B.Tech IV Sem-Short Test ST1- Theory of Automata and Formal Languages

Your email address (**ashish.kumar.co19@nsut.ac.in**) will be recorded when you submit this form. Not you? Switch account

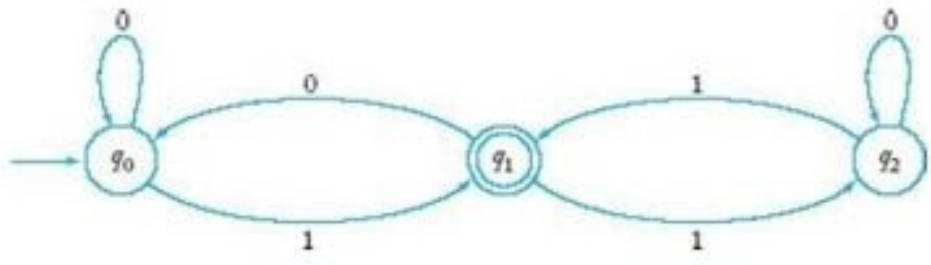
Answer the following questions

Number of tuples in Finite Automata 1 point

- ○ 4
- ◉ 5
- ○ 6
- ○ infinite

Clear selection

Which of the following strings are accepted by the given DFA? 1 point



- 011
- 0001
- 000
- None

Clear selection

Given the language L = {ab, aa, baa}, which of the following strings are in L*? 1. abaabaaabaa 2. aaaabaaaa 3. baaaaabaaaab 4. baaaaabaa 1 point

- 1,3,4
- 1,2,4
- 2,3,4
- 1,2,3

Clear selection

Convert the following Non-Deterministic Finite Automata (NFA) (Figure1) to Deterministic Finite Automata (DFA) 1 point

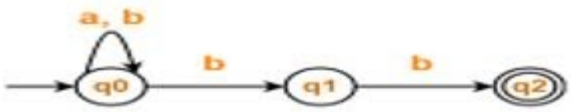


Figure 1

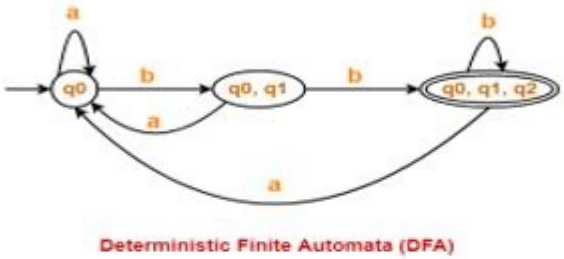


Figure 2

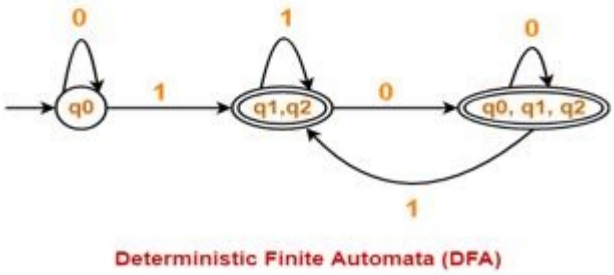


Figure 3

- (●) Correct DFA is given in Figure 2
- ( ) Correct DFA is given in Figure 3
- ( ) Both Figure 2 and 3 are incorrect
- ( ) None of the above

Clear selection

NFA is 'non-deterministic' because 1 point

- ○ undetermined result
- ◉ The choice of path is non-deterministic
- ○ Next state is non-deterministic
- ○ none of the above

Clear selection

Minimum number of states in DFA which accepts a language whose 2nd last symbol is 0 over inputs 0,1 is: 1 point

- ○ 2
- ◉ 3
- ○ 4
- ○ 5

Clear selection

The password to the person account is "CLASS". The total number of states required using DFA would be 1 point

- ○ 14 states
- ◉ 6 states
- ○ 12 states
- ○ cannot be created using DFA

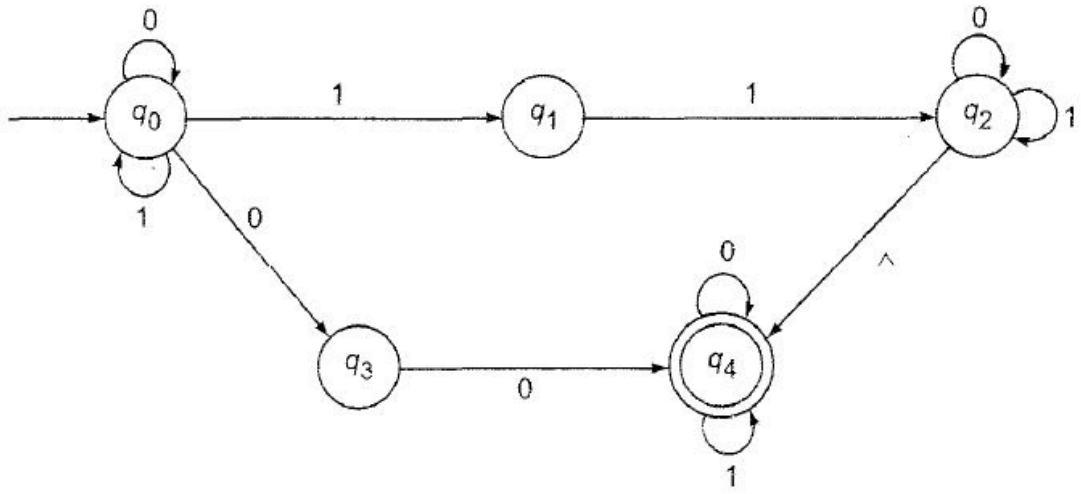
Clear selection

The number of states required to recognize an octal number divisible by 3 are 1 point

- (●) 3
- ( ) 5
- ( ) 8
- ( ) 6

Clear selection

Consider the following FA and select the correct option 1 point



- (●) this is NFA and can accept the string 0100
- ( ) this is DFA and can accept the string 0100
- ( ) this is NFA and can accept the string 01011
- ( ) this is DFA and can accept the string 01011

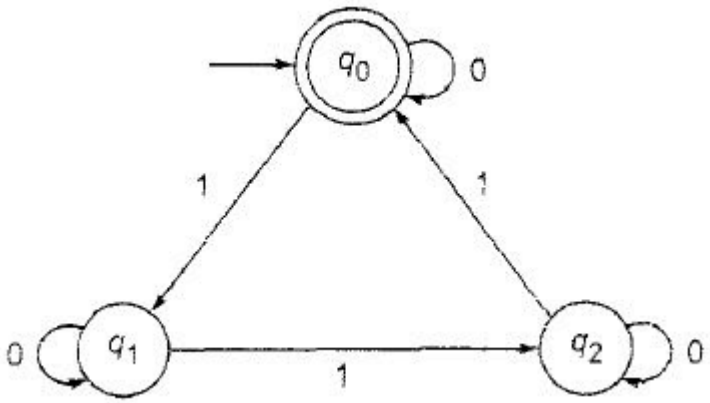
Clear selection

The Regular expression for the machine having following transitions is: q1 on 0 moves to q1, q1 on 1 moves to {q1,q2}, q2 on 0 or 1 moves to q3, no transitions are given from q3. q1 is starting state and q3 is final state. 1 point

- ◯ (0+1)*1*(0+1)*
- ◯ (0+1)*1*(0+1)
- ◉ (0+1)*1(0+1)
- ◯ None of the above

Clear selection

Consider the following FA, choose the correct answer 1 point



- ◯ This is an NFA
- ◉ This is a DFA accepting {0,1}* accepting 01110
- ◯ This is a DFA accepting {0,1}* accepting 10001
- ◯ This is a DFA accepting {0,1}* accepting 11111

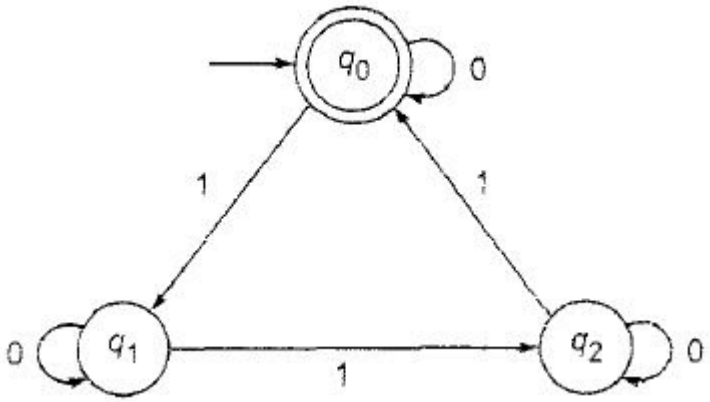
Clear selection

Which among the following is true? (a) RR*=R* (b) Epsilon + RR* = R* (c) (P*Q*)*=(P+Q)* 1 point

- ○ Only a
- ○ only b
- ○ a and b
- ◉ b and c
- ○ none of the above is true

Clear selection

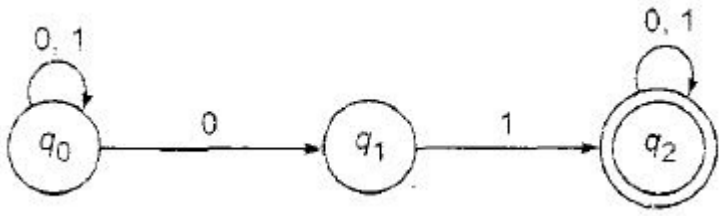
Consider the following FA, if state q2 is also made a final state, then this FA accepts 1 point



- ○ 01110 and 00001
- ○ 10001 and 10000
- ○ 0110 but not 0111101
- ◉ none of the above

Clear selection

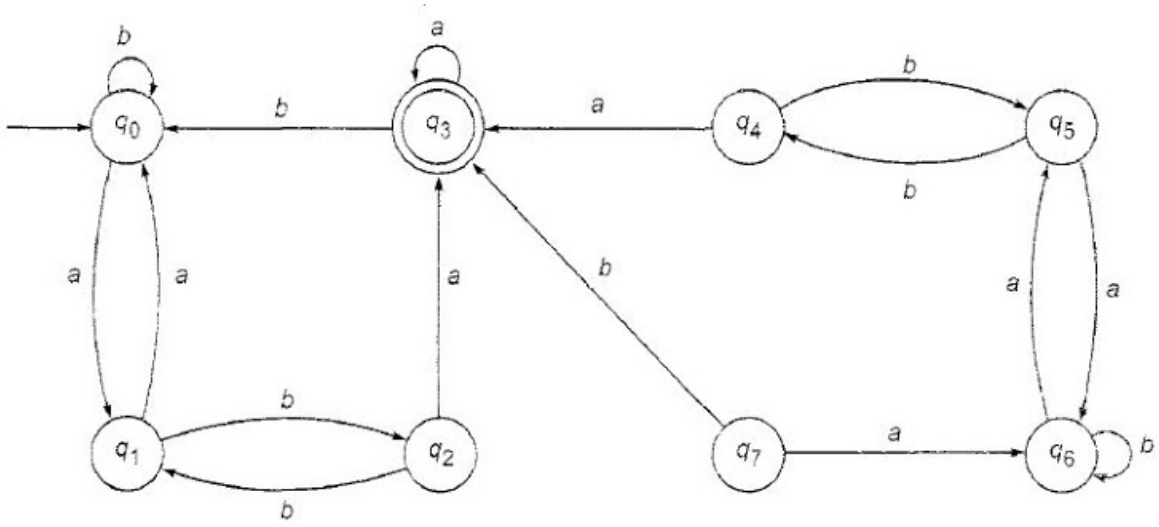
Consider the following FA, choose the correct answer 1 point



- ○ this FA accepts a string with an even number of 0's
- ○ this FA accepts a string with an odd number of 0's
- ◉ this FA accepts a string with 01 as substring
- ○ none of the above

Clear selection

Consider the following FA, choose the correct answer 1 point



- ○ abbaa is accepted but not abbbaa
- ◉ abbbaa is accepted but not abbaa
- ○ abbaa and abbbaa both are accepted
- ○ abbaa and abbbaa both are not accepted

Clear selection

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