Basic Questions

1. Print numbers from 1 to 100.
2. Print all even numbers between 1 and 100.
3. Print all odd numbers between 1 and 100.
4. Print numbers in reverse from 100 to 1.
5. Calculate the sum of numbers from 1 to `n`.
6. Calculate the sum of all even numbers between 1 and `n`.
7. Calculate the sum of all odd numbers between 1 and `n`.
8. Print the multiplication table of a given number.
9. Find the factorial of a number.
10. Print the first `n` natural numbers.

Pattern Questions

11. Print the following pattern:

```
markdown
Copy code
*
* *
* * *
* * * *
```

12. Print the reverse of the above pattern.
13. Print this pattern:

```
markdown
Copy code
   *
  * *
 * * *
```

14. Print a square pattern of stars (`*`) with `n` rows and columns.
15. Print a hollow square pattern of `n` size:

```
markdown
Copy code
*****
*   *
*   *
*****
```

16. Print a pyramid pattern of numbers:

```
Copy code
   1
  1 2
 1 2 3
```

17. Print this pattern:

```
yaml
Copy code
1
22
333
4444
```

18. Print the following pattern:

```
mathematica
Copy code
A
B B
C C C
D D D D
```

19. Print a checkerboard pattern using `*` and spaces.
20. Print an inverted pyramid of stars:

```
markdown
Copy code
* * * *
 * * *
  * *
   *
```

Number Series

21. Generate the Fibonacci series up to `n` terms.
22. Check if a number is an Armstrong number or not.
23. Find all Armstrong numbers between 1 and 1000.
24. Check if a number is a perfect number.
25. Find all perfect numbers between 1 and 1000.
26. Reverse a number (e.g., reverse `123` to `321`).
27. Check if a number is a palindrome.
28. Find the sum of digits of a number.
29. Count the number of digits in a number.
30. Print all prime numbers between two given numbers.

Logical Questions

31. Find the greatest common divisor (GCD) of two numbers using loops.
32. Find the least common multiple (LCM) of two numbers using loops.
33. Check if a number is prime.
34. Print all prime numbers up to `n`.
35. Check if a number is a strong number (sum of factorial of digits equals the number).
36. Check if a number is a Harshad number (divisible by the sum of its digits).
37. Print the count of digits in a given number.
38. Print all the factors of a given number.

39. Check if two numbers are co-prime.
40. Find the sum of the series `1 + 1/2 + 1/3 + ... + 1/n`.

Advanced Patterns and Logic

41. Print Pascal's triangle up to `n` rows.
42. Print Floyd's triangle:

```
Copy code
1
2 3
4 5 6
7 8 9 10
```

43. Print this diamond pattern:

```
markdown
Copy code
    *
   * *
  * * *
   * *
    *
```

44. Rotate a number (e.g., rotate `123` to `231`).
45. Find the largest digit in a number.
46. Count the frequency of each digit in a number.
47. Find the power of a number without using the `pow()` function.
48. Convert a decimal number to binary.
49. Convert a binary number to decimal.
50. Calculate the sum of a geometric series: `1 + r + r^2 + ... + r^n`.