CECS 329, Quiz 2 Spring 2025, Dr. Ebert

Directions

- It's OK to solve both problems on the same sheet of paper.
- Make sure your name is on each sheet and that each problem part is properly labeled.

Problems

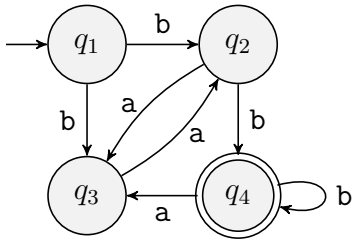
LO7. Do the following.

a. Let L denote the language of binary words that have either at least two 1's or at least 3 0's. Provide a succinct description for $\overline{L}$ and provide words in this language.

b. If A is the language consisting of words that have one 0, at least one 1, and an even number of 1's, while B is the language consisting of words having two 0's and an odd number of 1's, then is it true that $1110101101 \in AB$? Explain.

c. Provide a regular expression that represents language A from part b.

LO8. Consider the NFA N shown below.



and let L denote the language that it recognizes.

a. Use N to construct the NFA N' that accepts L^* and uses the algorithm described in lecture for this purpose.

b. Demonstrate each step of the GNFA-to-Regular-Expression algorithm that computes a regular expression that describes L. Hint: your initial GNFA should have five states.