

LNCT University Bhopal

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Enroll No.....

Class Roll No.....

First Mid Semester Examination, 2024

Subject Name : THEORY OF COMPUTATION [ CS-303]

Branch: CS Semester: 3<sup>rd</sup>

Time 1:30 Hrs

Max. Marks 20

Note: All questions are compulsory and have internal choice

Q.1 Construct a Finite Automata which accept all strings in  $\{a,b\}$  that start with (1) bab (2) bba  
[5 marks]

OR

Q.1 Construct Mealy machine that gives 2's complement of a binary string Assume that string is read from LSB to MSB with carry discarded. [5 marks]

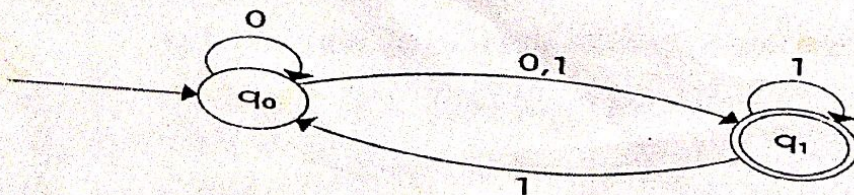
Q.2 Construct a Moore machine that take all string over  $\{a,b\}$  as input & print 1 as output for every occurrence of 'aab' as substring. [5marks]

OR

Q.2 Design a DFA that accepts all binary numbers divisible by 3. [5marks]

Q3. Convert the given NFA to DFA.

[5marks]



marks)

marks)

OR

Q3. Describe 2way DFA and minimization methods of automata.  
[5marks]

marks)

Q4. Differentiate between DFA and NFA

[5marks]

marks)

OR

Q4. Explain the Closure properties of Regular language.