Basic Function Questions

1. Write a function to add two numbers.
2. Write a function to find the maximum of three numbers.
3. Write a function to calculate the factorial of a number.
4. Write a function to check if a number is prime.
5. Write a function to find the GCD (greatest common divisor) of two numbers.
6. Write a function to find the LCM (least common multiple) of two numbers.
7. Write a function to reverse a number.
8. Write a function to count the number of digits in a number.
9. Write a function to check if a number is an Armstrong number.
10. Write a function to check if a number is a palindrome.

Array-based Questions

11. Write a function to find the largest number in an array.
12. Write a function to find the smallest number in an array.
13. Write a function to calculate the sum of elements in an array.
14. Write a function to calculate the average of numbers in an array.
15. Write a function to sort an array in ascending order.
16. Write a function to find the second largest number in an array.
17. Write a function to find the frequency of each element in an array.
18. Write a function to reverse an array.
19. Write a function to merge two arrays.
20. Write a function to remove duplicate elements from an array.

String-based Questions

21. Write a function to count vowels and consonants in a string.
22. Write a function to check if a string is a palindrome.
23. Write a function to reverse a string.
24. Write a function to convert a string to uppercase.
25. Write a function to count the frequency of characters in a string.
26. Write a function to find the length of a string without using the `strlen` function.
27. Write a function to find the largest word in a string.
28. Write a function to compare two strings.
29. Write a function to remove spaces from a string.
30. Write a function to replace a character in a string with another character.

Advanced Mathematical Questions

31. Write a function to calculate the power of a number (x^y).
32. Write a function to generate the Fibonacci sequence up to n terms.

33. Write a function to find the sum of digits of a number.
34. Write a function to find the HCF and LCM of multiple numbers.
35. Write a function to check if a number is perfect.
36. Write a function to check if a number is strong (e.g., 145 is strong because 1! + 4! + 5! = 145).
37. Write a function to find the sum of the series 1 + 1/2 + 1/3 + ... + 1/n.
38. Write a function to solve the quadratic equation.
39. Write a function to calculate the area of a circle, triangle, or rectangle based on user input.
40. Write a function to check if two numbers are amicable pairs.

Pointer and Reference-based Questions

41. Write a function to swap two numbers using pointers.
42. Write a function to find the sum of array elements using pointers.
43. Write a function to reverse an array using pointers.
44. Write a function to find the largest element in an array using pointers.
45. Write a function to dynamically allocate memory for an array and find its sum.

Miscellaneous Questions

46. Write a function to generate all prime numbers up to n.
47. Write a function to print the Pascal's triangle.
48. Write a function to find all factors of a number.
49. Write a function to find the sum of all prime numbers between two numbers.
50. Write a function to implement binary search.