1.What are the two values of the Boolean data type? How do you write them?

Ans: There are two values in boolean data type i.e. 0 and 1

0= false

1=true

Boolean algebra mostly used for conditional statement and logical operation to determine the flow of program.

2. What are the three different types of Boolean operators?

Ans: Three different types of boolean operators are

a: AND

b:OR

c:NOT

3. Make a list of each Boolean operator's truth tables (i.e. every possible combination of Boolean values for the operator and what it evaluate ).

Ans:**AND**

|  |  |  |
| --- | --- | --- |
| A | B | OUTPUT |
| 1 | 1 | 1 |
| 1 | 0 | 0 |
| 0 | 1 | 0 |
| 0 | 0 | 0 |

**OR**

|  |  |  |
| --- | --- | --- |
| A | B | OUTPUT |
| 1 | 1 | 1 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 0 | 0 | 0 |

**NOT**

|  |  |
| --- | --- |
| A | OUTPUT |
| 0 | 1 |
| 1 | 0 |

4. What are the values of the following expressions?

(5 > 4) and (3 == 5)

**Ans: False**

not (5 > 4)

**Ans:False**

(5 > 4) or (3 == 5)

**Ans:True**

not ((5 > 4) or (3 == 5))

**Ans:False**

(True and True) and (True == False)

**Ans:False**

(not False) or (not True)

**Ans: True**

5. What are the six comparison operators?

**Ans:**

* Equal to ==
* Not equal to !=
* Less than <
* Greater than >
* Less than equal to <=
* Greater than equal to >=

6. How do you tell the difference between the equal to and assignment operators?Describe a condition and when you would use one.

**Ans:** Equal To Operator (==): The equal to operator, denoted by "==", is a comparison operator used to check if two values are equal. It evaluates the expressions on both sides and returns a boolean value of either true or false. It is commonly used in conditional statements and loops to compare variables or values.

Assignment Operator (=): The assignment operator, denoted by "=", is used to assign a value to a variable. It takes the value on the right-hand side and assigns it to the variable on the left-hand side. It does not compare the values; rather, it updates the variable with the new value.

Eg:

a= 10

b=5

if (a==b):

print(equal)

else:

print(not)

7. Identify the three blocks in this code:

spam = 0

if spam == 10:

print('eggs')

if spam > 5:

print('bacon')

else:

print('ham')

print('spam')

print('spam')

**Ans:** Block 1:

If spam==10:

Print(‘eggs’)

This block is executed when the condition spam==10 is true so it generate a single line statement eggs.

Block 2:

if spam > 5:

print('bacon')

else:

print('ham')

This block is executed when the condition spam>5 is satisfied is true,this generated two line of code print code **‘bacon’** if condition is false generate code **’ham**’.

Block 3:

print('spam')

print('spam')

This block is executed unconditionally it print both the string ‘spam’.

8. Write code that prints Hello if 1 is stored in spam, prints Howdy if 2 is stored in spam, and prints Greetings! if anything else is stored in spam.

**Ans:**

spam = int(input("Enter a value for spam: "))

if spam == 1:

print("Hello")

elif spam == 2:

print("Howdy")

else:

print("Greetings!")

9.If your programme is stuck what keys you’ll press?in an endless loop,

**Ans:** ctrl+c

10. How can you tell the difference between break and continue?

**Ans:**Break is used to terminate a loop prematurely, while continue is used to skip the remaining code in the loop's body for the current iteration and move on to the next iteration.

Eg:break:

for i in range(1, 10):

if i == 5:

break

print(i)

so output is:

1

2

3

4

Continue:

for i in range(1, 6):

if i == 3:

continue

print(i)

output:

1

2

4

5

11. In a for loop, what is the difference between range(10), range(0, 10), and range(0, 10, 1)?

**Ans:**Range(10): This form of range() generates a sequence of numbers starting from 0 (by default) and ending at 10 (exclusive). It increments the value by 1 (by default) in each iteration.

for i in range(10):

print(i)

Here output is :0 1 2 3 4 5 6 7 8 9

Range(0,10):

This form of range() explicitly specifies the start and end values of the sequence, while the step value is assumed to be 1 by default.

for i in range(0, 10):

print(i)

Here output is:

0

1

2

3

4

5

6

7

8

9

Range(0,10,1):

This form of range() specifies the start, end, and step values explicitly.

for i in range(0, 10, 1):

print(i)

Here output is:

0

1

2

3

4

5

6

7

8

9

12. Write a short program that prints the numbers 1 to 10 using a for loop. Then write an equivalent program that prints the numbers 1 to 10 using a while loop.

**Ans:** for num in range(1, 11):

print(num)

num = 1

while num <= 10:

print(num)

num += 1

13. If you had a function named bacon() inside a module named spam, how would you call it after importing spam?

**Ans:** import spam

spam.bacon()