Class XI Assignment
Topic: Operators in Python

1. Write the output of the following code:

a) x=2 x=5 x=x + x print(x) Output 10	b) x = 2 y = 3 x + y + 5 print(x + y) Output 5
c) p=10 q=20 p=p*q//4 q=p+q**3 print(p,q) Output 50 8050	d) x=2 y=6 x=x+y/2 + y//4 print(x) Output 6.0
e) a,b,c=7,8 ,9 a=a+b+c b=a+b+c c=a+b print(c) Output 65	f) a=10 b=36 print(a>5 and b>40) Output False
g) a=10 b=36 print(a>5 or b<40) Output True	h) x=-2 y=x+2 x+=y y-=x print(x, y) Output -2 2
i) p=21//5 q=p%4 r=p*q p= p + q –r r = r * p – q + r q =p + q print(p, q, r) Output 4 4 0	j) a=5 b= 2* a a += a +b b *= a + b print(a, b) Output 20 300
k) a=90 b=12 c=3 a+=b//c	l) a=2 b=8 c=10 print(a**4+2*b/c)

b=b%4 c=a//b+c print(a,b,c) Output ZeroDivisionError: integer division or modulo by zero	Output 17.6

2. Multiple-Choice Questions - Choose the correct answer for each question:

i) Which of the following is NOT a Python operator?

a) Arithmetic operators

b) Assignment operators

c) Logical operators

d) Keyword operators

ii) The '%' operator is used for:

a) Exponentiation

b) Modulus (remainder) division

c) Floor division

d) Bitwise AND

iii) What does the '==' operator check for in Python?

a) Identity

b) Value equality

c) Assignment

d) Multiplication

iv) Which operator is used for concatenating two strings in Python?

a) +

b) *

c) -

d) /

v) In Python, the 'and' operator returns True if:

a) Both operands are True

b) Either operand is True

c) Both operands are False

d) Neither operand is False

3. Python Programs

I. **Write a Python program that calculates the area of a rectangle. Prompt the user for the length and width of the rectangle and then display the area. Use appropriate operators for calculation.**

Solution-

```
# Prompt the user for length and width
length = float(input("Enter the length of the rectangle: "))
width = float(input("Enter the width of the rectangle: "))
# Calculate the area
area = length * width
# Display the result
print("The area of the rectangle is:", area)
# Indicates Comment - Provides self documentation, not part of the code
```

II. **Create a Python function called calculate_discount that takes two arguments: the original price of an item and the discount percentage. The function should return the final price after applying the discount. Use appropriate operators for calculation.**

Solution-

```
# Creating function calculate_discount
def calculate_discount(original_price, discount_percentage):
        discounted_price = original_price - (original_price * discount_percentage / 100)
   return discounted_price

# Function usage:
original_price = 100
discount_percentage = 20
final_price = calculate_discount(original_price, discount_percentage)
print("The final price after a", discount_percentage, "% discount is:", final_price)
```

III. **Write a Python program that converts temperature from Celsius to Fahrenheit. Prompt the user for a temperature in Celsius and then display the equivalent temperature in Fahrenheit. Use the formula: Fahrenheit = (Celsius * 9/5) + 32.**

Solution -

```
# Prompt the user for temperature in Celsius
celsius = float(input("Enter temperature in Celsius: "))
# Convert to Fahrenheit
```

```
fahrenheit = (celsius * 9/5) + 32
# Display the result
print("Temperature in Fahrenheit:", fahrenheit)
```

4. Debug the following Python code snippet, which is intended to calculate the average of three numbers:

```
num1 = 10
num2 = 20
num3 = 30

average = num1 + num2 + num3 / 3

print("The average is:", average)
```

Identify the error(s) and correct the code to calculate the correct average. Also, state the type of error.

Solution -

```
num1 = 10
num2 = 20
num3 = 30
average = (num1 + num2 + num3) / 3  # Parentheses added for correct order of operations
print("The average is:", average)
```

Explanation: The error in the original code was the missing parentheses around the sum of num1, num2, and num3. Without the parentheses, the division was done before the addition, leading to incorrect results. Adding parentheses ensures that the addition is performed first, and then the result is divided by 3 to calculate the average.