

## CS:1210 (22C:16) Quiz 1 Version (a)

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You have 15 minutes to complete this quiz. Please put away your books, notes, and all electronic devices

1. Given below is `intToBinary1.py`, our first attempt at writing a program for computing the binary equivalent of a given nonnegative integer.

```
n = int(input("Type a nonnegative integer: "))

while n > 0:
    print(n % 2)
    n = n // 2
```

Write down the output produced by this program if the input is 37.

2. Given below is slightly modified version of the above program.

```
n = int(input("Type a nonnegative integer: "))

while n > 0:
    n = n // 2
    print(n)
```

Write down the output produced by this program if the input is 23.

3. *Euclid's algorithm* for computing the GCD of two non-negative integers can be described in pseudocode as follows:

- (i) Read the numbers  $m$  and  $n$  given as input.
  - (ii) If  $m = n$  then output  $m$  and STOP.
  - (iii) If  $m > n$  replace  $m$  by  $m - n$ .
  - (iv) If  $n > m$  replace  $n$  by  $n - m$ .
  - (v) Go back to Line 2.
- (a) Write down the sequence of values that  $m$  and  $n$  take for input 40, 28 (i.e., initially  $m$  is 40 and  $n$  is 28).

(b) Write down the output produced by this algorithm for input 40, 28.