List of Programs for End Term Examination

1. Write a C program to print a block F using hash (#), where the F has a height of six characters and width of five and four characters. And also to print a big 'C'.

2. Write a C program that accepts an employee's ID, total worked hours of a month and the amount he received per hour. Print the employee's ID and salary (with two decimal places) of a particular month.

3. Write a C program to read the value of an integer m and display the value of n is 1 when m is larger than 0, 0 when m is 0 and -1 when m is less than 0.

4. Write a C program to accept a coordinate point in a XY coordinate system and determine in which quadrant the coordinate point lies.
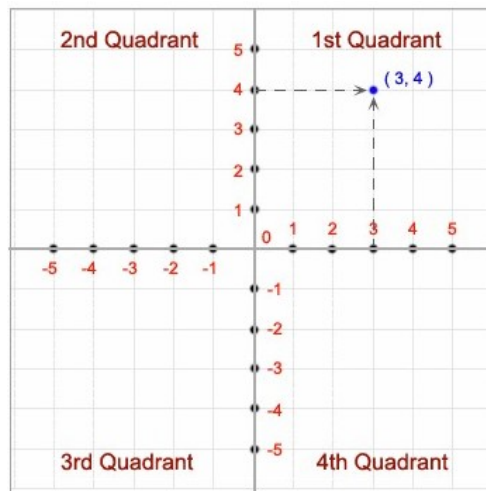
5. Write a C program to find the eligibility of admission for a professional course based on the following criteria:
   Marks in Maths >=65
   Marks in Phy >=55
   Marks in Chem>=50
   Total in all three subject >=190
   or
   Total in Math and Physics >=140

6. Write a C program to read roll no, name and marks of three subjects and calculate the total, percentage and division. (percentage >=60 first division, >=45 second division, >=30 third division)

7. Write a C program to read temperature in centigrade and display a suitable message according to temperature state below.
   Temp < 0 then Freezing weather
   Temp 0-10 then Very Cold weather
   Temp 10-20 then Cold weather
   Temp 20-30 then Normal in Temp
   Temp 30-40 then Its Hot
   Temp >=40 then Its Very Hot

8. Write a program in C to read n number of values in an array and display it in reverse order.

9. Write a program in C to sort elements of the array in descending order.

10. Write a program in C for adding a matrix with its transpose.

11. Write a program in C to find transpose of a matrix and multiply the transpose with the original matrix.

12. Write a C program to determine whether a given number is prime or not.

13. Write a program in C to display the first n terms of Fibonacci series. (Fibonacci series 0 1 2 3 5 8 13 .....)

14. Write a program in C to find the number and sum of all integer between 100 and 200 which are divisible by 9.

15. Write a program in C to display the pattern like a diamond. The pattern is as follows

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

16. Write a program that allows user to enter a password and check if it contains Capital Alphabets, Small Alphabets, Numbers and Special Characters. If it does not contain all of the criteria ask the user to enter password again. (hint: use ascii to check conditions)

17. Write a program that takes string from user and display the number of Capital Alphabets, Small Alphabets, Numbers and Special Characters present in it. (hint: use ascii to check conditions) Also find the number of characters in the string.

18.
      a) Write a program to check if a given character is present in a string
      b) Write a program in C to Find the Frequency of Character say 'i' in a string.

19. Write a program in C to find the number of times a given word 'the' appears in the given string.

20.
      a) Write a program to check if the string entered by user are captial letters. If true count the number of characters in string (hint: use ascii code)
      b) Write a program to check if the string entered by user are small letters. If true count the number of characters in string. (hint: use ascii code)

21. Write a program to remove spaces from a string.

22. Write a program to check if the string entered by user are numbers. If true count the number of characters in string (hint use ascii code)

23. Write a program using functions that checks if the string given by user is a palindrome. If it is a palindrome, display on the screen only if the length of string is between 5 to 10 else do not display the string.

24. Write C program to find maximum and minimum elements in array using functions. E.g min(array) and max(array). Then find the difference between max and min using function diff (max, min).

25. A person has an account in a bank. Write a program using switch case that allows user to perform the following operations until the person select exit.
1. Display Balance
2. Withdraw Money (if balance not sufficient display error message and exit)
3. Deposit Money
4. Exit

   a) Write a program using functions to find the HCF, LCM of two numbers.
   b) Write a program using functions calculate product of digits of a number.

26. Write a program that takes a given range from a user and using a function prints the 1st, 5th and the last prime number within that range.

27. Define a structure type, struct personal that would contain person name, date of joining and salary. Using this structure, write a program to read this information for one person from the keyboard and print the same on the screen.

28. Create a structure Book with members id, title, author, price. Define a function with the structure as argument to print details of two books.

29. Create an array of structures to store information (roll_no, name, department, age) of five students.

30. Create a structure Employee with members emp_id, emp_name, emp_dept, emp_experience. Using structure pointer access details of an employee.

31. Write a program to add two distances in inch-feet system using structure.

32. Write a program to calculate percentage of n students using structure.

33. Write a program to calculate difference between two time periods in hour:minute:second format. (start_time - stop_time).

34. Write a program to create a structure to store months in a year, number of days in each month, month number and print the details of a month when prompted by the user

35. Write a program in C to count the number of alphabets (only) in the user entered string.
And count the number of vowels, consonants and special characters (use ascii code)
Example,
Input: Hi! Is everything okay?
Output: 18 alphabets
                7 vowels, 11 consonants, 2 special characters

36. Write a program in C to ask the user to enter a numerical string and if the length of the string is less than 10, then left pad it with the required number of zeroes.

   Example: **Input:** 3456, **Output:** 0000003456

37. Write a program in C to find the sum of the series:
using a function to find factorial.

38. Write a program in C to count the total number of words in a user entered string. And count the number of vowels, consonants and special characters (use ascii code)
Example,
Input: Hi! Is everything okay?
Output: 4 words
                7 vowels, 11 consonants, 2 special characters

39. A) Write a program in C to print the elements in a user entered array of numbers, which are divisible by 3 or 7.
  B) Write a program in C to find the prime numbers within a given range using a function.

40. Write a program in C to ask the user to enter a word and if the length of the word is less than 10, then pad it with the required number of X.
Example: **Input:** Hello,   **Output:** HelloXXXXX

41. WAP in C to accept even number of elements from a user and store them in an array. Split it into two equal parts and store the elements in reverse in two different arrays. Print the elements of two arrays.

42. Write a menu driven program in C to provide the user with the following choices:
  (i) find Factorial of a number,
  (ii) check whether number is prime. Use a function to find the factorial and check prime. Program should also ask the user whether he wants to continue with another choice or wants to exit.

43. Write a C program using switch case to print the given patterns.
  (a) A right-angled triangle * pattern
  *
  * *
  * * *
  * * * *
  (b) A right-angled number pattern
  1
  1 2
  1 2 3
  1 2 3 4
  (c) A Floyd triangle
  1
  2 3
  4 5 6
  7 8 9 10
  Note: the no. of lines in each pattern will be user-defined.

44. Write a menu driven program in C to allow the user to enter an array of integers and carry out the following operations: **(i)** enter a number and check whether it is present in the array and if present, find the position, **(ii)** replace a number in a given position in the array and display the new array. Write a separate function for each of the operations.

45. Write a menu-driven program in C using switch to do the following: **(i)** reverse a string, **(ii)** compare 2 strings, **(iii)** count number of words in a string, **(iv)** join 2 strings. Do not use stdlib.h library for the operations:

reverseString(char s)
compareStrings(char s1, char s2)
countWords(char s)
joinStrings(char s1, char s2)

Take user inputs wherever applicable.

46. Take two arrays of size n and size n/2. Write a program using 'switch-case' to: **(a)** Remove duplicate elements from first array, **(b)** Check if second array is a subset of first array. Write separate functions to perform the 2 operations.

Check results:
Output: Enter size of array:
Input: 10
Output: Enter elements for first array:
Input: 1 2 4 6 2 5 7 9 1 2
Output: Enter elements for second array:
Input: 1 2 4 6 2
Output: Enter 1 for operation (a) and 2 for operation (b)
Input: 1
Output: [1 2 4 6 5 7 9]
Output: Enter 1 for operation (a) and 2 for operation (b)

47. Write a menu driven program to store bank account details such as username and password for the user. If the username and password are correct, user can do the following: **(i)** deposit, **(ii)** withdraw and **(iii)** check balance of the account from the menu options. Show the updated account balance after each job is done. User will not be allowed to continue if the username or password is incorrect.

Note: initialize password to a constant value or string and bank balance to a fixed amount.

Check results-
Output: Enter Your ID
Input: 111
Output: Enter your password
Input: 222
Output: Enter option - 1. Deposit 2. Withdrawal 3. check balance 4. Exit
Input: 2
Output: How much do you want to withdraw?
Input: 5000
Output: Balance after withdrawal is XXX.
Output: Enter option - 1. Deposit 2. Withdrawal 3. check balance 4. Exit
Input: 1
Output: How much do you want to deposit?

48. WAP in C using pointers to accept even number of elements from a user and store them in an array. Split it into two equal parts and add the elements of two matrix together. Print the elements of two arrays and the final array.

Example:
Input: array = [1 3 4 5]
Output: subarr1: [1 3]
          Subarr2: [4 5]
          Addarr: [5 8]

49. An election is contested by 5 candidates numbered 1 to 5. Voting is done by marking the candidate number on a ballot paper. In case a ballot number is outside the range of 1 to 5, the ballot should be considered a spoilt ballot.
Write a program to read the ballots into an array 'votes' and store the votes cast for each candidate in another array 'candidate_votes'. The program should also count how many spoilt ballots are there using a variable 'spoilt'. You do not need to keep track of the spoilt ballots.

Variables: n (user input for total number of votes), spoilt (no. of spoilt votes)

Arrays to be used: candidate_votes [5] (will keep track of number of votes per candidate), votes[n] (will read in the votes, i.e. candidate number as they are entered)

Example output:

Output: Enter number of total votes cast:
Input: 6
Output: Enter the candidate number corresponding to each vote \\ This will be entered in votes [6]
Input:
1
1
6
2
3
5
Output:
The number of votes cast per candidate is: [2 1 1 0 1] and the number of spoilt votes is 1.

50. Write a program in C to count the number of alphabets (only) in the user entered string using pointers. (**hint:** use ascii code)
Example,
Input: Hi! Is everything okay?
Output: 18 alphabets

51. Write a program to create a file and write the following words:
Tezpur University is in Sonitpur District
Close the file and reopen using *append* command to write the following words:
Assam, India.

52. There is a text file containing the following words:

Roses are red
Violets are blue
Wait a minute!
Violets aren't blue

Write a program to read using *fscanf* function and print using *fputs* function.

Note: you can create a text and write the above words yourself

53. There is a text file containing the following words:

Roses are red

Violets are blue
Wait a minute!
Violets aren't blue

Write a program to read using *fgets* function and print using *fprintf* function.

Note: you can create a text and write the above words yourself

54. There is a text file containing the following words:

Roses are red
Violets are blue
Wait a minute!
Violets aren't blue

Write a program to read using *fgets* function and print using *fputc* function.

Note: you can create a text and write the above words yourself