Assignment No.5

Q1.

```
#WAP to print prime numbers between 1 to 100
for num in range(2,100):
    for i in range(2,num//2+1):
        if(num % i == 0):
            break
    else:
        print(num,end=' ')
```

Q2.

```
#WAP to print first n prime numbers
n = int(input("Enter how many prime numbers you want: "))
count = 0
num = 2
while count < n:
    for i in range(2, num // 2 + 1):
        if num % i == 0:
            break
    else:
        print(num, end=' ')
        count += 1
    num += 1
```

Q3.

```
#Enter number of students from user.for those many students accept marks of 5 subject marks from user and calculate percentage.
#Display all percentage and average percentage of students.
num_student=int(input("Enter number of students:"))
for i in range(1,num_student+1):
    print("Enter marks for student:",i)
```

```
    total=0
    for student in range(1,6):
        marks=int(input("Enter marks of subject:"))
        total=total+marks
        percentage=(total/500)*100
        average = total / 5
print("Total Marks:", total)
print("Percentage:",percentage)
print("Average Marks:", average)
```

Q4.

```
#WAP to prompt user to enter userid and password if id and password is incorrect give him chance to reenter the credentials.
#let him try 3 times. after that program terminate.
count=0
while(count<3):
    user_id=int(input("Enter user id:"))
    password=input("Enter password:")
    if(user_id==1234 and password=='dipa'):
        print("You have successfully logged in.")
        break
    count=count+1
if(count == 3):
    print("Too many failed attempts. Program terminated.")
```

Q5.

```
#WAP accept number of passengers from user and per ticket cost. then accept age of each passenger and then calculate total amount to
#ticket to travel for all of them based on follow conditions.a.children below 12=30% discount b.senior citizen(above 59)=50% discount
#others need to pay full.
passenger=int(input("Enter number of passengers:"))
```

```
ticket_cost=float(input("Enter passenger for ticket amount:"))
total_amount=0
for i in range(1,passenger+1):
    age=int(input(f'Enter age of passenger {i}:'))
    if(age<12):
        amount=ticket_cost-(ticket_cost*0.3)
    elif(age>59):
        amount=ticket_cost-(ticket_cost*0.5)
    else:
        amount=ticket_cost
    total_amount=total_amount+amount
    print(total_amount)
print(f'Total amount:{total_amount}')
```

Q6.

```
#WAP to check if given number is armstrong or not
num=int(input("Enter number:"))
sum=0
temp=num
while(temp>0):
    d=temp%10
    sum=sum+d**3
    temp=temp//10
if(num==sum):
    print("Number is Armstrong")
else:
    print("Number is not armstrong")
```

Q7.

#WAP to accept an integer amount from user and tell minimum number of notes needed for representing that amount.

```
#(use looping to optimize the problem)
notes=int(input("Enter integer amount of notes:"))
for i in range(1,notes):
    if(notes>2000):
        two_thousand=notes//2000
        notes=notes%2000
        print(notes)
    elif(notes>500):
        five_hundred=notes//500
        notes=notes%500
        print(notes)
    elif(notes>200):
        two_hundred=notes//200
        notes=notes%200
        print(notes)
    elif(notes>100):
        hundred=notes//100
        notes=notes%100
        print(notes)
    elif(notes>50):
        fifty=notes//50
        notes=notes%50
        print(notes)
    elif(notes>20):
        twenty=notes//20
        notes=notes%20
        print(notes)
    elif(notes<10):
        ten=notes//10
```

```
        notes=notes%10
        print(notes)
    else:
        total_notes=two_thousand+five_hundred+two_hundred+hundred+fifty+twenty+ten
print(f'Minimum number of notes representing amount is:{total_notes}')
```

Q8

```
#WAP to solve the following series:
```

#a. 1! + 2! + 3! + 4! + ...n!

```
num=int(input("Enter a number:"))
sum=0
for i in range(1,num+1):
    fact=1
    for j in range(1,i+1):
        fact=fact*j
        print(fact)
    sum=sum+fact
print("Sum of all factorial is:",sum)
```

#b. N + N^2 + N^3+N^4 .....+N^N (here ^ means exponent)

```
num=int(input("Enter number:"))
total=0
for i in range(1,num+1):
    total=total+num**i
print("Sum is:",total)
#c. Find the sum of a geometric series from 1 to n where the common ratio is 2.
n = int(input("Enter the number of terms: "))
sum = 2 ** n - 1
print(f"The sum of the geometric series is: {sum}")
```

#d. S = a + a2 / 2 + a3 / 3 + ... + a10 / 10

```
a=int(input("Enter value of a:"))
```

```
sum=0
for i in range(1,11):
    sum=sum+a**i/i
    print("The sum is:",sum)
#e. x - x2/3 + x3/5 - x4/7 + .... to n terms
x = float(input("Enter value of x: "))
n = int(input("Enter number of terms: "))
sum = 0
for i in range(1, n + 1):
    term = ((-1) ** (i - 1)) * (x ** i) / (2 * i - 1)
    sum += term
    print(f"After term {i}, sum is: {sum}")
```