Roll # 24161oo47

Name : M. Mustafa Kamal Malik

Q2. Word : " ( ))) "

S → XB

S → AC

A → (

X → B X'

X' → XY

Y → C

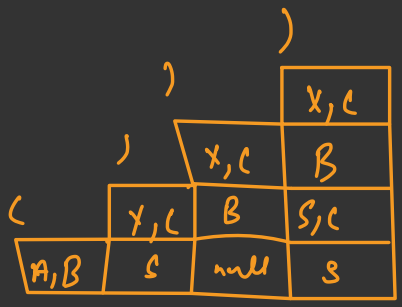
X →)

B → CC

B → (

C → XB

C →)



AX, AC, BX, BC

XX, XC, CX, CC

SX, SC, AB, BB

BX, BC, XB, CB

X, C, SB, AS, BS, Bc

Mustafa Kamal Malik
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Q1: i) It is regular language as it's finite machine is possible as it is $i \geq 0$ so Klean closure can work.

ii) It is regular language as we can have its finite solution

iii) It is not a regular language as we need memory to store value of n to make it large the no.

iv) It is not a regular language as we need memory to store value of n to make it larger than n

v) It is regular language as it is Klean closure.

vi) It is not a regular language as we need different FA's for it.

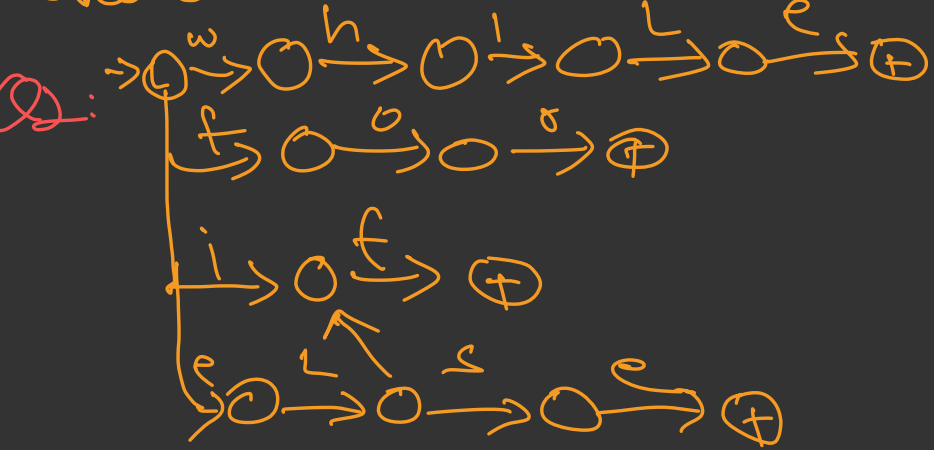
vii) It is regular language as we can make DFA of it

viii) It is not a regular language as "a" power

fixedare need different DFA' for it

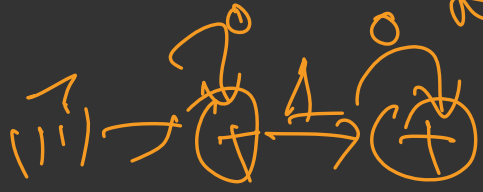
x) It is not a regular language as we need stack to store value.

xi) It is not a regular language we need stack to keep track of number of "b" and "a".

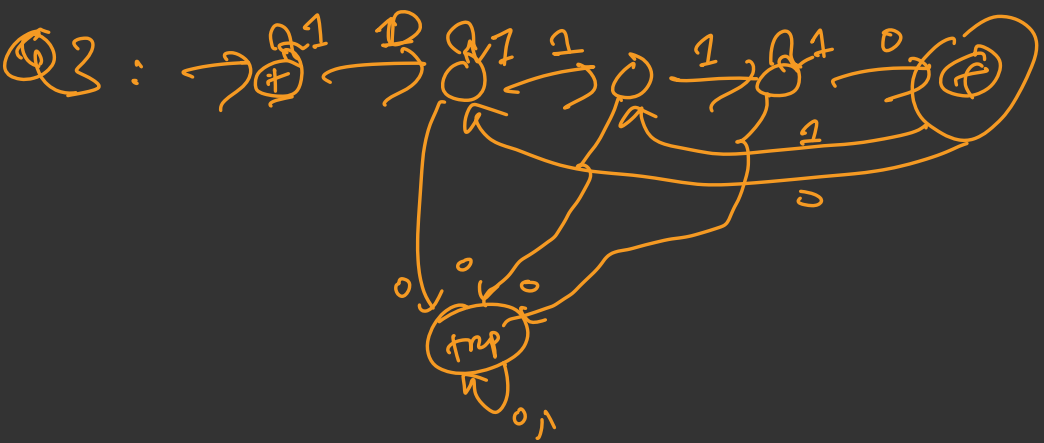


iii)

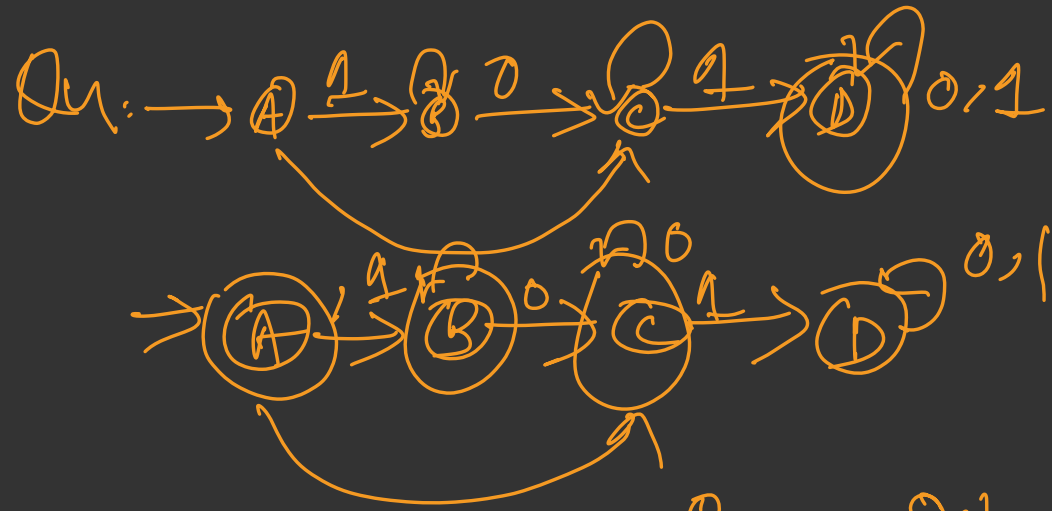
iii)



Q3 :



Q4 :



ii)

iii) Regular Exp of Q2 : $(11+0+0)(0+1)^*$

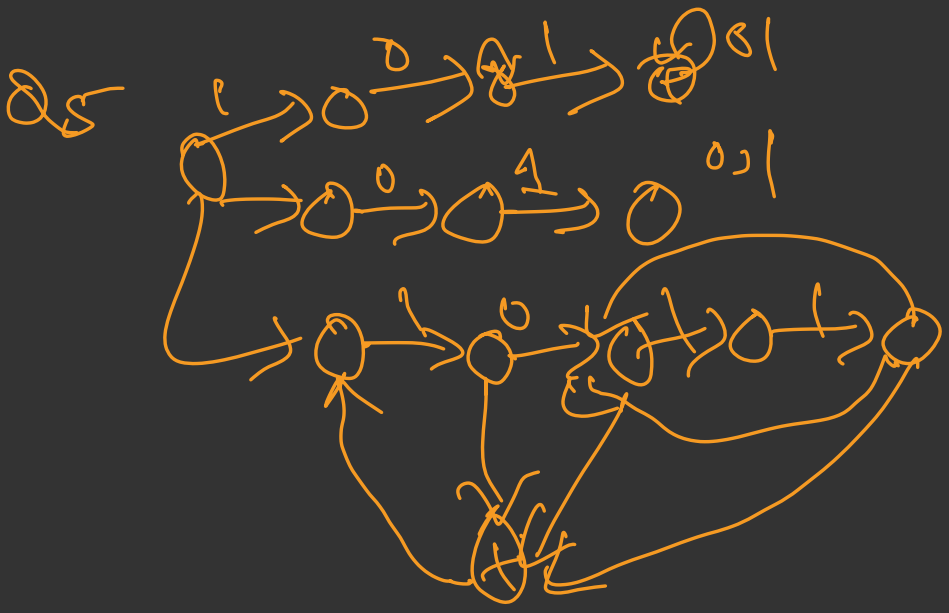
Regular Exp of Q2 = $1^*00^*(0+1)$

They both are same as they validate same strings.

DFA2 is more like minimized of DFA1

Example $\{101, 01, 0100101\}$

Hence DFA1 = DFA2



Q6