CS:1210 (22C:16) Quiz 1 Version (c)

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

1. Recall our algorithm (described below in pseudocode) for computing the binary equivalent of a given nonnegative integer.

   (i) Read the number n given as input.

   (ii) If n is even, output 0. Replace n by $n/2$.

   (iii) If n is odd, output 1. Replace n by $(n-1)/2$.

   (iv) If n is 0, STOP. Otherwise go to Line 2

   (a) Write down the sequence of values that n takes for input 57.

   (b) Write down the output produced by this algorithm for input 57.

2. *Euclid's algorithm* for computing the GCD of two nonnegative 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 36, 48.

   (b) Write down the output produced by this algorithm for input 36, 48.