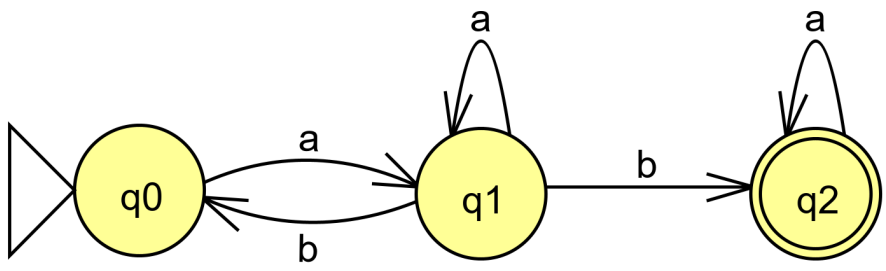
Quiz 3

1. Of the following regular expressions, which one represents the language accepted by the FA M below?



(a) $L(M) = (ab)^*aba^*$

(b) $L(M) = aa^*ba^* + (ab)^*ab$

(c) $L(M) = a(ba + a)^*ba^*$

(d) $L(M) = abaa^*ba^*$

2. Suppose $L_1 \cup L_2$ and $L_1 \cap L_2$ are both finite languages. Which of the following is the best conclusion to make?

   (a) L_1 is regular.

   (b) L_2 is regular.

   (c) Both of the above.

   (d) None of the above.

3. What can we say about the strings w in $L(r)$, where r is:

$$r = (a+b)^* a (a+b)^* a (a+b)^* a (a+b)^* ?$$

(a) w has exactly 3 occurrences of a's.

(b) w has at least 3 occurrences of a's.

(c) w has at most 3 occurrences of a's.

(d) None of the above.

4. Every regular language can be accepted by a DFA which has a single final state?

   (a) True

   (b) False

5. The language generated by the following grammar is infinite.

$$S \to bA \mid aS$$
$$A \to aA \mid bS$$

(a) True

(b) False