Bahria University, Islamabad Campus

Department of Computer Sciences

Assignment 2

Due: 4 April 2021

Class: BSCS 4

Roll No: 01-134192-030 **Name**: Malik Zohaib Mustafa

Individual Assignment

Rules:

- In case of copying, you will be marked Zero.
- Your solution must be handwritten.

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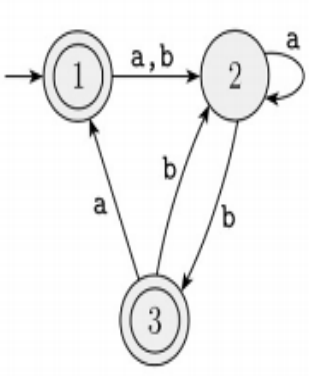
1. Convert the following Finite Automata to Regular Expression using the state elimination technique showing all the steps. Remove the states in the following order 2,1,3.



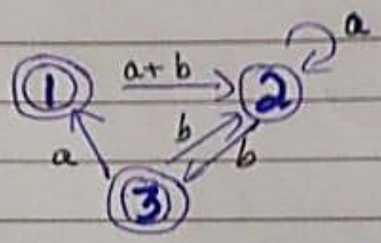
Answer:

Name: Malik Zohaib Mustafa
Enrollment: 01-134192-030
Section: BSCS - 4B

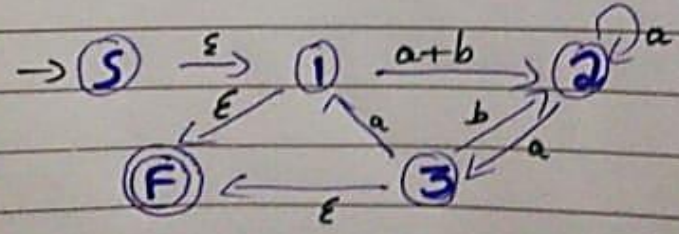
TOA
Assignment 2

Q1

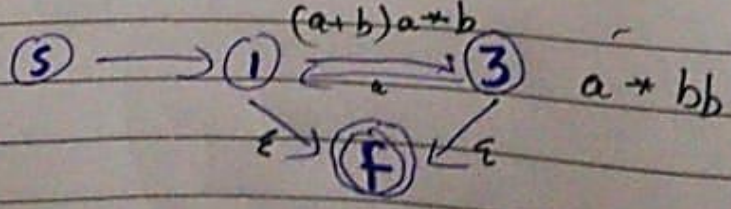
Step 1:



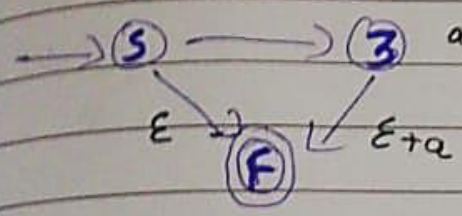
Step 2:



Step 3

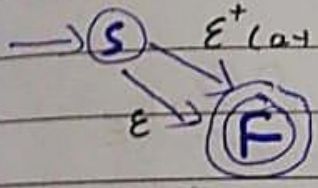


Step 4:



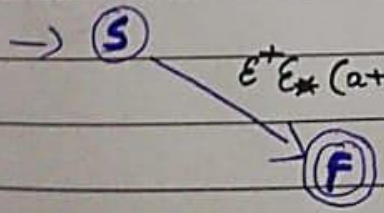
$a^*bb+(a(a+b)a^*b)$

Step 5:



$\varepsilon^+(a+b)a^*b(a^*bb+(a(a+b)a^*b)^*(\varepsilon+a)$

Step 6:



$\varepsilon^+\varepsilon^*(a+b)a^*b(a^*bb+(a(a+b)a^*b)^*(\varepsilon+a)$

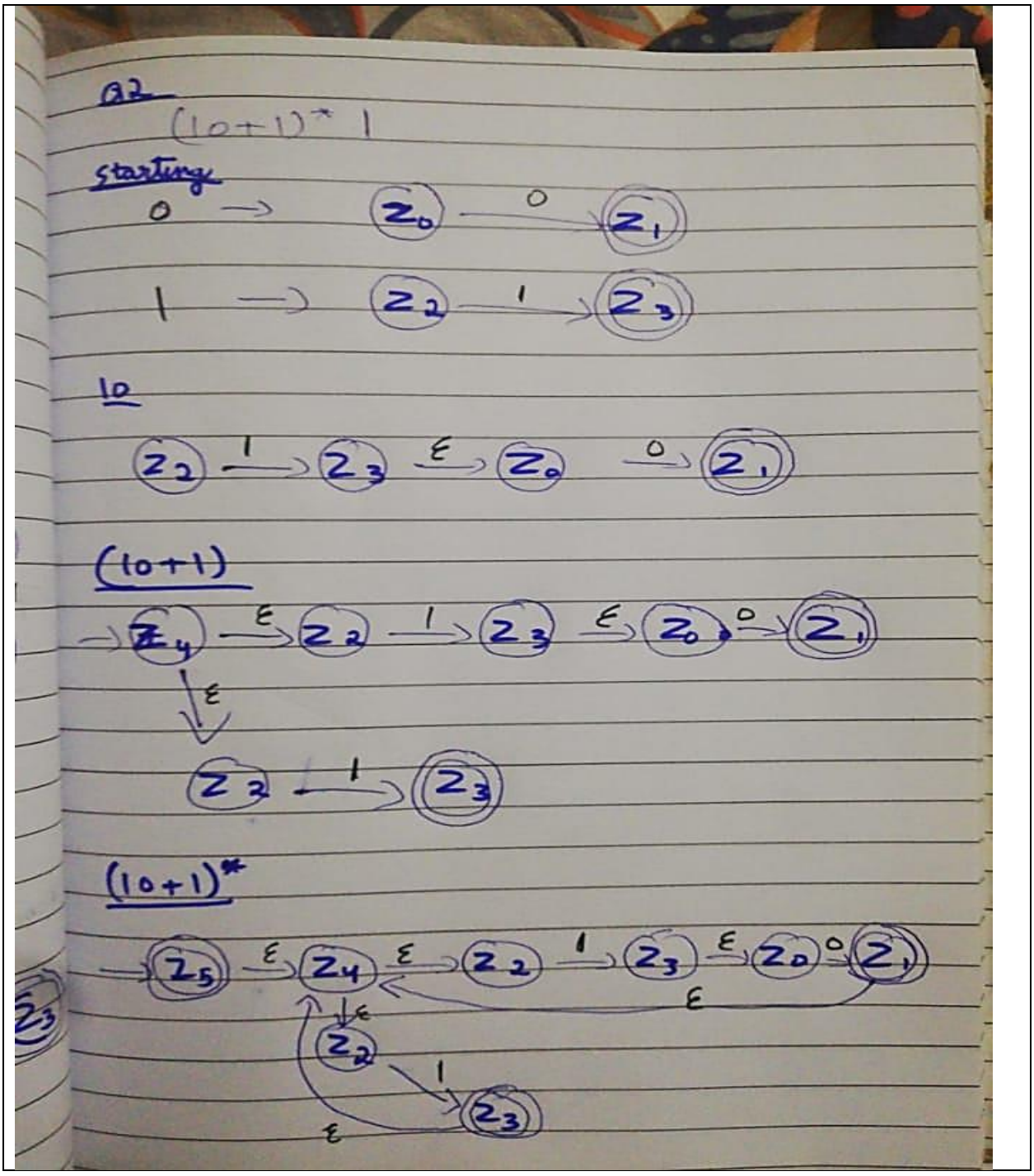
Regular Expression:

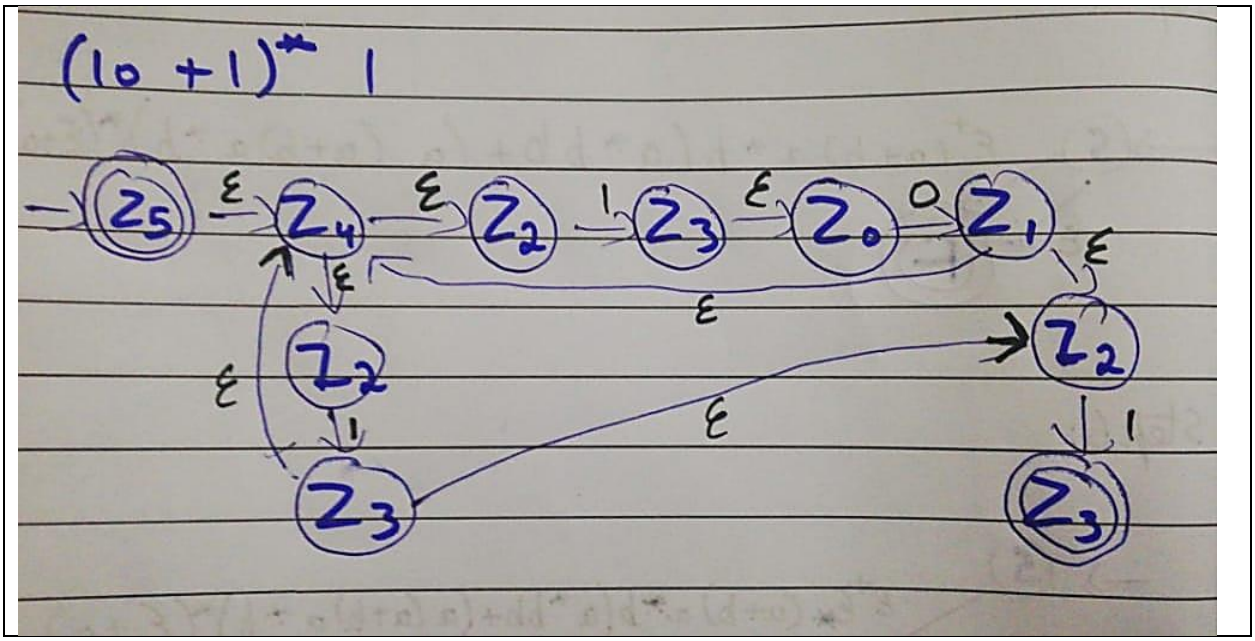
$\varepsilon^+(a+b)a^*b(a^*bb+(a(a+b)a^*b)^*(\varepsilon+a)$

2. Convert Regular expression to Finite Automata using Theorem and you must show all the steps.

   – (10+1)*1

Answer:




(10 + 1)* 1
z5
ε
z4
ε
z2
1
z3
ε
z0
0
z1
ε
ε
ε
z2
ε
1
z3
ε
z2
1
z3