CMP167 – Quiz #05

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Results: _____

Name: _____

Class: _____

Date: _____

1. A loop that never terminates is called:

   a. busy
   b. indefinite
   c. tight
   d. infinite

2. What statement can be executed in the body of a loop to cause it to terminate?

   a. `if`
   b. `input`
   c. `break`
   d. `exit`

3. What does the following expression evaluate to:

   ```
   a and (b or c) == (a and b) or (a and c)
   ```

   True

4. The term for an operator that may not evaluate one of its subexpressions is:

   a. indefinite
   b. exclusive
   c. short-circuit
   d. faulty

5. What is the difference between a class and an object?

   An object is an instantiation of a class

6. The greatest common divisor (GCD) of two values can be computed using Euclid's Algorithm. Starting with the values m and n, we repeatedly apply the formula: n, m = m, n%m until m is 0. At this point, n is the GCD of the original m and n. Write a function that accepts parameters for the numbers m and n and returns their GCD.

```python
def gcd(m,n):
    while m != 0:
        n, m = m, n%m
    return n
```

7. Write a function that accepts a list of integers as a parameter and returns the sum of the numbers in that list that is divisible by 3 but not 5.

```python
def sum3and5(list):
    sum = 0
    for item in list:
        if item % 3 == 0 and item % 5 != 0:
            sum += item
    return sum
```

Alternatively, you can use a comprehension:

```python
def sum3and5b(list):
    return sum(i for i in list if i % 3 == 0 and i % 5 != 0)
```

Extra Credit: Putting it all together. Write a function that accepts two lists as parameters, finds the sums of the elements in those lists divisible by 3 but not 5, and returns the GCD of those two sums. You can and should use the functions you wrote for Problems 6 and 7 to answer this question. Use the back of this page to answer your question.

```
def gcd_sum(l1, l2):
    s1 = sum3and5(l1)
    s2 = sum3and5(l2)
    return gcd(s1,s2)
```