

# Batch 1 - For Loop Notes & Assignment (Interview Programs)

## For Loop - Interview Notes

### 1. What is For Loop?

- For loop is used when we know the exact number of times we want to repeat a task.
- Syntax: `for(initialization; condition; increment/decrement) { // code }`

### 2. Why For Loop?

- Simple and compact syntax.
- Easy to control with initialization, condition, and increment in one line.
- Frequently used in interview problems like factorial, sum, prime numbers.

### 3. How For Loop Works?

- Initialization -> Condition Check -> Execute Block -> Increment/Decrement -> Repeat.
- Stops when condition becomes false.

### 4. Where For Loop is Used?

- Printing series of numbers.
- Generating multiplication tables.
- Mathematical problems (factorial, fibonacci, sum).
- Common in interviews for logic building.

### 5. Key Point: For loop works best when number of iterations is fixed or predictable.

## For Loop - Assignment Questions (Interview Based)

1. Print numbers from 1 to 10 using for loop.
2. Print even numbers from 1 to 20 using for loop.
3. Print multiplication table of 5 using for loop.
4. Find factorial of a given number using for loop.
5. Calculate sum of first N natural numbers using for loop.
6. Print numbers from 10 down to 1 (reverse) using for loop.
7. Print each character of a string using for loop.

8. Check if a given number is prime using for loop.
9. Generate first N Fibonacci numbers using for loop.
10. Check if a number is positive, negative, or zero using for loop and conditions.