Assignment-1

Choose the correct option

* Required

Name *

Your answer

Register Number *

Your answer

What is a formal language? (1) It is a spoken language (2) It is a set of strings (3) It can definitely be represented using a DFA. * 2 points

- None of the above
- 1 only
- 2 only
- 3 only
- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1,2 and 3

To prove a set A = set B, I have to prove (1) A ⊆ B (2) B ⊆A (3) A - B ≠ ∅ * 2 points

- None of the above
- 1 only
- 2 only
- 3 only
- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1,2 and 3

Regarding mathematical induction. If P(k) is a proposition, and a. P(1) is true b. P(k) is true implies P(k+1) is true, then (1) P(k) is true only for some (proper subset) positive integers k (2) P(k) is true for all positive integers k (3) P(k) is true for all integers k (positive and negative). * 2 points

- None of the above
- 1 only
- 2 only
- 3 only
- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1,2 and 3

Regular expressions (1) Can represent finite languages (2) Can represent infinite languages (3) Have finite length. * 2 points

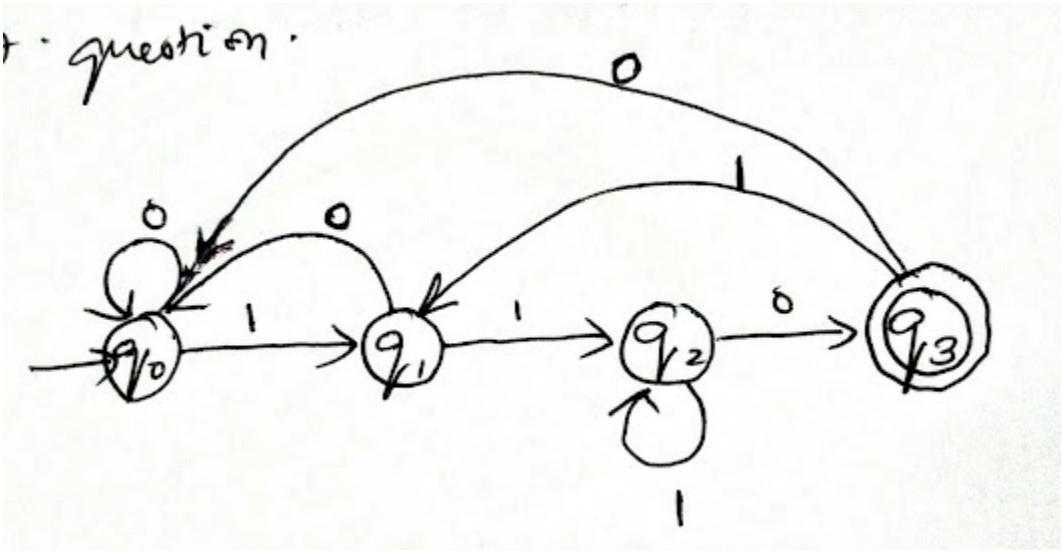
- None of the above
- 1 only
- 2 only
- 3 only
- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1,2 and 3

What can be said about the strings generated by the regular expression (0+10)*? (1) They all contain alternating 1's and 0's (e.g. ...1010101...). (2) They contain atleast as many 0's as 1's (3) No two 1's occur continuously. * 2 points

- None of the above
- 1 only
- 2 only
- 3 only
- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1,2 and 3

The DFA below accepts (1) All strings containing 110 (2) All strings beginning in 110 (3) All strings ending in 110 *

2 points

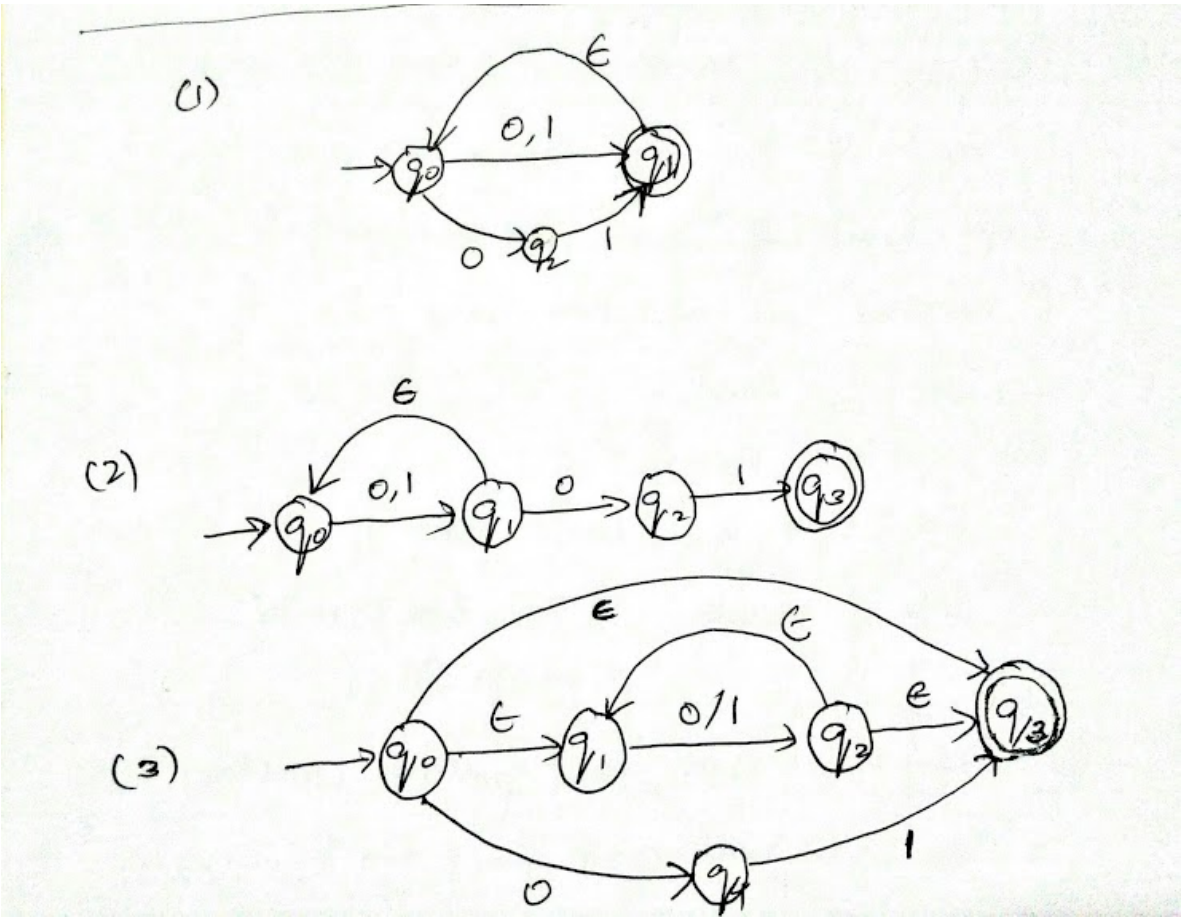


- None of the above
- 1 only
- 2 only
- 3 only
- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1,2 and 3

Which among the following statements is true? (1) language of every DFA is accepted by some NFA (2) language of every NFA is accepted by some DFA (3) DFA and NFA are equivalent * 2 points

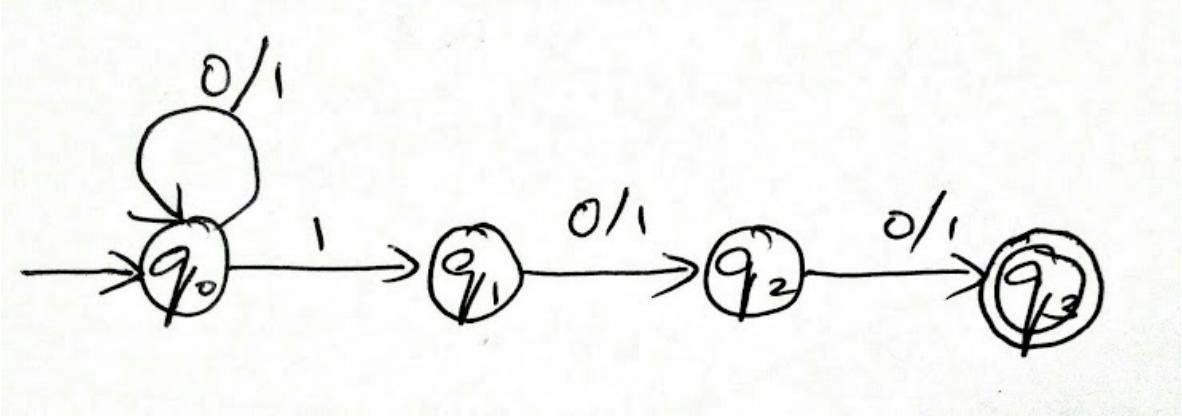
- None of the above
- 1 only
- 2 only
- 3 only
- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1,2 and 3

Which among the following NFA's represents the regular expression (0+1)* + 01? * 2 points



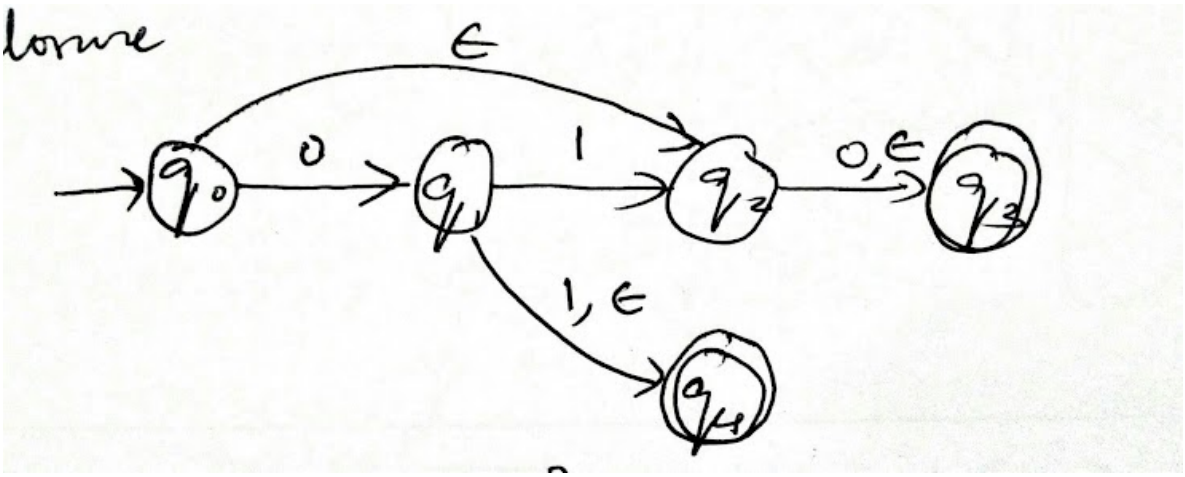
- None of the above
- 1 only
- 2 only
- 3 only
- 1 and 2 only
- 2 and 3 only
- 1 and 3 only
- 1,2 and 3

The below NFA accepts strings in the language * 1 point



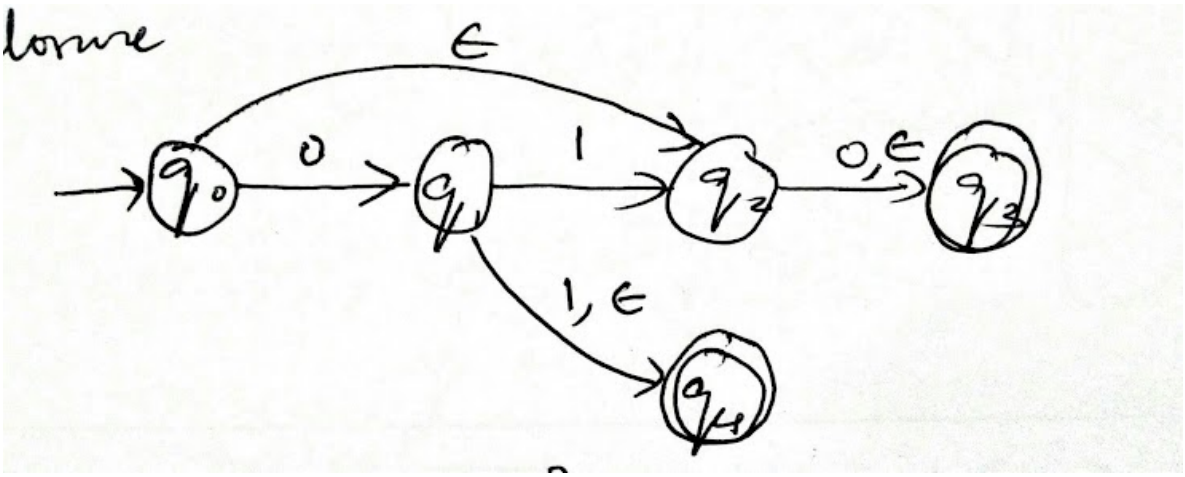
- {0,1}*
- Set of binary strings which contain a 1 in third position
- Set of binary strings which contain a single 1
- Set of binary strings which contain a 1 in the third position from the end

∈-closure(q0) in below figure is * 1 point



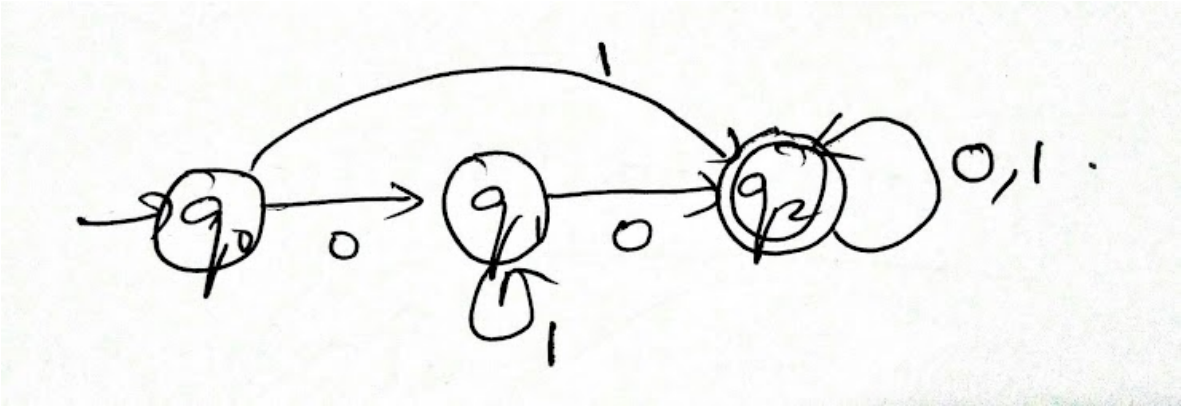
- {q0}
- {q0, q2}
- {q0, q2, q3}
- {q0, q2, q3, q4}
- {q0, q3, q4}

In the ∈-NFA below, what is extended transition function deltacap(q0, 0)? * 1 point



- {q1}
- {q1, q3}
- {q1, q3, q4}
- {q1, q2, q3, q4}
- {q1, q2, q4}

What is the regular expression corresponding to the DFA shown in the figure below? * 1 point



- (01*0+1)
- 01*0(0+1)*
- 1(0+1)*
- (01*0+1)(0+1)*
- (01*0+1)*(0+1)*

A copy of your responses will be emailed to ts6959@srmist.edu.in.

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