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

**Ans:- Boolean data type has two value: True and False. Considering Python as a strongly typed language, the first letter of both values should be capital and rest in small letters. Example-**

**isAdult = True**

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

**Ans:- In total there are 2 types of operators that work with Boolean data type. Comparison operators and Logical operators. Comparison operators helps comparing two Boolean values. Example –**

**myAge=28**

**yourAge=myAge+5**

**myAge>=yourAge**

**Logical operators perform logical operations like AND, OR and, NOT. Example –**

**amIAdult=True**

**isSheAdult=True**

**print('Can we get married? ')**

**print( amIAdult and isSheAdult)**

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:- or Operation**

|  |  |  |
| --- | --- | --- |
| **X** | **Y** | **X or Y** |
| **True** | **True** | **True** |
| **True** | **False** | **True** |
| **False** | **True** | **True** |
| **False** | **False** | **False** |

**And Operation**

|  |  |  |
| --- | --- | --- |
| **X** | **Y** | **X and Y** |
| **True** | **True** | **True** |
| **True** | **False** | **False** |
| **False** | **True** | **False** |
| **False** | **False** | **False** |

**Not operation**

|  |  |
| --- | --- |
| **X** | **not X** |
| **True** | **False** |
| **False** | **True** |

|  |  |  |
| --- | --- | --- |
| **Operator** | **Expression** | **Output** |
| **==** | **1==1** | **True** |
| **!=** | **1==1** | **False** |
| **<** | **False<True** | **True** |
| **>** | **False>True** | **False** |
| **<=** | **5<=5** | **True** |
| **>=** | **5>=5** | **True** |

4. What are the values of the following expressions?

(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?

**Ans:- There are 6 comparison operators that allow us to compare operands and return Boolean values. These are explained below:**

|  |  |
| --- | --- |
| **Operator** | **Interpretation** |
| **==** | **equals** |
| **!=** | **not equals** |
| **<** | **Less than** |
| **>** | **Greater than** |
| **<=** | **Less than or equals** |
| **>=** | **Greater than or equals** |

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

**Ans:- Assignment operator and equal to, both have different applications. Assignment operator is used to store some value to a variable. For example – *username = “Abhinay Bandooni”*.**

**Equal to is a comparison operator that is used to check the equality of two values and return Boolean value. For example – *5==3.***

**The above expression would compare 5 with 3. If these are equal(which is not), then this expression would return *False.***

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')

**The above highlighted statements are in 3 different blocks and based on the value that *spam* contains, the last block of the code will get executed.**

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:-**

**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:- If the program is stuck in an endless loop in command line then pressing ctrl+c would stop the execution . On Jupyter notebook we have to interrupt the kernel by clicking on Stop.**

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

**Ans:- Break statement terminates the execution of the current loop/block of code. Continue, however, skips the current iteration only and keep the current loop/block of code running.**

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

**Ans:- range(10) returns a series of numbers till 9.Here the starting point is not defined, so by default it would be 0.**

**Range(0,10) return the same series of numbers till 9 but here we have explicitly defined the starting point of series i.e. 0. If we had mention 2 instead of 0, the series would have started from 2.**

**Range(0,10,1) returns a series of numbers till 9 with the step size of 1. Default value of step size is 1 but can be changed as per the requirement.**

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:-**

**start=1**

**end=10**

**for i in range(start,end+1):**

**print(i)**

**start=1**

**end=10**

**while start<=end:**

**print(start)**

**start+=1**

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

**Ans:-**

**from spam import bacon**

**bacon()**