**LAB ASSIGNMENT-3**

**Aim:** To create shell scripts for the following questions

**To perform**: To code and solve the following

**To submit:**

**Shell scripts for following:**

**1. Find the largest of three numbers**

read -p "Enter three numbers: " a b c

if [ $a -ge $b ] && [ $a -ge $c ]; then

echo "Largest number is: $a"

elif [ $b -ge $a ] && [ $b -ge $c ]; then

echo "Largest number is: $b"

else

echo "Largest number is: $c"

fi

**2. Check if a year is a leap year**

read -p "Enter a year: " year

if (( (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0) )); then

echo "$year is a leap year"

else

echo "$year is not a leap year"

fi

**3. Check if angles form a valid triangle**

read -p "Enter three angles: " x y z

total=$((x + y + z))

if [ $total -eq 180 ]; then

echo "Valid Triangle"

else

echo "Invalid Triangle"

fi

**4. Check if a character is an alphabet, digit, or special character**

read -p "Enter a character: " ch

if [[ $ch =~ [a-zA-Z] ]]; then

echo "Alphabet"

elif [[ $ch =~ [0-9] ]]; then

echo "Digit"

else

echo "Special Character"

fi

**5. Calculate profit or loss**

read -p "Enter cost price: " cp

read -p "Enter selling price: " sp

if [ $sp -gt $cp ]; then

echo "Profit: $((sp - cp))"

elif [ $cp -gt $sp ]; then

echo "Loss: $((cp - sp))"

else

echo "No Profit No Loss"

fi

**6. Print all even and odd numbers from 1 to 10**

echo "Even Numbers:"

for i in {2..10..2}; do echo $i; done

echo "Odd Numbers:"

for i in {1..9..2}; do echo $i; done

**7. Print the multiplication table of a given number**

read -p "Enter a number: " num

for i in {1..10}; do echo "$num x $i = $((num \* i))"; done

**8. Find factorial of a number**

read -p "Enter a number: " n

fact=1

for ((i=1; i<=n; i++)); do fact=$((fact \* i)); done

echo "Factorial: $fact"

**9. Print sum of all even numbers from 1 to 10**

sum=0

for i in {2..10..2}; do sum=$((sum + i)); done

echo "Sum of even numbers: $sum"

**10. Print sum of digits of any number**

read -p "Enter a number: " num

sum=0

while [ $num -gt 0 ]; do

sum=$((sum + num % 10))

num=$((num / 10))

done

echo "Sum of digits: $sum"

**11. Basic Calculator**

read -p "Enter two numbers: " a b

read -p "Enter operation (+, -, \*, /): " op

echo "Result: $(($a $op $b))"

**12. Print days of the week**

echo "Monday Tuesday Wednesday Thursday Friday Saturday Sunday"

**13. Print the first 4 months with 31 days**

echo "January March May July"

**14.Using Functions-**

**a) Check if a number is an Armstrong number**

armstrong() {

num=$1

sum=0

temp=$num

while [ $temp -gt 0 ]; do

digit=$((temp % 10))

sum=$((sum + digit \*\* 3))

temp=$((temp / 10))

done

if [ $sum -eq $num ]; then

echo "Armstrong Number"

else

echo "Not an Armstrong Number"

fi

}

**b) Check if a number is a palindrome**

palindrome() {

num=$1

rev=$(echo $num | rev)

if [ $num -eq $rev ]; then

echo "Palindrome"

else

echo "Not a Palindrome"

fi

}

**c) Print Fibonacci series up to n terms**

fibonacci() {

read -p "Enter n: " n

a=0

b=1

echo -n "$a $b "

for ((i=2; i<n; i++)); do

c=$((a + b))

echo -n "$c "

a=$b

b=$c

done

echo

}

**d) Check if a number is prime or composite**

is\_prime() {

num=$1

if [ $num -lt 2 ]; then echo "Not Prime"; return; fi

for ((i=2; i\*i<=num; i++)); do

if [ $((num % i)) -eq 0 ]; then

echo "Composite"; return

fi

done

echo "Prime"

}

**e) Convert a decimal number to binary**

decimal\_to\_binary() {

read -p "Enter decimal number: " num

echo "Binary: $(echo "obase=2; $num" | bc)"

}