Selvam College of Technology

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An ISO 9001:2015 Certified Institution, Approved by AICTE New Delhi, Affiliated to Anna University-Chennai
PONNUSAMY NAGAR, SALEM ROAD(NH-44), NAMAKKAL-637003. TAMILNADU.
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Name of the Bundle	Intermediate Bundle V1	Subject	Python Programming V1
Topic	Nested Loops	Last updated on	10 August 2024

1. What is the result of executing the following code?

```
number = 5
while number <= 5:
        if number < 5:
                number = number + 1
 print(number)
```

    a. The program will loop indefinitely

    b. The value of number will be printed exactly 1 time

    c. The while loop will never get executed

    d. The value of number will be printed exactly 5 times

Ans: a. The program will loop indefinitely

Explanation: This code loops while the number is less than or equal to 5. number only increments if it is less than 5, and it's originally set to 5, so 'number' never changes.

2. What will the following code print?

```
counter = 1

sum = 0

while counter <= 6:

        sum = sum + counter

        counter = counter + 2

 print(sum)
```

    a. 12
    b. 9
    c. 7
    d. 8

Ans: b. 9

Explanation: This loop executes 3 times. After the first loop sum = 1 and counter = 3, after the second loop sum = 4 and counter = 5, and after the third loop sum = 9 and counter = 7.

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3. What will be printed by the following code when it executes?

```
sum = 0
values = [1,3,5,7]
for number in values:
        sum = sum + number
print(sum)
```

  a. 4

  b. 0

  c. 7

  d. 16

Ans: d. 16

Explanation: This adds up the numbers in values and prints the sum.

4. How many asterisks will be printed when the following code executes?

```
for x in [0, 1, 2, 3]:
        for y in [0, 1, 2, 3, 4]:
                print ('*')
```

  a. 0

  b. 4

  c. 5

  d. 20

Ans: d. 20

Explanation: The outer loop will iterate 4 times and the inner loop will iterate 5 times. 4 times 5 = 20.

5. Which type of loop can be used to perform the following iteration: You choose a positive integer at random and then print the numbers from 1 up to and including the selected integer.

   a. a for-loop or a while-loop

   b. only a for-loop

   c. only a while-loop

   d. only a do while-loop

Ans: a. a for-loop or a while-loop

Explanation: Although you do not know how many iterations your loop will run before the program starts running, once you have chosen your random integer, Python knows exactly how many iterations the loop will run, so either a for-loop or a while-loop will work.

6. Which of the following statements won't be printed when this Python code is run?

   for letter in 'Python':

         if letter == 'h':

               continue

   print ('Current Letter: ' + letter)

   a. Current Letter: P

   b. Current Letter: t

   c. Current Letter: h

   d. Current Letter: o

Ans: c. Current Letter: h

Explanation: Because continue sends the loop to the next iteration at h, it will not print "Current Letter: h".

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7. What will be the output of the following Python code?

```
i = 1
while True:
 if i%3 == 0:
 break
 print(i)
 i + = 1
```

    a. 1 2
    b. 1 2 3
    c. error
    d. none of the mentioned

Ans: c. error

Explanation: Syntax Error, there shouldn't be a space between + and = in +=.

8. What will be the output of the following Python code?

```
i = 1
while True:
        if i%0O7 == 0:
                break
        print(i)
        i = i+1
```

    a. 1 2 3 4 5 6
    b. 1 2 3 4 5 6 7
    c. error

Ans: a. 1 2 3 4 5 6

Explanation: Control exits the loop when i becomes 7.

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9. What will be the output of the following Python code?

```
i = 5
while True:
        if i%0O11 == 0:
                break
        print(i)
    i = i+1
```

   a. 5 6 7 8 9 10

   b. 5 6 7 8

   c. 5 6

   d. error

   Ans: b. 5 6 7 8

   Explanation: 0O11 is an octal number.

10. What will be the output of the following Python code?

```
i = 5
while True:
        if i%0O9 == 0:
                break
        print(i)
        i = i+1
```

   a. 5 6 7 8

   b. 5 6 7 8 9

   c. 5 6 7 8 9 10 11 12 13 14 15 ….

   d. error

   Ans: d. error

   Explanation: 9 isn't allowed in an octal number.

11. **What will be the output of the following Python code?**

```python
i = 1
while True:
        if i%2 == 0:
                break
        print(i)
        i = i+2
```
a. 1
b. 1 2
c. 1 2 3 4 5 6 …
d. 1 3 5 7 9 11 …

Ans: d. 1 3 5 7 9 11 …

Explanation: The loop does not terminate since i is never an even number.

12. **What will be the output of the following Python code?**

```python
i = 2
while True:
        if i%3 == 0:
                break
        print(i)
        i = i+2
```
a. 2 4 6 8 10 …
b. 2 4
c. 2 3
d. error

Ans: b. 2 4

Explanation: The numbers 2 and 4 are printed. The next value of i is 6 which is divisible by 3 and hence control exits the loop.

13. What will be the output of the following Python code?

```
i = 1
while False:
        if i%2 == 0:
                break
    print(i)
    i =i+ 2
```
    a. 1

    b. 1 3 5 7 …

    c. 1 2 3 4 …

    d. none of the mentioned

Ans: d. none of the mentioned

Explanation: Control does not enter the loop because of False.

14. A loop within another loop statement is called _____.
    a. Inner structure

    b. Nested loop

    c. Complex loop

    d. Infinite loop

Ans: b. Nested loop

Explanation: In nested loop structure there is a loop statement whose body contains other loop statements. There is no restriction for levels of nested loops.

15. Which of the following loops can be used as an outer loop?
    a. While
    b. for
    c. do while
    d. Both a and b

Ans: d. Both a and b

Explanation: Any loop structure can be used as an inner or outer loop.

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16. What is the nested loop structure commonly used for?
    a. Multi-dimensional arrays

    b. Matrix manipulation

    c. Complex Pattern

    d. All of these

Ans: d. All of these

Explanation: Nested loop structures are often used for tasks involving multi-dimensional arrays, matrix manipulation, and complex patterns.

17. In Python programming language allows one loop inside another loop known as?
    a. switch

    b. foreach

    c. nested

    d. forall

Ans: c. nested

Explanation: Python nested loops: Python programming language allows to use one loop within another loop.

18. If the else statement is used with a while loop, the else statement is executed when the condition becomes _____.
    a. TRUE

    b. FALSE

    c. Infinite

    d. Null

Ans: b. FALSE

Explanation: If the else statement is used with a while loop, the else statement is executed when the condition becomes false.inside another loop.culations have to go in multiple levels.

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Iterator and Generator:

1. What is an iterator in Python?

    a. Object that can be iterated upon

    b. Object that can't be iterated upon

    c. Function that iterates over objects

    d. Variable that stores iteration results

Ans: a. Object that can be iterated upon

Explanation: An iterator is an object that allows traversal through all elements in a collection.

2. Which keyword is used to define a generator?

    a. generate

    b. def

    c. class

    d. Iter

Ans: b. def

Explanation: Generators are defined with def, like functions, but use yield to return values.

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3. Which of the following is an example of an iterator?

   a. List

   b. Tuple

   c. Dictionary

   d. All of the above

Ans: d. All of the above

Explanation: All of the options—list, tuple, and dictionary—are examples of iterators in Python. This means you can loop through each of them one item at a time using a for loop.

4. What object is created when a generator is called?

   a. Generator object

   b. Iterator object

   c. Function object

   d. Class object

Ans: a. Generator object

Explanation: When a generator is called, it creates a generator object. This object can be used to iterate through the values produced by the generator function one at a time.