Assignment 3

1. In a network based on the bus topology, the bus is a nonshareable resource for which the machines must compete in order to transmit message. How is the deadlock controlled in this context? (20 points)

2. Why does the transport layer chop large messages into small packets? (20 points)

3. Design an algorithm (use pseudocode) for finding all the factors of a positive integer. For example, in the case of the integer 12, your algorithm should report the values 1, 2, 3, 4, 6, and 12. (20 points)

4. Use pseudocode to design a recursive version of the Euclidean algorithm. This algorithm finds the greatest common divisor of two positive integers X and Y.

As long as the value of neither X nor Y is zero, assign the larger the remainder of dividing the larger by the smaller. The greatest common divisor, if it exists, will be the remaining non-zero value.

(20 points)

5. Call the function `MysteryPrint` (defined below) with the value 2 and record the values that are printed.

```
def MysteryPrint(N):
  if (N > 0):
    print(N)
    MysteryPrint(N - 2)
  else:
    print(N)
    if (N > -1):
      MysteryPrint(N + 1)
```

(20 points)