > second:
            second = num
    print(second)
```

Challenging Loop-Based Questions

15. FizzBuzz Problem:
```python
    for i in range(1, 101):
        if i % 3 == 0 and i % 5 == 0:
```

```python
        print("FizzBuzz")
    elif i % 3 == 0:
        print("Fizz")
    elif i % 5 == 0:
        print("Buzz")
    else:
        print(i)
```

16. Check if a number is a palindrome.
```python
num = 121
original = str(num)
reversed_num = ""
for ch in original:
    reversed_num = ch + reversed_num
print(original == reversed_num)
```

17. Find common elements in two lists.
```python
a = [1, 2, 3, 4]
b = [3, 4, 5, 6]
common = []
for item in a:
    if item in b:
        common.append(item)
print(common)
```