

TERM WORK COMPUTER LAB-I(PCS 151)

INSTRUCTION:

- 1. Use one side ruled bond sheets (Thick) for writing and DMP sheets for printouts.**
- 2. Every solution must contain the following: - Problem statement, Assumptions, Algorithms, Flowchart (back of ruled sheet), Printout of program and all possible outputs on separate sheets.**
- 3. Margin should be drawn on flowchart sheet 2cm from right and 1cm from rest of the three sides.**
- 4. Write your name, University roll no. and section with problem statement at the top of every code in the comment section.**

1. WAP to input marks obtained by a student in five different subjects through the keyboard. Find out the aggregate marks and percentage marks obtained by the student. Assume that the maximum mark that can be obtained by a student in each subject is 100.
2. The length & breadth of a rectangle and radius of a circle are input through the keyboard. Write a program to calculate the area & perimeter of the rectangle, and the area & circumference of the circle.
3. Mr. X's basic salary is input through the keyboard. His dearness allowance is 40% of the basic salary, and the house rent allowance is 20% of basic salary. Write a program to calculate his gross salary.
4. WAP to swap two numbers using third variable.
5. WAP to find roots of a quadratic equation, equation is of the form ($ax^2+bx+c=0$).
6. WAP to input a year and check if it is a leap year or not.
7. In a town, the percentage of men is 52. The percentage of total literacy is 48. If total percentage of literate men is 35 of the total population, write a program to find the total number of Illiterate men and women if the population of the town is 80,000.
8. The following calculates value of $f(x)$ if x has different ranges of value as below:
$$F(x) = x^2 + 2 \text{ if } 0 \leq x \leq 10$$
$$F(x) = x^2 + 2x \text{ if } 11 \leq x \leq 20$$
$$F(x) = x^3 + 2x^2 \text{ if } 21 \leq x \leq 30$$
$$F(x) = 0 \text{ if } x > 30$$
9. Write a code to input a number and check how many times it is doubled to cross the value 100000.
10. Write a program to implement a basic calculator (add, subtract, divide and multiply) using switch case.
11. WAP to find sum and average of n numbers using for, while, do-while loop?
12. WAP to find whether a given number is prime or not?
13. WAP to print Fibonacci series?
0 1 1 2 3 5 8 13.....
14. WAP to input a number and check if it is a perfect number or not?

15. Write a program to print the following patterns:-

1	1
2 3	0 1
4 5 6	1 0 1
7 8 9 10	0 1 0 1
11 12 13 14 15	1 0 1 0 1

16. WAP to input 5 integers and print the smallest of them.

17. Write a user defined function to check a number is Armstrong or not using function.

18. Write a program to find the sum of following series using functions:-

$$1+(1+2)+(1+2+3)+(1+2+3+4)+\dots\dots\dots+(1+2+3+\dots n)$$

$$1-1/3+1/5-1/7+1/9\dots\dots\dots\text{upto } n \text{ terms.}$$

$$1+2/2!+3/3!+4/4!\dots\dots\dots n/n!$$

19. Write a program to find reverse of a number using recursion.

20. Write a program to find GCD of two numbers using recursion.

21. Develop a program to find biggest and least element in an array of N elements.

22. Develop a program to count number's greater than, less than or equal to a number 'k' in a array.

23. Develop a program to merge the elements of two sorted arrays so that the resulting array is also sorted.
(without using sorting method)

24. Develop a program to insert an element into a list of elements in the array at a particular position of an array.

25. Write a program to sort an array of integers using a sorting technique.