**Assignment 2**

1. Give a regular expression for each of the following languages. (10 points)
   1. The set of binary strings containing at least two zeros somewhere.
   2. The set of binary strings containing at least two consecutive zeros and ends with 1.
2. Let R and S be any two regular expressions. Prove True or False for the following.

(10 points)

* 1. (ε + R)\* S = R\* S
  2. (R + S)\* S\* = (R\* S)\*

1. Use Pumping Lemma to prove these languages are not regular. (5 points)
   1. {0n 1 0n | n ≥ 1}

Notes:

* Submit your answers to Blackboard. No hard copies.
* Handwritten answers are accepted but should be legible.