Answer 1:-

```
# Creating two integer variables
a = 10
b = 5

# Performing arithmetic operations and storing the results
addition = a + b
subtraction = a - b
multiplication = a * b
division = a / b

# Printing the results in the required format
print(f"Addition: {a} + {b} = {addition}")
print(f"Subtraction: {a} - {b} = {subtraction}")
print(f"Multiplication: {a} * {b} = {multiplication}")
print(f"Division: {a} / {b} = {division}")
```

Output:

```
Addition: 10 + 5 = 15
Subtraction: 10 - 5 = 5
Multiplication: 10 * 5 = 50
Division: 10 / 5 = 2.0
```

Answer 2:-

Difference between division and floor division:-

1. **Division(/):**- performing floating point division (returns a value in decimal point).
2. **Floor division(//)**:- Performs integer (floor) division, rounding down to the nearest whole number.

Difference between multiplication and Exponentiation Operators:-

1. **Multiplication(*)**:-Multiplies two numbers
2. **Exponentiation(**)**:- Raises a number to the power of another

Answer 3:-

In Python, there are three logical operators:

1. AND (and) – Returns True if both conditions are True, otherwise returns False.

2. OR (or) – Returns True if at least one condition is True, otherwise returns False.

3. NOT (not) – Reverses the boolean value.

Answer 4:-

1. Left Shift Operator (<<)

- The left shift operator moves the bits of a number to the left by a specified number of positions.
- Each left shift operation effectively multiplies the number by n^2 , where n is the number of positions shifted.
- **Syntex**
- result = number << n;
- **Example**

```
#include <stdio.h>
int main() {
   int num = 5; // Binary: 0000 0101
   int result = num << 2; // Shift left by 2 positions
            printf("Left Shift: %d\n", result);
```

  - return 0;
  - Output:22

Answer 5:-

```
# Creating a list of 15 integers

num_list = [3, 7, 10, 2, 8, 15, 6, 12, 9, 5, 11, 14, 1, 4, 13]

# Checking if 10 is in the list

if 10 in num_list:
   print("10 is present in the list.")
else:
   print("10 is not present in the list.")
```

Output:

10 is present in the list.