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

**Answer:**

The two Boolean values are True and False.

They must be written with a capital T and F, respectively (e.g., True, False)

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

**Answer: The three Boolean operators are:**

1. and (Logical AND)
2. or (Logical OR)
3. not (Logical 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 evaluates).**

**Answer:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **A** | **B** | **A and B** | **A or B** | **Not A** |
| True | True | True | True | False |
| True | False | False | True | False |
| False | True | False | True | True |
| False | False | 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) | 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:**

== (Equal to)

!= (Not equal to)

> (Greater than)

< (Less than)

>= (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:**

= → Assignment operator (assigns a value to a variable).

== → Comparison operator (checks if two values are equal).

**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:**

**Block 1:** The if condition checking spam == 10.

**Block 2:** The if condition checking spam > 5.

**Block 3:** The else block.

**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 = int(input("Enter a number: "))

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:**

CTRL + C (in most systems)

CMD + C (on Mac)

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

**Answer:**

**break** → Exits the loop completely.

**continue →** Skips the current iteration and moves to the next one.

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

**Answer:**

range(10) → Starts from 0, ends at 9, increments by 1.

range(0, 10) → Explicitly states the start (0) and stop (10).

range(0, 10, 1) → Explicitly states the start, stop, and step.

All three produce the same sequence: [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.**

**Answer:**

**Using for loop:**

for i in range(1, 11):

print(i)

**Using while loop:**

i = 1

while i <= 10:

print(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:**

import spam

spam.bacon()