Q1: WAPP to find if a year is leap year or not.

Sol:

```python
year = int(input("Enter a year: "))
if (year % 4) == 0:
   if (year % 100) == 0:
      if (year % 400) == 0:
         print("{0} is a leap year".format(year))
      else:
         print("{0} is not a leap year".format(year))
   else:
      print("{0} is a leap year".format(year))
else:
   print("{0} is not a leap year".format(year))
```

Q2: WAPP to calculate the simple interest where P,R,T to be taken as an input from user.

Sol:

```python
p=float(input("Enter your principle amount\n"))
r=float(input("Enter your annual interest rate\n"))
t=int(input("Enter your time(in years)\n"))

SI=int((p*r*t)/100)
print("The simple interest you need to pay is Rs",SI)
```

Q3: WAPP to calculate the compound interest. Here all the values are to be taken as an input.

Sol:

```python
p=float(input("Enter your principle amount\nRs"))

r=float(input("Enter your interest rate\n"))

t=int(input("Enter your time period(in years)\n"))

n=int(input("Enter the no. of times the interest is compounded in time period\n"))

nt=n*t

A=p*((1+r/n)**nt)

CI=A-p

print("The compound interest you need to pay is Rs",CI)
```

Q4:WAPP to find to take the input of Price of an Article from the user. Get the discount percentage from the user as the second input and finally print the discounted price of the article in the following format:

```
**********************
iPhone 12. 99999
Discount % 10%
Final Price 89999
**********************
```

Sol:

Base_Price=float(input("Enter the base price of the product\n""Rs"))

Discount_rate=float(input("Enter the rate of discount\n"))

Dp=Base_Price-(Discount_rate/100)*Base_Price

print("Rs",Dp)

Q5: Wapp to get two similar values form user and store it in two variables n1 and n2. And print the memory location of both the variables. What do you observe ? Also state the reason.

Sol:

x=float(input("Enter your value"))

n1=x

n2=n1

print("the memory address for n1 is",id(n1),"and the memory address for n1 is",id(n2))

#Reason write by own.

Q6: Wapp to input marks of five subjects Physics, Chemistry, IP, Mathematics, English. Calculate percentage and grade according to following:
Percentage >= 90% : Grade A
Percentage >= 80% : Grade B
Percentage >= 70% : Grade C
Percentage >= 60% : Grade D
Percentage >= 40% : Grade E
Percentage < 40% : Grade F

```
Sol:
physics=float(input
        ("Enter your physic marks\n"))

chemistry=float(input
          ("Enter your chemistry marks\n"))

ip=float(input
      ("Enter your IP marks\n"))

maths=float(input
        ("Enter your mathematics marks\n"))

english=float(input
          ("Enter your English marks\n"))

marks_percentage=((physics+chemistry+ip+maths+english)/500)*100

if marks_percentage>=90:
   print("Excellent, you got Grade A")
else: pass

if marks_percentage>=80 and marks_percentage<90:
   print("Very good, you passed with Grade B")
else: pass

if marks_percentage>=70 and marks_percentage<80:
   print("Good, you passed with Grade C")
else: pass

if marks_percentage>=60 and marks_percentage<70:
   print("You passed with Grade D")
else: pass

if marks_percentage>=40 and marks_percentage<60:
   print("You passed with Grade E")
else: pass

if marks_percentage<40:
   print("You passed with Grade F")
else: pass
```

Q7: WAPP TO PRINT UPTO N NUMBERS IF THE NUMBERS ARE COMPLETE
SQUARE AND ARE EVEN.

Sol:
```
import math
max=int(input("Enter the maximum range value"))
for i in range(0,max):
   if math.sqrt(i)%2==0 and i!=0:
     print(i)
```

Q8:

Q: WAPP TO CREATE A DYNAMIC DICTIONARY DURING RUNTIME WHICH WILL STORE THE NAME OF STUDENTS AND THEIR MARKS. AND FINALLY PRINT THE NAME OF THOSE STUDENTS WITH MARKS > 70.

Sol:

```
no_of_students=int(input("ENTER THE NO. OF STUDENTS : "))
student_names=list()
student_marks=list()
student_details=dict()
for i in range(0,no_of_students):
   print("ENTER THE NAME OF STUDENT ",(i+1))
   name = input()
   student_names.append(name)
   print(("ENTER THE MARKS SCORED BY ",name))
   marks = int(input())
   student_marks.append(marks)
j=0
for key in student_names:
        student_details[key]=student_marks[j]
        j+=1
print(" THE DICTIONARY IS : ",student_details)
print("STUDENTS GETTING MARKS ABOVE 70 ARE : ")
k=0
for i in student_names:
        if student_marks[k]>70:
                print(student_names[k], " : ",student_marks[k])
                k+=1
```

Q9: Create two list during runtime and map their corresponding values and if the length of the list do not match it should display length do not match.

Sol:

```
l1= list()
l2= list()
n1=int(input("ENTER THE NO. OF VALUES IN LIST 1 : "))
n2=int(input("ENTER THE NO. OF VALUES IN LIST 2 : "))
if n1!=n2:
```

```python
            print("LENGTH DO NOT MATCH ")
else:
        print("FOR LIST 1 : ")
        for i in n1:
                print("ENTER THE VALUE NO. ",(i+1))
    element = int(input())
    l1.append(element)
  print("FOR LIST 2 : ")
        for i in n1:
                print("ENTER THE VALUE NO. ",(i+1))
    element =input ()
    l2.append(element)
merge_list=dict(zip(l1,l2))
print(merge_list)
```

Q10: Create a dictionary containing student details like name, age, email, phone_no during runtime and print it in JSON format.

Sol:
```python
import json
list1=["NAME","AGE","EMAIL","PHONE_NO"]
list2=list()
name=input("ENTER THE NAME OF THE STUDENT : ")
age=int(input("ENTER THE AGE OF THE STUDENT : "))
email=input("ENTER THE EMAIL ID OF THE STUDENT :")
phone_no=int(input("ENTER THE PHONE NUMBER OF THE STUDENT : " ))
list2=[name,age,email,phone_no]
student_details=dict(zip(list1,list2))
student_details =json.dumps(student_details,indent=3)
print(student_details )
```

Q11: WAPP TO PRINT THE NO OF VOWELS IN A STRING

Sol:
```python
name=input("Enter your name")

count=0

vowels=list(("a","e","i","o","u","A","E","I","O","U"))

for i in range(0,len(name)):
   if name[i] in vowels:
      count=count+1

print("Total no. of vowels are",count)
```

Q12: Wapp to check the entered character is vowel

Sol:

```python
alphabet=input("ENTER YOUR ALPHABET")

vowels=list(('a','e','i','o','u','A','E','I','O','U'))

if alphabet in vowels:
    print("Your character is a vowel")

else:
    print("Your character is not a vowel")
```

Q13: WAPP to check whether a number is divisible by 5 and 11 or not.

Sol:

```python
a=float(input("Enter your number\n"))

if a%55==0:
    print("Your number is divisible 5 and 11")

else:
    print("Your number is not divisible by 5 and 11")
```

Q14: WAPP TO GET THE MULTIPLICATION TABLE OF A NUMBER.

Sol:
```python
MULTIPLICATION_TABLE=int(input("ENTER YOUR NO."))

print("YOUR MULTIPLICATION TABLE OF"
    ,MULTIPLICATION_TABLE)

for i in range(1,11):
    PRODUCT=MULTIPLICATION_TABLE*i
    print(MULTIPLICATION_TABLE,"*",i,"=",PRODUCT)
```