CS & IT ENGINEERING

Theory of Computation

Regular languages

DPP 04 Discussion Notes

Mallesham Devasane Sir

01 Question

02 Discussion

Q.1 Consider following two statements:

✓ **S_1:** Every DFA can be converted into equivalent NFA (By definition)

✗ **S_2:** NFA design is easy because NFA help us to write a program.

Which of the following is correct? **[MCQ]**

A. S_1 only.

B. S_2 only.

C. Both S_1 and S_2 are correct.

D. Both are incorrect.

Q.2

Which of the following statements is/are correct about finite automaton?

[MSQ]

A. Finite automata represent only finite language.

B. Finite automata represents only infinite language.

C. Transition function in NFA is $Q \times \sum \cup \{\in\} \rightarrow 2^Q$

D. Every regular language is finite.

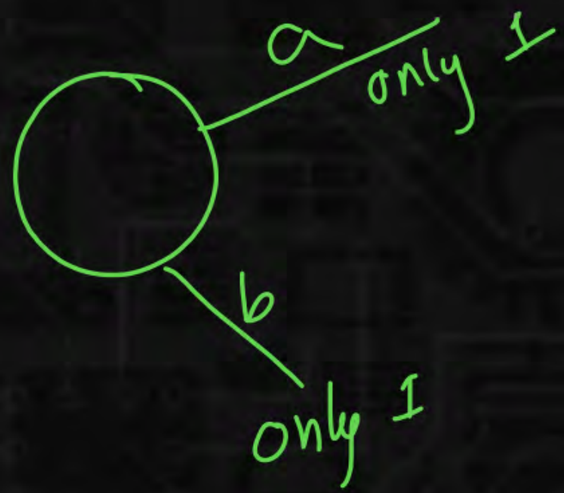
Q.3 From each state, how many transitions are possible in DFA for each input symbol? [MCQ]

A. Exactly 1

B. At least 1

C. Exactly 2

D. Al least 2



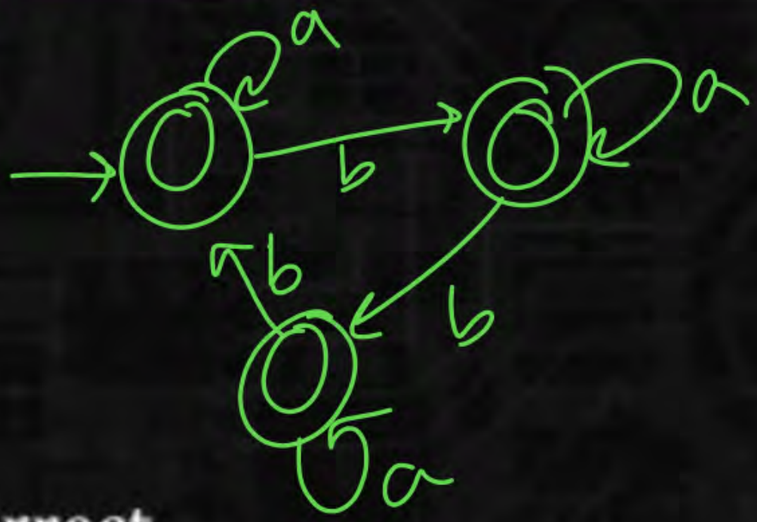
Q.4 Consider following two statements:

S_1: If every state is final state in DFA, then $L(DFA) = \Sigma^*$

S_2: If every state is non-final state in DFA, then $L(DFA) = \{\in\}$

correct

wrong [MCQ]



$L(DFA) = \{\}$
$= \phi$

A. S_1 only.

B. S_2 only.

C. Both S_1 and S_2 are correct.

D. Both are incorrect.

Q.5 For L = $\{(a + b)^2\}$, how many states are required in minimal DFA?

[MCQ]

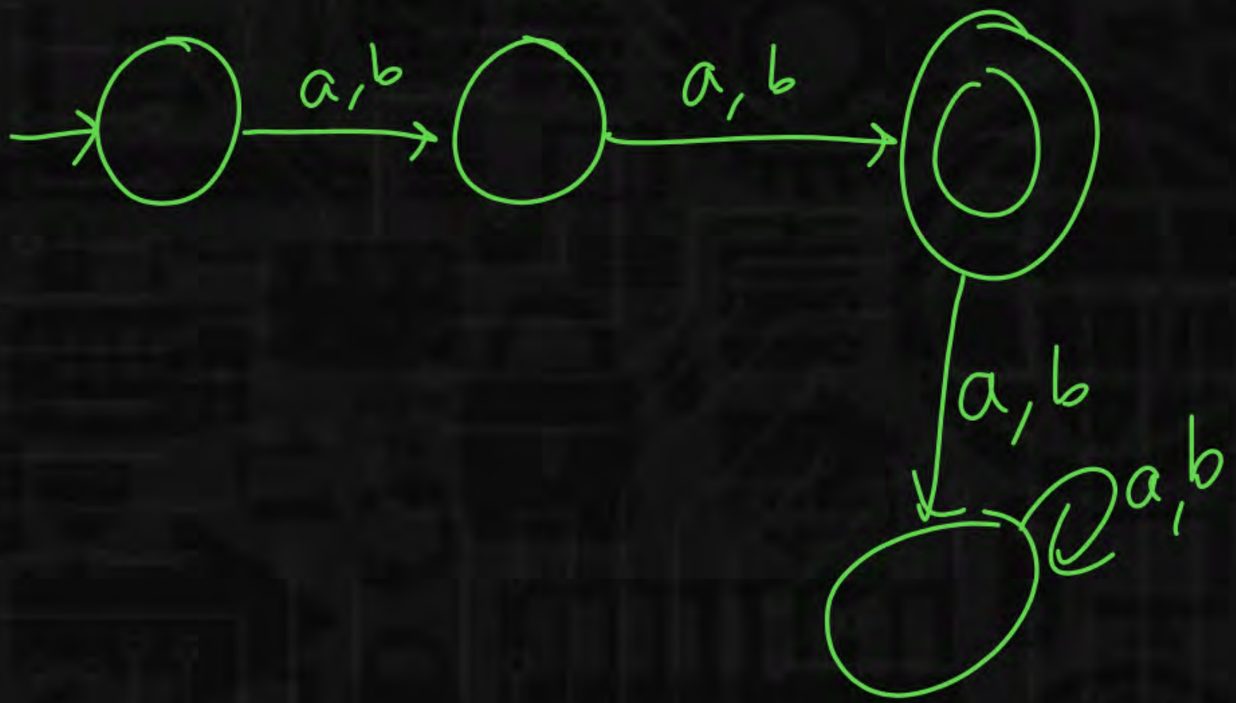
$= \{aa + ab + ba + bb\}$

A. 2

B. 3

C. 4 ✓

D. 1



$L = (a+b)^{100}$

$\downarrow$

$100 + 2$

102 states


THANK YOU GW
SOLDIERS !