Q1

```
# Calculation of total Infiltration by Horton's Equation
fo = float(input("Enter the value of initial Infiltration Rate:6"))
fc= float (input("Enter the value of Final Infiltration Rate:1.2"))
t= int(input("Enter the value of Time:8"))
kh= float(input('Enter the value of Decay Coefficient:0.888"))
# The total Infiltration is given by:
fc = 10  # Replace with actual value of fc
fo = 20  # Replace with actual value of fo
t = 30  # Replace with actual value of t
Fp= fc * t + (fo - fc)/kh
print ("The value of Total Infiltration is:", Fp)
```

```
Enter the value of initial Infiltration Rate:66
Enter the value of Final Infiltration Rate:1.21.2
Enter the value of Time:88
Enter the value of Decay Coefficient:0.8880.888
The value of Total Infiltration is: 311.26126126126127
```

Q2

```
# Calculation of Mean precipitation by thiessen's polygon Method
# The value of precipitation at Each station is
p1 = float(input("Enter the value of rainfall at Station 1:1.125")) # Use float to handle decimal values
p2 = float(input("Enter the value of rainfall at Station 2:2.175"))
p3 = float(input("Enter the value of rainfall at Station 3:3.225"))
p4 = float(input("Enter the value of rainfall at Station 4:4.275"))
p5 = float(input("Enter the value of rainfall at Station 5:5.325"))
#Area for each station
A1= float(input("Enter the value of Catchment Area for raingauge station 1:25")) # Change int to float to accept decimal values
A2= float(input("Enter the value of Catchment Area for raingauge station 2:30"))
A3 = float(input("Enter the value of Catchment Area for raingauge station 3:30"))
A4= float(input("Enter the value of Catchment Area for raingauge station 4:10"))
A5= float(input("Enter the value of Catchment Area for raingauge station 5:5"))
The_total_catchment_area = A2 + A3 + A4 + A5
print("The total catchment area is", The_total_catchment_area)
A=A1 + A2 + A3 + A4+ A5
print ("The value of Total Catchment area is:", A)
# Runoff Volume
# The volume shall be multiplied by the coefficient 2500 to cater scale effects
#Runoff Volume
V= (p1* A1+ p2* A2+ p3* A3+ p4 *A4+p5* A5)*2500 # You had a typo here, A1 should be A1
print ("The runoff volume from the given catchment is:", V)
# Mean Precipitation
p = (p1 * A1 + p2 * A2 + p3 * A3 + p4 * A4 + p5 * A5) / A
print ("The value of Mean Precipitaion is:", p)
```

```
Enter the value of rainfall at Station 1:1.1251.125
Enter the value of rainfall at Station 2:2.1752.175
Enter the value of rainfall at Station 3:3.2253.225
Enter the value of rainfall at Station 4:4.2754.275
Enter the value of rainfall at Station 5:5.3255.325
Enter the value of Catchment Area for raingauge station 1:2525
Enter the value of Catchment Area for raingauge station 2:3030
Enter the value of Catchment Area for raingauge station 3:3030
Enter the value of Catchment Area for raingauge station 4:1010
Enter the value of Catchment Area for raingauge station 5:55
The total catchment area is 75.0
The value of Total Catchment area is: 100.0
The runoff volume from the given catchment is: 648750.0
The value of Mean Precipitaion is: 2.595
```

Q3

```
#Calculation of Mean precipitation by Isohytel Method
#The value of precipitation at Each station i
D1=int(input("Enter the value of rainfall at Station 1:14"))
D2= int(input("Enter the value of rainfall at Station 2:12"))
```

```
D3=int(input("Enter the value of rainfall at Station 3:10"))
p4=int(input("Enter the value of rainfall at Station 4:8"))
p5= int(input("Enter the value of rainfall at Station 5:6"))
p6=int(input("Enter the value of rainfall at Station 6:4"))
p7= int(input("Enter the value of rainfall at Station 7:2"))
p8=int(input("Enter the value of rainfall at Station 8:0"))
# Area for each station
A1= int(input("Enter the value of Catchment Area for raingage station 1:90"))
A2= int(input("enter the value of Catchment Area for raingauge station 2:140"))
A3= int(input("Enter the value of Catchment Area for raingauge station 3:125"))
A4= int(input("Enter the value of Catchnent Area for reingauge station 4:140"))
A5= int(input(" Enter the value of Catchment Ares for raingauge station 5:85"))
A6= int(input("Enter the value of Catchment Area for raingeuge station 6:40"))
A7= int(input("Enter the value of Catchment Area for reingauge station 7:20"))
# The total catchment area is
A= A1+ A2+ A3+ A4+ A5+ A6+ A7
print ("The value of Total Catchment area is :",A)
# Mean Precipitation
p=((p1+p2) *A1/2 + (p2+p3)*A2/2+ (p3+p4)*A3/2+ (p4+p5)* A4/2 + (p5+p6)*A5/2 + (p6+p7)*A6/2
+ (p7+p8)*A7/2)/A
print ("the value of Mean Precipitalon is:", p)
```

```
Enter the value of rainfall at Station 1:1414
Enter the value of rainfall at Station 2:1212
Enter the value of rainfall at Station 3:1010
Enter the value of rainfall at Station 4:88
Enter the value of rainfall at Station 5:66
Enter the value of rainfall at Station 6:44
Enter the value of rainfall at Station 7:22
Enter the value of rainfall at Station 8:00
Enter the value of Catchment Area for raingage station 1:9090
Enter the value of Catchment Area for raingauge station 2:140140
Enter the value of Catchment Area for raingauge station 3:125125
Enter the value of Catchnent Area for reingauge station 4:140140
Enter the value of Catchment Ares for raingauge station 5:8585
Enter the value of Catchment Area for raingeuge station 6:4040
Enter the value of Catchment Area for reingauge station 7:2020
The value of Total Catchment area is : 640
the value of Mean Precipitalon is: 5.23818359375
```