Assignment 2: **Marks: 20**

1. **Write a program to accept percentage from the user and display the grade according to the following criteria:**

Marks	Grade
>90	A
>80 and <=90	B
>=60 and <=80	C
below 60	D

Answer.

```
Percentage=int(input("Enter your Percentage"))
if Percentage>90:
    print("Grade is A")
elif Percentage>80 and Percentage<=90:
    print("Grade is B")
elif Percentage>=60 and Percentage<=80:
    print("Grade is C")
elif Percentage<60:
    print("Grade is D")
```

2. **Write a program to accept the cost price of a bike and display the road tax to be paid according to the following criteria:**

Tax	Cost Price(in Rs)
15%	>100000
10%	>50000 and <= 100000
5%	< = 50000

Answer:

```
Tax=0
Bike_price =int(input("Enter the Bike price"))

if Bike_price>=100000:
    Tax=Bike_price*0.15
    print(f"The Tax price is {Tax}")
elif Bike_price>50000 and Bike_price<=100000:
    Tax=Bike_price*0.10
    print(f"The Tax price is {Tax}")
elif Bike_price<=50000:
    Tax=Bike_price*0.5
    print(f"The Tax price is {Tax}")
```

3. **Accept any city from the user and display monuments of that city.**

City	Monument
Delhi	Red Fort
Agra	Taj Mahal
Jaipur	Jal Mahal

Answer:

```
City =str(input("Enter your City"))

if City=="Delhi":

    print("Red fort")

elif City=="Agra":

    print("Taj Mahal")

elif City=="Jaipur":

    print("Jal Mahal")
```

4. **Check how many times a given number can be divided by 3 before it Is less than or equal to 10.**

Answer:

```
number=int(input("Enter the number"))
count=0

while (number/3)<=10:
        count=count+1
        print(f"{count}")
        number=number/3

        break:
```

5. **Why and When to Use while Loop in Python give a detailed description with example.**

Answer: A while loop will run a piece of code while a condition is True. It will keep executing the desired set of code statements until that condition is no longer True.

A while loop will always first check the condition before running.

If the condition evaluates to True, then the loop will run the code within the loop's body.

For example, this loop runs if number is less than 10:

```
number = 0
while number < 10:
    print(f"Number is {number}!")
    number = number + 1
```

6. **Use nested While loop to print 3 different patterns.**

Answer:

Patten 1:

```
n = int(input('Enter number of rows : '))

i = 1
while i <= n :
    j = 1
    while j <= i:
        print("*", end = " ")
        j += 1
    print()
    i += 1
```

Output:

```
Enter number of rows :  5
*
* *
* * *
* * * *
* * * * *
```

Pattern 2:

```
n = int(input('Enter number of rows : '))
i = 1
while i <= n :
    j = n
    while j >= i:
        print("*", end = " ")
        j -= 1
    print()
    i += 1
```

Output:

```
Enter number of rows :  5
* * * * *
* * * *
* * *
* *
*
```

Pattern 3:

```
n = int(input('Enter number of rows : '))

k = 1
i = 1
while i <= n :
    j = 1
    while j <= i:
        print(f"{k}", end = " ")
        j += 1
        k += 1
    print()
    i += 1
```

Output:

```
Enter number of rows :  5
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

7. Reverse a while loop to print the numbers from 10 to 1.

Answer:

```
number = 10
while number>=1:
    print(f"{number}")
   number=number-1
```