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

Ans.) Two values of Boolean data type are as follows:

1. **TRUE**: TRUE comes as output of Boolean data type when expression holds true for condition. TRUE have integer value 1.
2. **FLASE**: FALSE comes as output of Boolean data type when expression fails for condition. TRUE have integer value 0.

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

Ans.) There are 3 types of Boolean operator as follows:

1. **AND**: AND operator returns True when both operands TRUE. If any one of the operands doesn’t holds condition true, then Output is FALSE.
2. **OR**: OR operator returns TRUE when any one of the operands holds condition True. If both operands don’t holds condition true then Output is FALSE.
3. **NOT**: NOT is inversion. It takes single input and returns single output with inversion. i.e. if Input is TRUe then Output is FALSE.

**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).**

1. **AND:**

|  |  |  |
| --- | --- | --- |
| Statement 1 | Statement 2 | Result |
| TRUE | TRUE | TRUE |
| TRUE | FALSE | FALSE |
| FALSE | TRUE | FALSE |
| FALSE | FALSE | FALSE |

|  |  |  |
| --- | --- | --- |
| Statement 1 | Statement 2 | Result |
| 1 | 1 | 1 |
| 1 | 0 | 0 |
| 0 | 1 | 0 |
| 0 | 0 | 0 |

1. **OR:**

|  |  |  |
| --- | --- | --- |
| Statement 1 | Statement 2 | Result |
| TRUE | TRUE | TRUE |
| TRUE | FALSE | TRUE |
| FALSE | TRUE | TRUE |
| FALSE | FALSE | FALSE |

|  |  |  |
| --- | --- | --- |
| Statement 1 | Statement 2 | Result |
| 1 | 1 | 1 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 0 | 0 | 0 |

1. **NOT:**

|  |  |
| --- | --- |
| Statement | Result |
| TRUE | FALSE |
| FALSE | TRUE |

|  |  |
| --- | --- |
| Statement | Result |
| 1 | 0 |
| 0 | 1 |

**4. What are the values of the following expressions?**

|  |  |
| --- | --- |
| **Expression** | **result** |
| (5 >4) and (3 == 5) | FALSE |
| not(5>4) | FALSE |
| (5>4) or (3 == 5) | TRUE |
| not ((5> 4) or (3 == 5)) | FALSE |
| (True and True) and (True == False) | FALSE |
| (not False) or (not True) | TRUE |

**5. What are the six comparison operators?**

|  |  |  |  |
| --- | --- | --- | --- |
| **Operator** | **Symbol** | **Use** | **Example** |
| Equal To | == | Compares if two operands are equal | **‘5==5'** results inTRUE |
| Not Equal To | != | Compares if two operands are not equal | **‘7!=10'** results in Ture |
| Less Than | < | Compares if the left operand is less than the right operand | **‘5<9'** results in TRUE |
| Greater Than | > | Compares if the left operand is greater than the right operand. | **"10>7"** results in TRUE |
| Less than or equal to | <= | Compares if the left operand is less than or equal to the right operand. | **"3<=7"** results in TRUE |
| Greater than or equal to | >= | Compares if the left operand is greater than or equal to the right operand. | **"7>=7"** is results in TRUE |

**6. How do you tell the difference between the equal to and assignment operators? Describe a**

**condition and when you would use one.**

|  |  |
| --- | --- |
| **Equal to Operator (==)** | **Assignment Operator (=)** |
| The equal to operator is used for comparison. It checks if two values or expressions are equal. | The assignment operator is used to assign a value to a variable. It takes the value on the right side and assigns it to the variable on the left side. |
| eg.) a=5 b=3 if a==b:  print("a and b are Equale") else:  print("both are not equale") | eg.) a=5 b=3 here we are assigning value to 'a' & 'b' |

**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')

Block 2:

if spam > 5:

print('bacon')

Block 3:

else:

print('ham')

print('spam')

print('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.**

Spam = 1

if spam == 1:

Print(‘Hello’)

elif spam ==2:

Print(‘Howdy’)

else:

Print(‘Greetings!’)

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

**Ans.)** In widows, to come out of an endless loop, We press CTRL + C key. Which is use to stop the current program.

In Mac, to come out of an endless loop, We press Command + C key. Which is use to stop the current program.

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

Ans.)

|  |  |
| --- | --- |
| **"break" statement** | **"continue" statement** |
| The "break" statement is used to exit the current loop prematurely. | The "continue" statement is used to skip the rest of the current iteration and move on to the next iteration of the loop |
| It completely breaks out of the loop's iteration, regardless of whether the loop condition is still true. | The loop continues normally if there are more iterations to be performed. |
| eg.) for i in range(1, 6):  if i == 3:  break  print(i) | eg.) for i in range(1, 6):  if i == 3:  continue  print(i) |

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

ANS.)

|  |  |  |
| --- | --- | --- |
| **range(10)** | **range(0, 10)** | **range(0, 10, 1)** |
| This expression specifies a range that starts from 0 (default start value) and ends at 10 (exclusive end value). It increments by 1. | In this expression already defined start value(0) and end value 10(exclusive end value) is already defined, It is increments by 1. | In this expression already defined start value(0) and end value 10(exclusive end value) is already defined, It is increment value by 1. |
| for i in range(10):  print(i) | for i in range(0, 10):  print(i) | for i in range(0, 10, 1):  print(i) |
| O/P: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 | O/P: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 | O/P: 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.) Using For Loop:

for i in range(1,11)

print(i)

O/P: 1,2,3,4,5,6,7,8,9,10

Using While Loop:

i=1

while i<=10:

print(i)

i=i+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()