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

Answer:

True: Represents a logical true value.  
it is written as **True**  
False: Represents a logical false value  
it is written as **False**

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

Answer:

AND operator: it returns only if both operands are True other wise it will be False.  
OR operator: it returns True if at least one of the operands is True.  
NOT operator: it returns the opposite of the operand’s logical value.

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:

AND Operator:

|  |  |  |
| --- | --- | --- |
| Operand1 | Operand2 | Result |
| True | True | True |
| True | False | False |
| False | True | False |
| False | False | False |

OR Operator:

|  |  |  |
| --- | --- | --- |
| Operand1 | Operand2 | Result |
| True | True | True |
| True | False | True |
| False | True | True |
| False | False | False |

NOT Operator:

|  |  |
| --- | --- |
| Operand | Result |
| 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:  
(5 > 4) and (3 == 5)   
result: False

not (5 > 4)   
result: False

(5 > 4) or (3 == 5)  
result: True

not ((5 > 4) or (3 == 5))  
result: False

(True and True) and (True == False)  
result: False

(not False) or (not True)

Result: True

5. What are the six comparison operators?  
  
Answer:  
== equal  
> greater than  
< less than  
!= not equal  
>= greater than or equal to  
<= less than or 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:

In assignment operator assigns a value to a variable  
In assignment operators we use only one qual sign which is =  
for example : x = 5  
  
The equal to operator compares two values for equality  
it returns True or False as a result  
In equal to operator we use two equal sign which is ==  
for example : 10==12

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:  
#Block1  
if spam == 10:

print('eggs')  
#Block2  
if spam > 5:

print('bacon')  
#Block3  
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.

Answer:

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?

Answer:

I + I (press the 'I' key twice quickly) or “Restart" or "Restart & Clear Output"

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

Answer:  
break is used to exit the loop completely, while continue is used to skip the rest of the current iteration and move to the next iteration of the loop.

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

Answer:  
  
range(10): Generates numbers from 0 to 9 (10 numbers in total) by default, incrementing by 1 in each iteration.

range(0, 10): Explicitly defines the start value as 0, generating numbers from 0 to 9 (10 numbers in total), incrementing by 1 in each iteration.

range(0, 10, 1): Explicitly defines the start value as 0, stop value as 10, and step value as 1, generating numbers from 0 to 9 (10 numbers in total), incrementing by 1 in each iteration.

In summary, all three expressions generate the same sequence of numbers in a for loop, starting from 0 and ending at 9, with an increment of 1 in each iteration.

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:  
for i in range (1,11):

print(i)

a=0

while a <10:

a+=1

print(a)

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

Answer:

import spam

spam.bacon()