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Fall 2024
CSE228 – Theory of Computation
Quiz-1

Section: 64_H **Time: 30 Minutes**

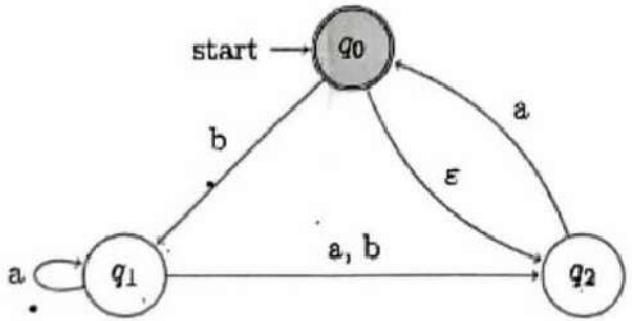
Q1. **Draw a DFA for the following language defined over $\sum = \{0,1\}$** **[2.5]**

$L = \{w \mid w \text{ contains either } 010 \text{ or } 101 \text{ as substrings}\}$

Q2. **Draw a NFA for the following language defined over $\sum = \{0,1\}$** **[2.5]**

$L = \{w \mid w \text{ begins or ends with } 00 \text{ or } 11\}$

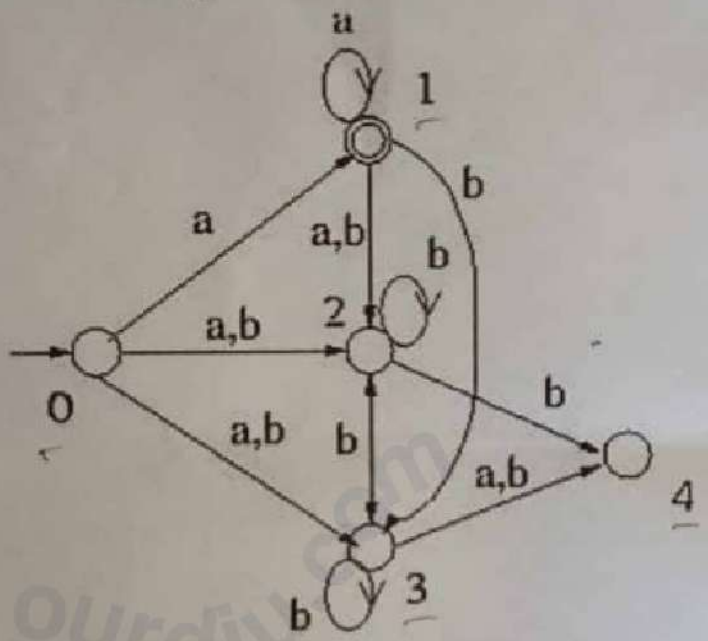
Q3. **Convert the following NFA to equivalent DFA** **[10]**



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Daffodil International University
Computer Science & Engineering
Theory of Computation
Time: 30 minutes
Marks: 15
Quiz 1

1. Construct a DFA that accepts strings over {a, b} that contain exactly two 'a's.
2. Create an NFA that accepts strings over {0, 1} that can have either the pattern "00" or "11" anywhere in the string.
3. Convert the following NFA to DFA



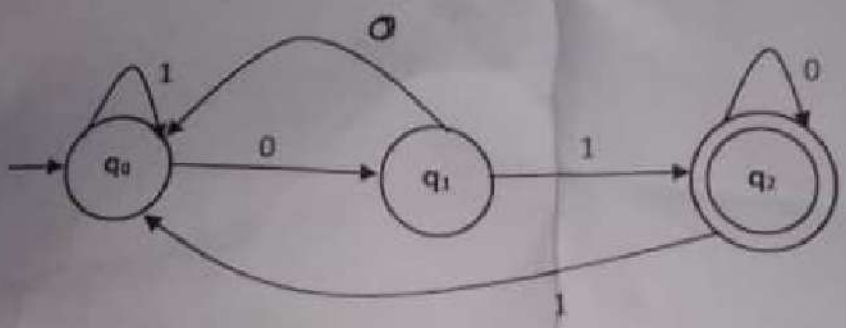
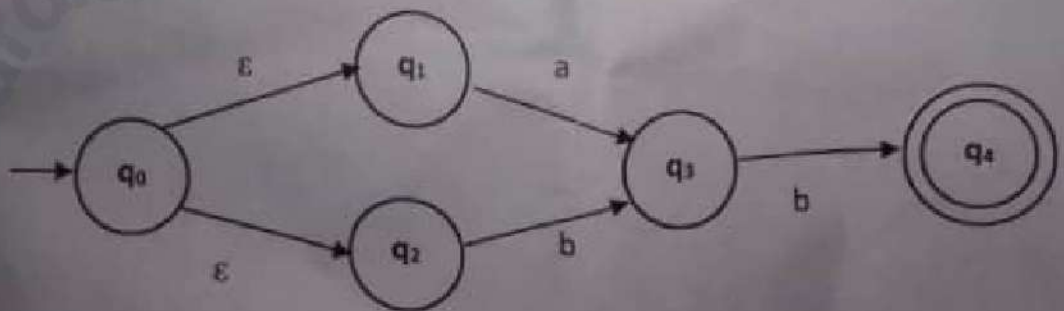
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Quiz – 01

Course Code: CSE228 | Course Title: Theory of Computation
Full marks: 15 | Time: 40 Minutes

Answer each of the following questions

1.	a) What is theory of computation, and what are its primary goals in computer science and mathematics? b) Suppose two languages $L_1 = \{a, ab, bb\}$ and $L2 = \{aa, b\}$. Perform intersection, and concatenation operation on the Languages.	1+2
2.	a) Let M be the Deterministic Finite Automata (DFA) shown below  Provide a formal description of M. b) Construct deterministic finite automata to recognize odd number of 1's and even number of 0's?	3+3
3.	a) Construct an NFA accepting binary strings with three consecutive 0's. b) Convert the ε - NFA into its equivalent DFA.  	2+4