HIGHBROW

TOA Assignment #1

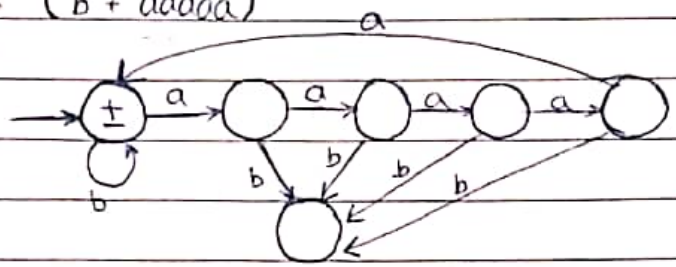
Date:

K213309 , BCS - 4G F

Section A

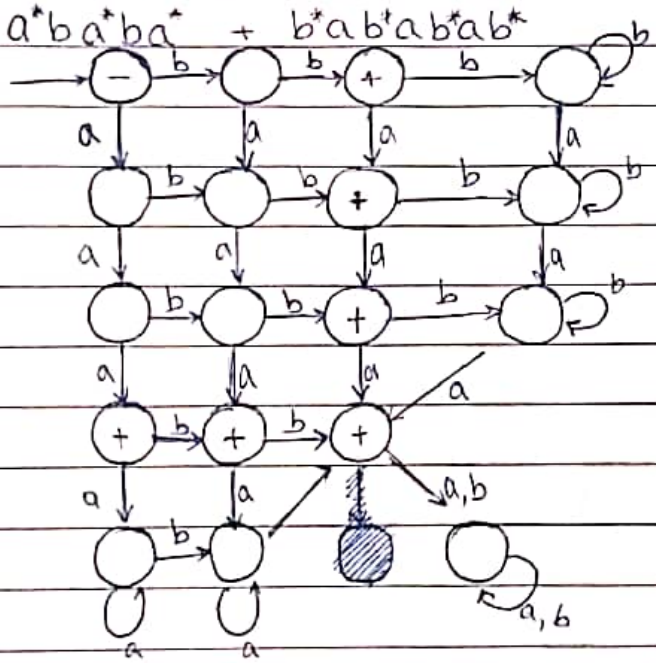
Q1 i) RE: $(b + aaaaa)^*$

DFA:



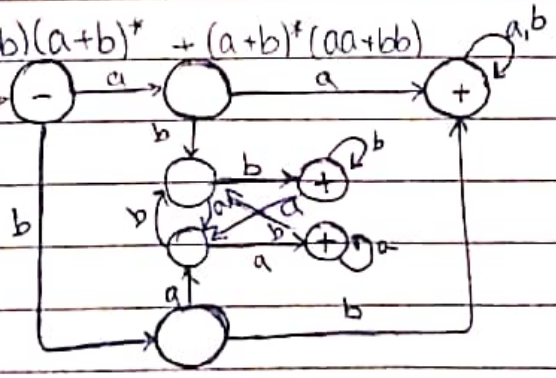
ii) RE: $a^*ba^*ba^* + b^*ab^*ab^*ab^*$

DFA:



iii) RE: $(aa + bb)(a+b)^* + (a+b)^*(aa+bb)$

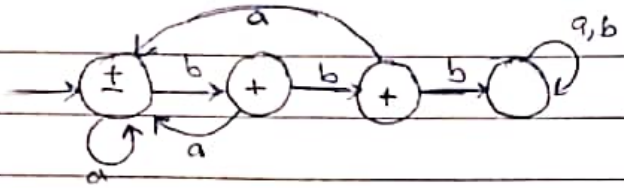
DFA:



Date: ..

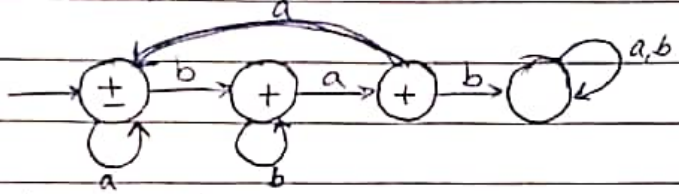
iv) RE = $(\lambda + b + bb)(a + ab + abb)^*$

DFA:



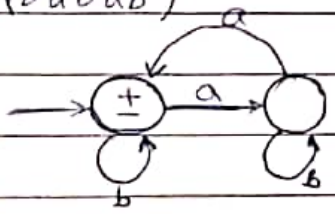
v) RE : $(\lambda + a)(b + aaa^*)^*$

DFA:



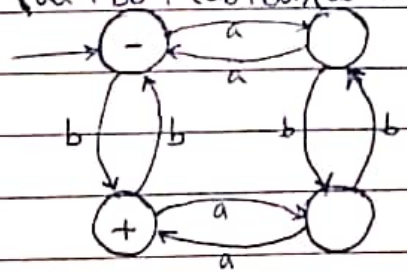
vi) RE: $(b^*ab^*ab^*)^*$

DFA:



vii) RE : $(aa + bb + (ab+ba)(aa+bb)^*(ba+ab))^*(b+(ab+ba)(bb+aa)^*a)$

DFA:



HIGHBROW COLLEGE

Date:

Section B

Q1) $\Sigma = \{a, b, c, d, \ldots, z, A, B, C, \ldots Z, 0, 1, 2, 3, \ldots 9, -, ;, /, ' '\}$

Let RE $= (a+b+\ldots z+A+B+\ldots Z+0+1+\ldots 9+'-') = x$

$RE = x^*((/ + ';')x^*)^*$

Q2a) $\Sigma = \{a, b, c, d, \ldots, z\}$

$RE = (a+b+c+d+\ldots+z)^*(comp + imp)(a+b+c+d+\ldots+z)^*$

b) $RE = (a+b+c+d+\ldots+z)^*$ virus

c) $RE = (a+b+c+d+\ldots+y)^* z00^* (a+b+c+d+\ldots+y)^*$

Q3) $\Sigma = \{a, b, c, d, \ldots, z\}$

Let $V = \{a+e+i+o+u\}$, $C = \{b+c+d+f+g+h+j+k+l+m+n+p+q+r+s+t+v+w+x+y+z\}$

$RE = (CV + C)^+$

Q4) $\Sigma = \{a, b, c, d, \ldots, z, A, B, C, D, \ldots Z, 0, 1, 2, \ldots, 9, !, @, \#, \$, \%, \wedge, \&, *\}$

Let $= x = \{a, b, c, d, \ldots, z\}$, $X = \{A, B, C, D, \ldots Z\}$, $N = \{0, 1, 2, \ldots 9\}$,

$\phi = \{!, @, \ldots *\}$

$RE = (X^+N^+\phi^+ + X^+\phi^+N^+ + N^+X^+\phi^+ + N^+\phi^+X^+ + \phi^+N^+X^+ + \phi^+X^+N^+)(x + X + N + \phi)^*$

Q5) $\Sigma = \{0, 1, 2, \ldots, 9, A, B, C, \ldots Z\}$

Let $= \alpha = \{0, 1, 2, \ldots 9\}$, $\beta = \{A, B, C, \ldots, Z\}$

IBAN RE = $\beta\beta\alpha\alpha\ \beta\beta\beta\beta\ \alpha\alpha\alpha\alpha\ \alpha\alpha\alpha\alpha\ \alpha\alpha\alpha\alpha\ \alpha\alpha\alpha\alpha$

VISA RE = $\underbrace{\alpha\alpha\alpha\alpha\ \alpha\alpha\alpha\alpha\ \alpha\alpha\alpha\alpha\ \alpha\alpha\alpha\alpha}_{\text{LC Num}}\ \underbrace{\alpha\alpha\alpha}_{\text{CVC}}$