ASSIGNMENT – 2

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

The two values of Boolean data type are True or False. Any value is evaluated to True if it is not empty.
All the strings, lists, tuples, numbers are true except for empty and 0 value.

Syntax: bool('Ineuron') will return TRUE as the string is not empty

bool('') will return FALSE as the string is empty.

bool(0) will also return FALSE.

QUESTION 2: What are the three different types of Boolean operators?

The Three types of Boolean operators are AND, OR, NOT. These will evaluate the expression to Boolean values and give the result as TRUE or FALSE.

QUESTION 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)

Truth Table for the Boolean operator AND

X	**Y**	**X AND Y**	**X OR Y**
True	True	True	True
True	False	False	True
False	True	False	True
False	False	False	False

NOT operator can be considered as the inverse or compliment of the given Boolean value.

X	**NOT X**
True	False
False	True

QUESTION 4: What are the values of the following expression?

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

Answer: True and False will be False

II. **NOT (5>4)**

Answer: NOT (TRUE) will be FALSE

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

Answer: TRUE or FALSE will be TRUE

IV. **Not ((5>4) or (3==5))**

Answer: Not (TRUE or FALSE) => Not (TRUE) => FALSE

V. **(TRUE and TRUE) and (TRUE == FALSE)**

Answer: TRUE and FALSE => FALSE

VI. **(not FALSE) or (not TRUE)**

Answer: TRUE or FALSE => TRUE

QUESTION 5: What are the six comparison operators?

The six comparison operators are Greater than, less than, Equals to, Greater than or equal to, less than or equal to, Not Equal to.

Symbolic Representation: >, <, =, >=, <=, !=

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

The assignment operator is used to assign a value to the variable. The value would be on the right and the variable would be on the left. In between, the assignment will be used.

Example: A = 6

Here, the variable is 'A' and the value is 6. We are using = operator to store the value 6 in the variable A. This is assigning a value to the variable.

The equal to operator is used to check the whether the two values which are on left and right of the equal to operator are equal or not.

Example: 5 == 6

Here, we are checking if the value 5 is equal to 6 or not. However, in this example the result would be FALSE.

QUESTION 7: Identify the three blocks in this code:

ANSWER:

```
spam = 0
if spam == 10:
   print('eggs')                    Indent increased, BLOCK 1
   if spam > 5:                     Still BLOCK 1
      print('bacon')                Still BLOCK 1, Indent increased further, BLOCK 2 in BLOCK 1
   else:                            Still BLOCK 1, Indent decreased, BLOCK 2 ended in above line
      print('ham')                  Still BLOCK 1, Indent increased further, BLOCK 3 in BLOCK 1
   print('spam')                    Still BLOCK 1, Indent decreased, BLOCK 3 ended in above line
print('spam')                       Indent decreased further, BLOCK 1 ended in above line
```

QUESTION 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.

```
spam = 1
if spam == 1:
  print ('Hello')
elif spam == 2:
  print ('Howdy')
else:
  print('Greetings!')
```

QUESTION 9: If your programme is stuck in an endless loop, what keys you'll press?

Control + C shortcut can be used to stop an infinite loop

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

The break statement will move the control to outside and just after the loop whereas the control statement will move the control to the start of the loop.

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

All the above three will produce the same output.

Range(10) will start from 0 but it will not include 10

Range(0,10) here we are explicitly mentioning that the range should start from 0.

Range(0,10,1) here we are mentioning the loop to increase the variable by 1 in each iteration. It acts like a stepper.

QUESTION 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.

Print 1 to 10 using For loop

```
for num in range (1,11):
  print(num)
```

Print 1 to 10 using while loop

```
num = 1
while num <= 10:
  print(num)
  num += 1
```

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

ANSWER: spam.bacon()