GROUP - A

SECTION - II

Answer any **one** question on lottery basis out of **forty three** questions. Each question carries 25 marks.

1. 2's complement of a number is obtained by scanning it from right to left and complementing all the bits after the first appearance of a 1. Thus 2's complement of 11100 is 00100. Write a C program to find the 2's complement of a binary number.

2. a) Write a C program to display the contents of a file.

   b) Write a C program to merge two files into a third file (i.e., the contents of the first file followed by those of the second are put in the third file)

3. Design and develop a C function is prime (num) that accepts an integer argument and returns 1 if the argument is prime, a 0 otherwise. Write a C program that invokes this function to generate prime numbers between the given range.

4. Given two university information files "studentname.txt" and "usn.txt" that contains students Name and USN respectively. Write a C program to create a new file called "output.txt" and copy the content of files "studentname.txt" and "usn.txt" into output file in the sequence shown below. Display the contents of output file "output.txt" on to the screen.

USN

Name 1

USN1

Name 2

USN2

.....

.....

.....

5. Write a C program to maintain a record of "n" student details using an array of structures with four fields (Roll number, Name, Marks, and Grade). Assume appropriate data type for each field. Print the marks of the student, given the student name as input.

6. Design and develop an algorithm to find the reverse of an integer number NUM and check whether it is PALINDROME or NOT. Implement a C program for the developed algorithm that takes an integer number as input and output the reverse of the same with suitable messages. Ex: Num: 2014, Reverse: 4102, Not a Palindrome.

7. Write a program to print product of two matrices.

8. Write a C program to generate Pascal's triangle.

9. Write a program to find whether the given year is leap year or not? (Hint: not every centurion year is a leap year. For example 1700, 1800 and 1900 are not leap years) using function and command line argument.

10. Write a C program to delete the consecutive blanks from a given line of text.

11. Write a program that will read 10 integers from user and store them in an array. Implement array using pointers. The program will print the array elements in ascending and descending order.

12. WAP to display Fibonacci series (i)using recursion, (ii) using iteration.

13. Given two ordered arrays of integers, write a program to merge the two-arrays to get an ordered array.

14. Write a program to print the following pattern:

1

121

12321

1234321

123454321

15. Write a program to read the details of a student and then print it on the screen as well as write it into a file.

16. Write a program to read input from standard input, convert all upper case characters to lower case, then print out the results.

17. Write a program to determine the frequency that each letter of the alphabet appears in the input stream.

18. Write a program to print the following pattern:

A

B C

D E F

G H I J

K L M N O

P Q R S

T U V

W X

Y

19. Write a program to print the following pattern:

```
A
AB
ABC
ABCD
ABCDE
ABCD
ABC
AB
A
```

20. Write a program to print the following pattern for user given rows:

```
*
**
***
****
*****
****
***
**
*
```

21. Write a program to compute Sum of Series $1^2 - 2^2 + 3^2 - \ldots + n^2$. Don't use pow ( ) function.

22. Write a program to print Binary Pyramid for user given rows.

1

010

10101

0101010

101010101

01010101010

23. Write a program to create a file with a set of numbers and write Odd and Even numbers into separate files.

24. Write a program to add N Complex Numbers using Structures.

25. Write a program to illustrate all bitwise operations.

26. Write a program to calculate GCD of three numbers using Recursion.

27. Write a program to find minimum number in given Array using Recursion.

28. Write a program to print the multiplication table of a user given number using function.

29. Write a program to arrange Rows of Matrix in ascending order.

30. Write a program to print the following:

123456

23456

3456

456

56

6

31. Write a program to accept a number n from user and add n terms of the series

1/2! +2/3! + 3/4! +4/5! + 5/6! + ...

32. Write a program to accept a number from user and print that number in words but in reverse order

E.g. 153 -> THREE FIVE ONE

33. Write a program to Store Information of 10 Students using structure and display it.

34. Write a program to illustrate the concept of array of structure.

35. Write a menu driven program to read a list of numbers and perform the following operations:

A) print the list(array)

B) delete duplicates from the list

C) reverse the list

36. Write a menu driven program to read two matrices and compute their sum and difference using functions.

37. Write a C Program to compare two Text or Data files.

38. Write a C Program to perform Stack Operations using Pointer.

39. Write a C program to accept records of the different states using array of structures. The structure should contain char state, population, literacy rate, and income. Display the state whose literacy rate is highest and whose income is highest.

40. Write a program to delete all occurrences of a given Character from a given String. The character and string must be provided through command line argument.

41. Write a program that counts the number of bits set in an integer. For example, the number 5 (decimal), which is 0000000000000101 (binary), has two bits set.

42. Design a structure to store time and date. Write a function to find the difference between two times in minutes.

43. Write a program that reads a file containing a list of numbers, and then writes two files, one with all numbers divisible by three and another containing all the other numbers.