Java Coding Questions (50 Questions)

1. Remove duplicates from a sorted array (in-place)
2. Move all zeros to the end
3. Rotate array by `k` steps
4. Find the majority element (> n/2 times)
5. Two sum in sorted array (return indices)
6. Find missing number from 1 to N
7. Find the element with maximum frequency
8. Check if array is a palindrome
9. Find second largest element
10. Merge two sorted arrays (without using extra space)
11. Check if two strings are anagrams
12. Reverse a string without using built-in methods
13. Check if a string is a palindrome (iterative and recursive)
14. Count vowels and consonants
15. Find the first non-repeating character
16. Implement `strStr()` (index of first occurrence)
17. Remove all duplicate characters from a string
18. Compress a string (like run-length encoding)
19. Check if two arrays are equal
20. Longest common prefix
21. Convert lowercase string to uppercase manually
22. Count number of words in a sentence
23. Reverse digits of an integer (with/without overflow)
24. Check if a number is a palindrome

25. Check if a number is a power of 2
26. Count digits in a number
27. Find GCD and LCM
28. Check for Armstrong number
29. Check if two arrays are equal
30. Print star triangle pattern
31. Sum of digits of a number
32. Find all prime numbers in a range
33. Implement overloading concept
34. Factorial of a number
35. Power of a number (`a^b`)
36. Valid parentheses (using Stack)
37. Implement Stack using array
38. Implement Queue using array
39. Reverse a linked list
40. Detect a cycle in linked list (Floyd's algorithm)
41. Create a class `Car` with fields, constructor, and method to display details
42. Demonstrate constructor overloading
43. Demonstrate method overloading with different parameters
44. Create a class hierarchy: `Animal -> Dog`, show inheritance
45. Create an abstract class `Shape` and subclass `Circle` with area method
46. Create an interface `Drawable` and implement it in a class
47. Demonstrate `this` keyword in constructor
48. Create a class that uses a static method and variable
49. Handle divide-by-zero exception
50. Handle `NullPointerException`