Problem 1: Feedback (20 points)
Write a joke or a poem to entertain your professor. Extra credit for including the words probability, expectation, variance, graph.

Problem 2: (20 points)
Make up a problem that you would have enjoyed to see on a quiz or the final exam for this class. Make sure your problem is of appropriate difficulty and interest.

Problem 3: (20 points)
Suppose that you have an undirected graph on \( n \) nodes. (a) What is the maximum number of links that the graph can have? (b) What is the minimum number of links that the graph must have, in order to be connected? (c) What is the maximum number of links that the graph can have, in order to have no cycles? (d) Suppose that the graph has \( k \) connected components, for some \( 0 \leq k \leq n \). Suppose that we add one link to the graph. How can the addition of the link change \( k \)?

Problem 4: (20 points)
Do problem 17 in page 602 of your textbook.

Problem 5: (20 points)
Do problem 21 in page 602 of your textbook. (Floyd’s algorithm is on the top left of page 603).