Python

Week 2 Assignment Questions

PW SKILLS

1. **What are the Operators? And explain all the 7 Operators in detail with examples.**

2. **Which of the following is Incorrect?**

a)print(20//3)=6
b)print (-15//2)=-7
c)print (15.0//2)=7.0
d)print (-15.0//2)=-8.0

3. **What will be the output of the following program?Which of the following is Incorrect?**

```
a = float("-inf")
b = float("inf")
print(a > b)
print(a < b)
print(a == b)
print(a != b)
print(a >= b)
print(a <= b)
```

4. **what will be the Output of the following code? Explain it.**

a)a=144

```
print(a>>1,a>>2,a>>3,a>>4,a>>5)
```

b)a=9

```
print(a<<1,a<<2,a<<3,a<<4,a<<5)
```

c)a,b=14,6

```
(a>>1)+3*(b)-36/12
```

d)a,b=14,6

```
a,b=b,a
temp2=(a>>1)+3*(b)-b<<2
print(temp2)
```

5. Number Conversion.

a) Convert 27 in Binary Number.
b) Convert 56.30) in Binary Number.
c) Convert 1010101) into decimal Number.
d) Convert 111111) into Decimal Number.

Programming Assignments:

6. Write a program to display the appropriate message as per the color of signal(RED-Stop/Yellow-Stay/ Green-Go) at the road crossing.

7. Write a program to create a simple calculator performing only four basic operations(+,-,/,*) .

8. Write a program to find the larger of the three pre-specified numbers using ternary operators.

9. Write a program to find the factors of a whole number using a while loop.

10. Write a program to find the sum of all the positive numbers entered by the user. As soon as the user enters a negative number, stop taking in any further input from the user and display the sum .

11. Write a program to find the factors of a whole number using a while loop.

12. Write the programs for the following:

- Accept the marks of the student in five major subjects and display the same.
- Calculate the sum of the marks of all subjects.Divide the total marks by number of subjects (i.e. 5), calculate percentage = total marks/5 and display the percentage.
- Find the grade of the student as per the following criteria . Hint: Use Match & case for this.:

Criteria	Grade
percentage > 85	A
percentage < 85 && percentage >= 75	B
percentage < 75 && percentage >= 50	C
percentage > 30 && percentage <= 50	D
percentage <30	Reappear

13. Write a program for VIBGYOR Spectrum based on their Wavelength using.

Wavelength Range:

COLOR	WAVELENGTH (nm)
Violet	400.0-440.0
Indigo	440.0-460.0
Blue	460.0-500.0
Green	500.0-570.0
Yellow	570.0-590.0
Orange	590.0-620.0
Red	620.0-720.0

14.Consider the gravitational interactions between the Earth, Moon, and Sun in our solar system.

Given:

```
mass_earth = 5.972e24  # Mass of Earth in kilograms
mass_moon = 7.34767309e22  # Mass of Moon in kilograms
mass_sun = 1.989e30  # Mass of Sun in kilograms

distance_earth_sun = 1.496e11  # Average distance between Earth and Sun in meters
distance_moon_earth = 3.844e8  # Average distance between Moon and Earth in meters
```

Tasks:

- Calculate the gravitational force between the Earth and the Sun.
- Calculate the gravitational force between the Moon and the Earth.
- Compare the calculated forces to determine which gravitational force is stronger.
- Explain which celestial body (Earth or Moon) is more attracted to the other based on the comparison.