Introduction to Programming

Session 2: Strings, Branching and Loops

Name:

Batch:

Date:

Please answer all the questions with outputs (values or completed: yes/no) and return the sheet.

1. Write a program to accept a positive number 'n' from user and

a. **Check if input is a number and if False, print "Invalid number received".**
b. **If True, check and print if the input number is odd or even.**
c. **Prompt and receive a formula like 'n*n' from user, evaluate the value.**

2. Using slicing, compute the following operations for the given string: a= "abcdefghij".

a. **a[1:5]**
b. **a[3:]**
c. **a[:5]**
d. **a[:]**
e. **a[:-1]**
f. **a[::-1]**

3. A palindrome is a word, sentence, verse, or even number that reads the same backward or forward. Write a program to accept a string, check and display if it is a palindrome or not.

4. For numbers from 5 to 20, compute the total sum and average. Display the same.

5. Write a program to take Principal Amount (PA), Simple Interest (SI) (rate in %) and Number of Years (N) for a Fixed Deposit from customer. Calculate the Simple Interest for customer. Use formula: Interest Amount = PA *SI*N/100.

For PA = Rs 500000, SI = 5%, calculate the interest after 10 years.

6. Given a series RL circuit: R = 4 Ohms, L = 0.2H. With input V(t) = 20sin(10t), find the voltage drop across L. Hint: For L, Impedance is jLw for frequency w.

6. Using loops, print a right triangle of the character T on the screen where the triangle is one character wide at its narrowest point and seven characters wide at its widest point:

T

TT

TTT

TTTT

TTTTT

TTTTTT

TTTTTTT

7. Write a program to store '123' as password. Prompt the user to input a 3 digit number with message: "Enter the Key", validate it and check if the received number matches with password.

If match, display "Treasure Chest is Open". Otherwise, allow the user to retry with displayed Message: "Wrong Key, Try Again". Maximum of 5 retries are allowed and on expiry, display "Treasure Chest is Closed Forever".

8. Write a program to find if the given number is prime or not.