	UNIVERSIDAD CARLOS III DE MADRID
	FORMAL LANGUAGES AND AUTOMATA THEORY
	COMPUTER SCIENCE DEGREE. CONTINUOUS ASSESSMENT - PARTIAL 1
	Last name(s): _____
	First name: _____
	NIA: _____

Duration: 45 minutes

1. (**3.5 points**) Given the following Finite Automaton
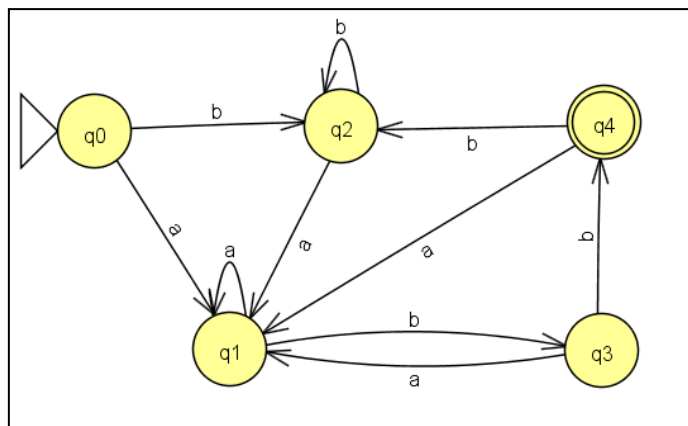
    a. Is this a DFA or a NFA? Explain in detail.
    b. Construct the minimal equivalent DFA. Explain in detail.
    c. Which is the language that is recognized? Explain in detail.

2. (**3.5 points**) Given the input alphabet {0,1}:
    d. Construct a NFA to recognize words having the form X0ZY where:
        - X and Y are every possible combination of 0's and/or 1's (λ included).
        - Z is a word which consists of one or more '01' subwords (at least one).
    e. Construct an equivalent DFA. Explain in detail.