

[illegible]

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ASSIGNMENT (Regular languages and properties of regular languages)

1. Show that the regular languages are closed under

- Union
- Concatenation
- Star closure

2.What is pumping lemma? Why it is used?What are the applications of pumping lemma?

3. State and prove lumping lemma.

4. Show that $L = \{WW^R \mid W \in (0+1)^*\}$ is not regular

5. Show that $L = \{a^n b^n | n \geq 0\}$ is not regular

6. Show that $L = \{W \mid n_a(W) = n_b(W)\}$ is not regular

7.Explain the steps involved in minimization of Finite automata

8. What are distinguishable and indistinguishable states of elements

9. Obtain the distinguishable table for automaton and then minimize the states of following DFA

∂	a	B
->A	B	F
B	G	C
*C	A	C
D	C	G
E	H	F
F	C	G
G	G	E
H	G	C

10. Find the Minimized DFA for the following

∂	a	B
$\rightarrow A$	B	A
B	A	C
C	D	B
*D	D	A
E	D	F

F	G	E
G	F	G
H	G	D

11.Minimize the following DFA using table filling algorithm

∂	a	B
->A	B	E
B	C	F
*C	D	H
D	E	H
E	F	I
*F	G	B
G	H	B
H	I	C
*I	A	E