Design and develop User Interactive C programs for the following problems. Observe good programming practices for Identifier names, Comments, indentation, validity checks etc.

1. Convert a decimal number to binary, octal and hexadecimal number using functions.

2. Write a menu driven program for finding the LCM and HCF of given numbers.

3. Print Floyd's triangle and Pascal triangle.

4. Write a program to check whether entered character is vowel, consonant, digit or a special character.

5. Find Sum of Digits of an integer using Recursive Function.

6. Print Tower of Hanoi using recursion.

7. Use pre-processor directives to define macro for a value/an expression/ for multiple C statements.

9. Reverse the elements of an array without using any other array.

10. Find out maximum and minimum elements of an array.

11. Perform operations to insert and delete elements at specific positions in an array as well as delete duplicate elements.

12. Perform Stack Operations using Pointer.

13. Compute sum of the array elements using pointers.

14. Perform addition and subtraction of two matrices.

15. Find out whether a matrix is sparse or not.

16. Perform various string related operations without using library functions like length, concatenation, comparison, append, insert, replace, delete, substring, case change, trimming, reversing etc. (You may use pointers, if required)

17. Read a line from user and print the count of words as well as frequency count of all the letters occurring in it.

18. Add two numbers using Command Line Arguments.

19. Read last n characters from a data file.

20. Convert the file contents in Upper-case and Write Contents in an output file.

21. Compare two text/data files and present the results.

22. Perform Linear Search and Binary Search on strings contained in a file.

23. Define a structure for Book containing details such as title, author, ISBN, Price etc. and then sort an array of structure Book following any standard algorithm on the basis of title as well as author.