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

**Answer 1:** The Boolean data type has 2 values as True and False. Both are written in same as in previous sentence. True represents the affirmative in a Boolean context while False represents the negative in a Boolean context.

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

**Answer 2:** Three types of Boolean operators are AND operator(and), OR operator(or) and NOT operator(not). All three are used for logical operations.

* AND operator (and) returns True when both the statements are true, otherwise returns False
* OR operator (or) returns True when either the statements is true, otherwise returns False
* NOT operator (not) returns the opposite the value of operand.

**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).**

**Answer 3:**

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **A and B** |
| True | True | True |
| False | True | False |
| False | False | False |
| True | False | False |

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **A or B** |
| True | True | True |
| False | True | True |
| False | False | False |
| True | False | True |

|  |  |
| --- | --- |
| **A** | **not A** |
| True | False |
| False | True |

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

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

**not (5 > 4)**

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

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

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

**(not False) or (not True)**

**Answer 4:**

|  |  |
| --- | --- |
| (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?**

**Answer 5:** The six comparison operators are:

|  |  |
| --- | --- |
| == | Equal to |
| < | Less than |
| > | Greater than |
| >= | Greater than or equal to |
| <= | Lesser than or equal to |
| != | Not 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.**

**Answer 6:** Equal to and assignment operators are different, one can identify them by seeing them visually. In equal to, we use two equal signs ‘==’ and used for comparison while in assignment operators, there is a single equal ‘=’ sign and it is used to assign to a variable.

For example, if x == 5 #comparing/checking if x is equal to 5

x = 5 #assigning x with value as 5

**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')**

**Answer 7:** Here, in the 1st line of code, we are using an assignment statement where value (0) is assigned to the variable spam. Then we are using the if else conditions. Else command will get executed at the end as only that condition is true. Then we have two print statements, which will get executed normally.

**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.**

**Answer 8:** Here is the required code:

spam = 45

if spam == 1:

print(“Hello”)

else if spam == 2:

print("Howdy”)

else:

print("Greetings”)

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

**Answer 9:** If the programme is stuck in the endless loop, then we can interrupt the signal using Ctrl + C in the command prompt.

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

**Answer 10:**

**Break:** It is used to exit a loop prematurely. When a break is encountered during the loop, the loop is immediately terminated, and the program continues with the next statement after the loop.

for i in range(5):

if i == 3:

break

print(i)

Output: 0,1,2

**Continue:** When continue is used, it skips the rest of the code inside the loop within the iteration and then moved to the next iteration.

for i in range(5):

if i == 3:

continue

print(i)

Output: 0,1,2,4,5

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

**Answer 11:** range(10) – this will generate values from 0 to 9

range(0,10) – this will generate values from 0 to 9. 0 is the starting value and 10 is the ending value.

range(0,10,1) - this will generate values from 0 to 9. 0 is the starting value, 10 being the end value with a skip of 1.

**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.**

**Answer 12:**

**Using for loop:**

for i in range(1,11):

if i >10:

break

print(i)

**Using while loop:**

i = 1

while i < 11:

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?**

**Answer 13:**

import spam

spam.bacon()