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

**Ans.** The two values of the Boolean data type are "true" and "false".

In python written like:

True

False

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

**Ans.** The three Boolean operators are “AND”, “OR” and “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 evaluate).

**Ans.** Here are the truth tables for each Boolean operator:

AND (`&` or `&&`)

- True & True = True

- True & False = False

- False & True = False

- False & False = False

OR (`|` or `||`)

- True | True = True

- True | False = True

- False | True = True

- False | False = False

NOT (`!`)

- ! True = False

- ! False = True

XOR (Exclusive OR) (`^`)

- True ^ True = False

- True ^ False = True

- False ^ True = True

- False ^ False = False

NAND

- True NAND True = False

- True NAND False = True

- False NAND True = True

- False NAND False = True

NOR

- True NOR True = False

- True NOR False = False

- False NOR True = False

- False NOR False = True

XNOR (Exclusive NOR)

- True XNOR True = True

- True XNOR False = False

- False XNOR True = False

- False XNOR 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)

**Ans.** (5>4) and (3 == 5) = False

not (5 > 4) = True

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

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

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

5. What are the six comparison operators?

**Ans.** The six comparison operators are Less than (<), Less than or equal to (<=), Equal to (==), Not equal to (! =), Greater than (>), Greater 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.

**Ans.** The difference between the equal to (==) and assignment (=) operators is the purpose they serve. The equal to operator is used to compare two values and determine if they are equal, while the assignment operator is used to assign a value to a variable.

For example, in an if statement, you would use the equal to operator to check if a certain condition is met:

if (x == 5) {

// code to be executed if x is equal to 5

}

On the other hand, you would use the assignment operator to give a value to a variable:

int x = 5;

In this case, the value 5 is being assigned to the variable x.

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.** The three blocks in this code are:

The first if statement:

"if spam == 10: print('eggs')"

The second if statement:

"if spam > 5: print('bacon')"

The else statement:

"else: print('ham')"

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.** spam = int(input())

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 a program is stuck in an endless loop, the solution is to press **‘Ctrl + c’**.

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

**Ans.** The ‘break’ statement is used to exit a loop early, whereas the ‘continue’ statement is used to skip the current iteration of a loop and move on to the next one. In other words, ‘break’ ends the loop entirely, while ‘continue’ ends the current iteration and begins the next one.

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

**Ans. “**range(10)” generates a sequence of numbers from 0 to 9 (10 numbers in total), "range(0, 10)" generates the same sequence, but explicitly starts from 0, and "range(0, 10, 1)" generates the same sequence as well, but with an explicit step of 1. In other words, all three expressions generate the same sequence of numbers, but "range(10)" is a shorthand for "range(0, 10)".

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.** Program of for loop:

for i in range(1,11):

   print(i)

Program for 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?

**Ans.** To call the function "bacon" inside the module "spam," you would need to write "spam.bacon()" after importing the "spam" module.