PROGRAM 6

1. Write a program that takes a command-line argument n and prints a table of the powers of 2 that are less than or equal to 2^n.

Code :

```
#!/bin/bash -x

echo "Enter a Number"
 read n
i=1;

 while [ $i -le $n ]
 do
 echo " $n x $i = `expr $n \* $i`"
i=`expr $i + 1`
 done
```

2. Write a program that takes a input and determines if the number is a prime.

Code :

```
#!/bin/bash –x
 echo "Enter the number"
 read num
 for((i=2; i<=num/2; i++))
 do
if [ $((num%i)) -eq 0 ]
 then
echo "$num is not a prime number."
 Exit
 fi
 Done
 echo "$num is a prime number."
```

3. Extend the program to take a range of number as input and output the Prime Numbers in that range in shell.

Code:

```
#!/bin/bash –x

echo "Enter the number"
read num1
 echo "Enter the second number"
 read num2

 for (( i=$num1+1; i <= $num2-1; i++ ))
 do
 p=0
for (( j=2; j <= $i-1; j++ ))
 do
 if [ `expr $i % $j` = 0 ]
 then
p=1
break
fi
 done
if [ `expr $p` = 0 ]
 then
echo $i
fi
done
```

4. Write a program that computes a factorial of a number taken as input.

Factorial – 5! = 1 * 2 * 3 * 4 * 5

Code:

```
#!/bin/bash -x

echo "Enter a number"

read num

 fact=1
```

```
 while [ $num -gt 1 ]
do
 fact=$((fact * num))
 num=$((num - 1))
 done
echo $fact
```