ToA ASSIGNMENT 01

NAME: Bilal Ahmed Khan   **Roll No.** 20K-0183
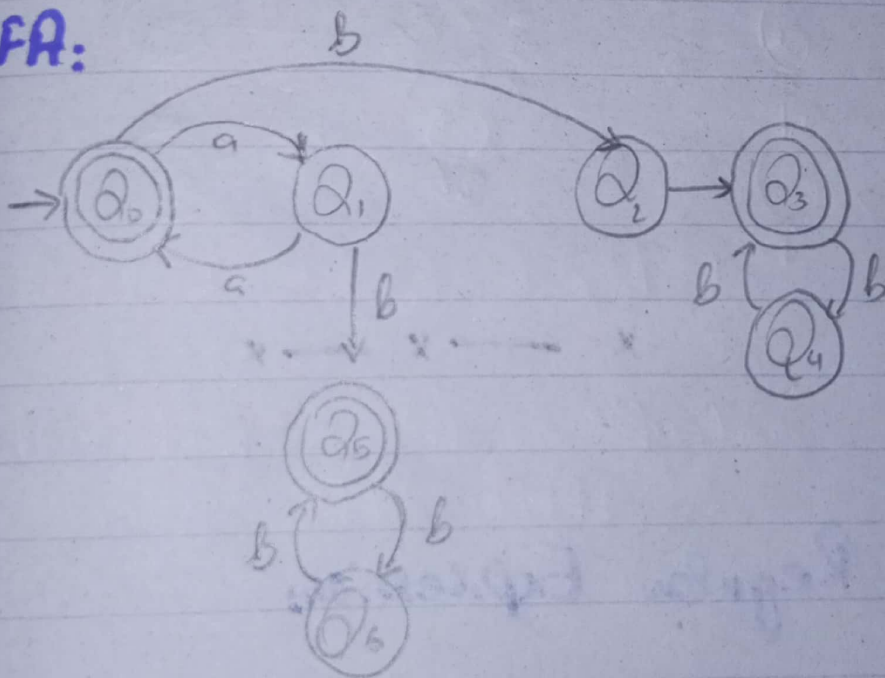
Section: B

Q1.

Regular Expression:

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

DFA:

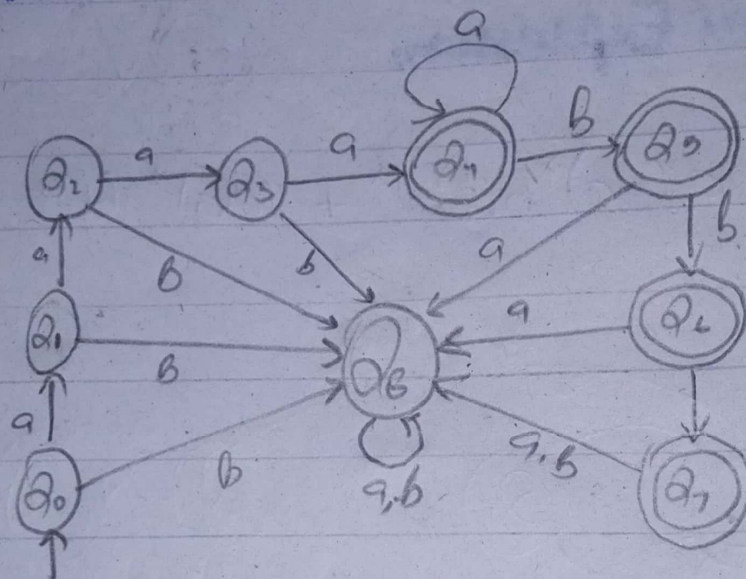$$x \underline{\quad} x \underline{\quad} x$$

Q2.

Regular Expression:

$$aaaaa^* (\lambda + b + bb + bbb)$$
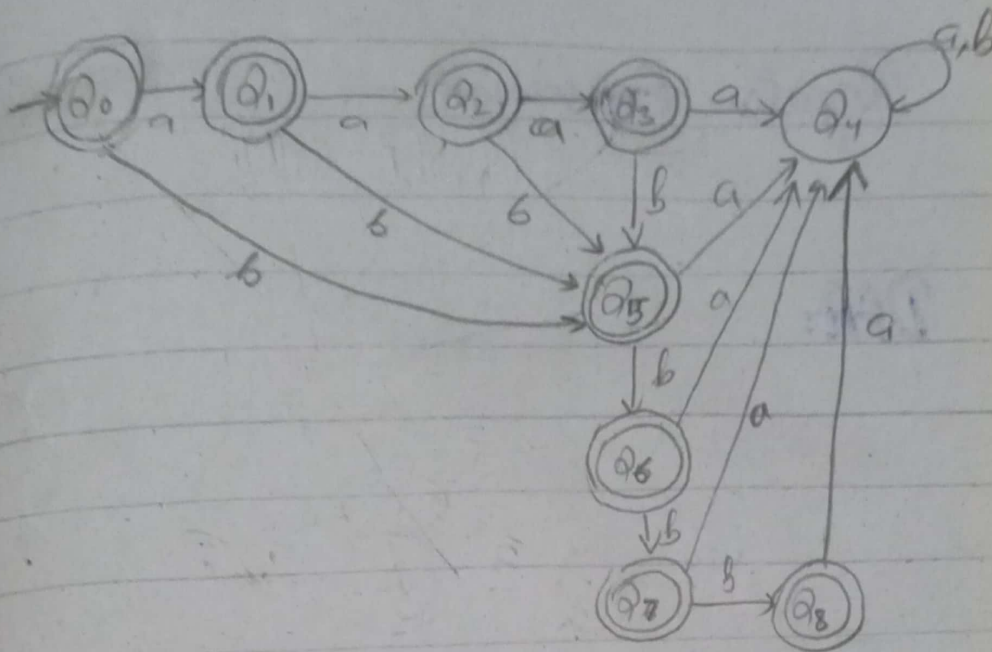
DFA:

x —— x —— x

Q3

Regular Expression:

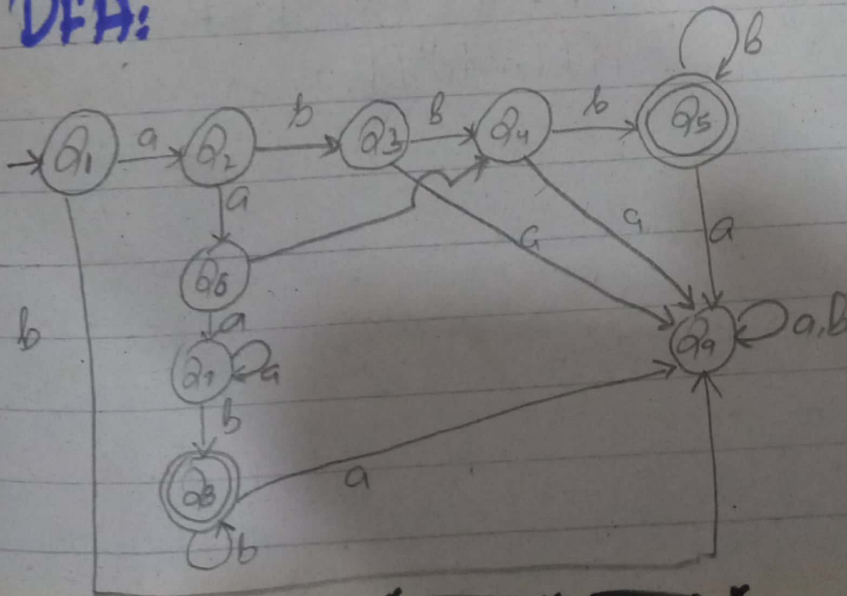$$(a^3 + a^2 + a + \lambda)(b^4 + b^3 + b^2 + b + \lambda)$$

DFA:

x — x — x

Q4.

Regular Expression:
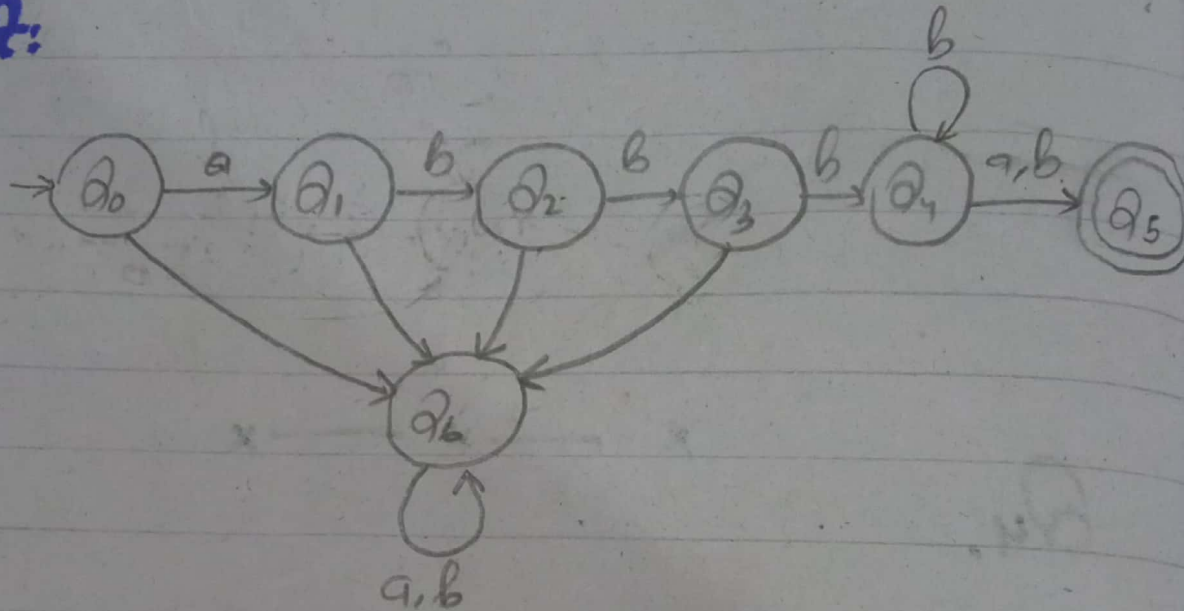
$$abbbb^* + aaaa^*b + aaa^*bbb^*$$
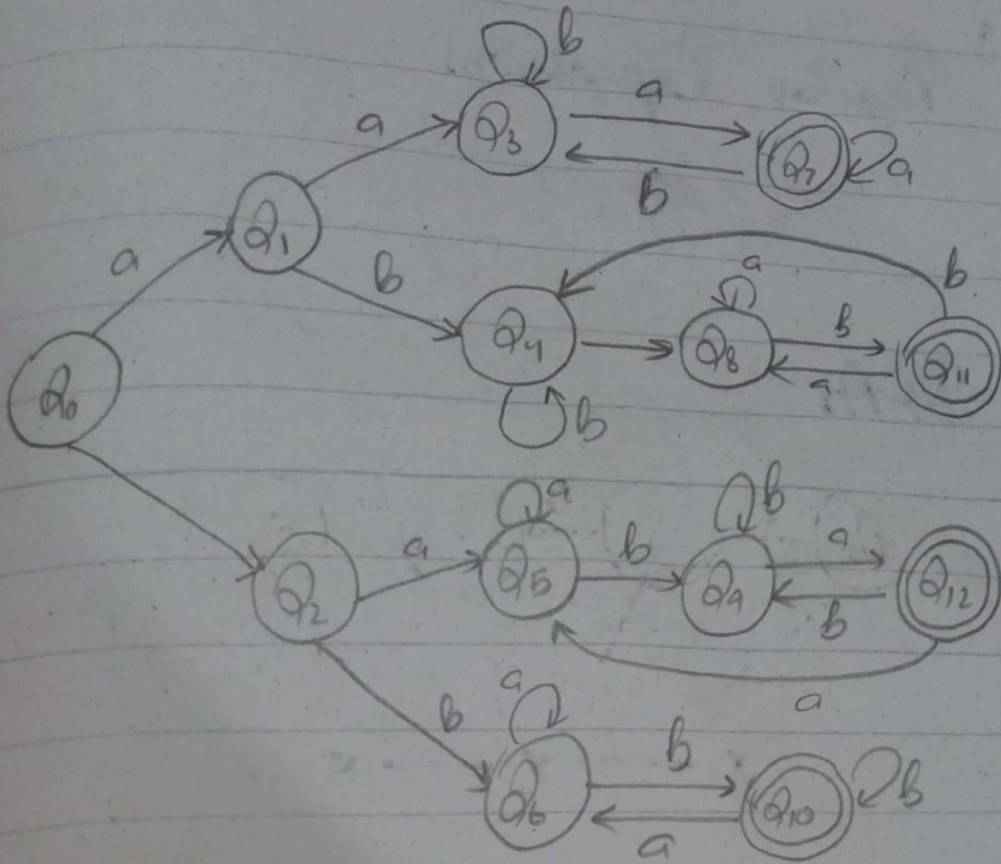
DFA:

Q5

Regular Expression
$$abbbb^*(a+b)^*$$

DFA:

× —— × —— ×

Q6. Regular Expression:

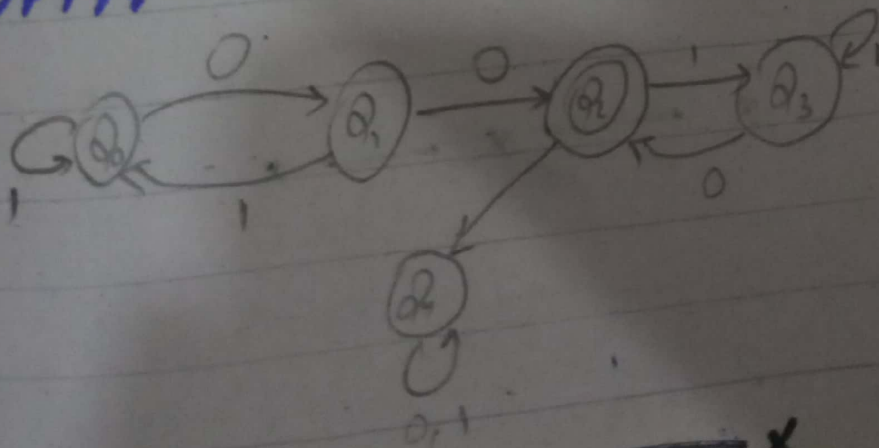$$aa(a+b)^*aa + ab(a+b)^*ab + ba(a+b)^*ba$$
$$+ bb(a+b)^*bb$$

DFA:

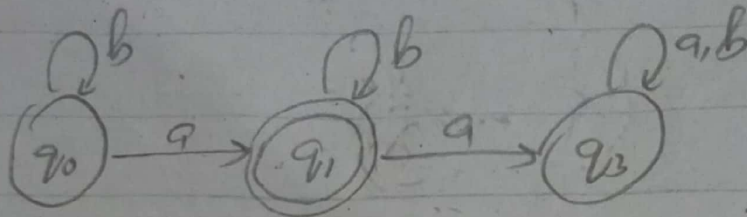x ——— x ——— x

6)
Regular Expression:

$$(1+01)^* 00 (1+10)^*$$

DFA:

Q.8

Regular Expression:

$$b^* a b^*$$

DFA:

$$\times \text{——} \times \text{——} \times$$

Q.9.

Regular Expression:

$$b^* a b^* a b^* a b^* + b^* a b^* a b^* + b^* a b^* + b^*$$

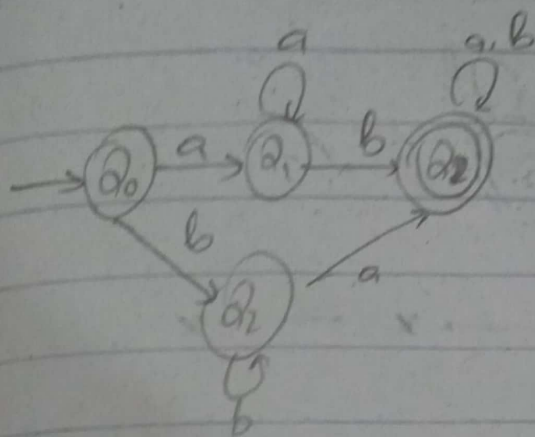### DFA:

$$\times \text{——} \times \text{——} \times$$
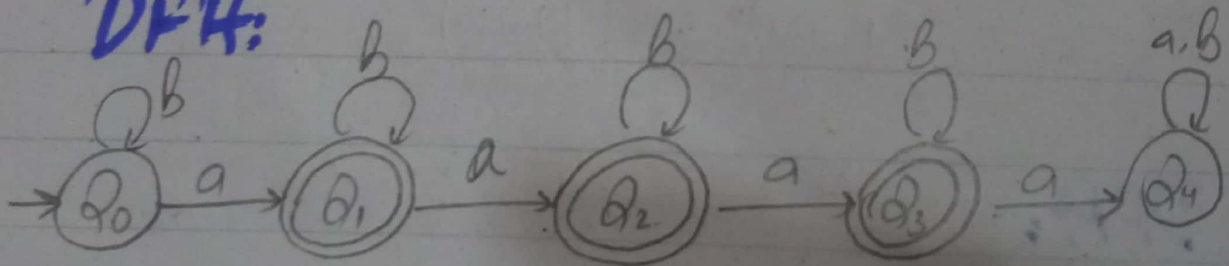
Q10 Regular Expression:

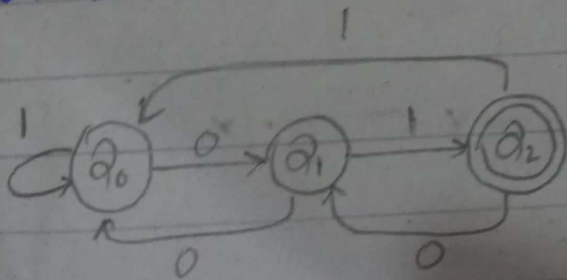$$(a+b)^* a (a,b)^* b (a+b)^+$$

DFA:

x —— x —— x

Q11 Regular Expression:

$$(0+1)^* 01$$

DFA:

x —— x —— x

Q_{12}

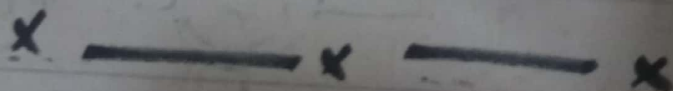Regular Expression
$$(0+1)^* (0+10+11)+1$$

DFA:

$$x —— x —— x$$
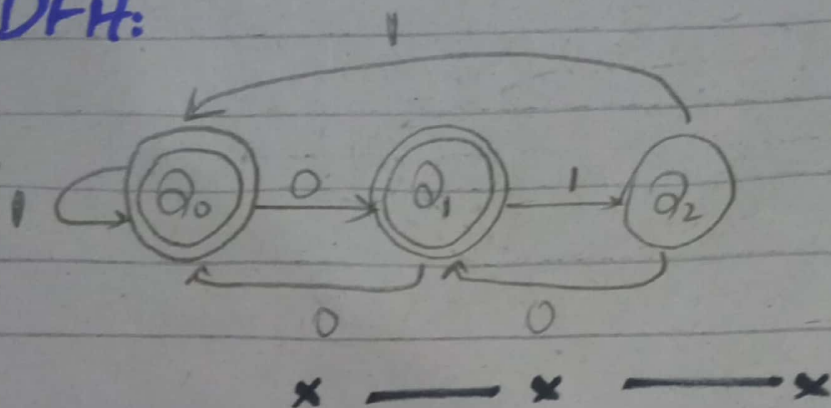
Q_{13}

Regular Expression:
$$(1^*01^*01^*)^*$$

DFA:

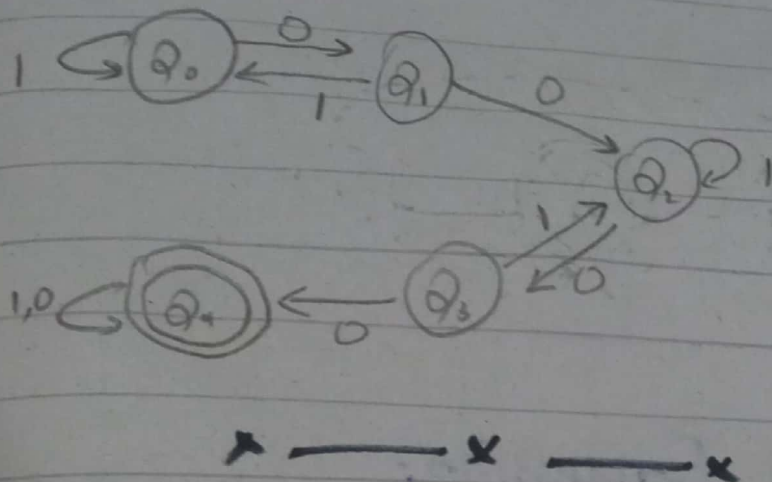$$x —— x —— x$$
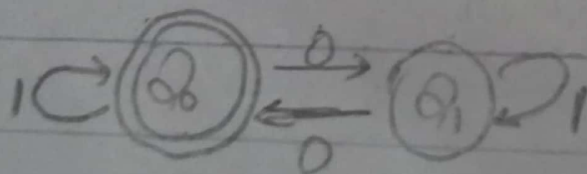
Q14

Regular Expression:
$$(0+1)^*00(0+1)^*00(0+1)^*$$
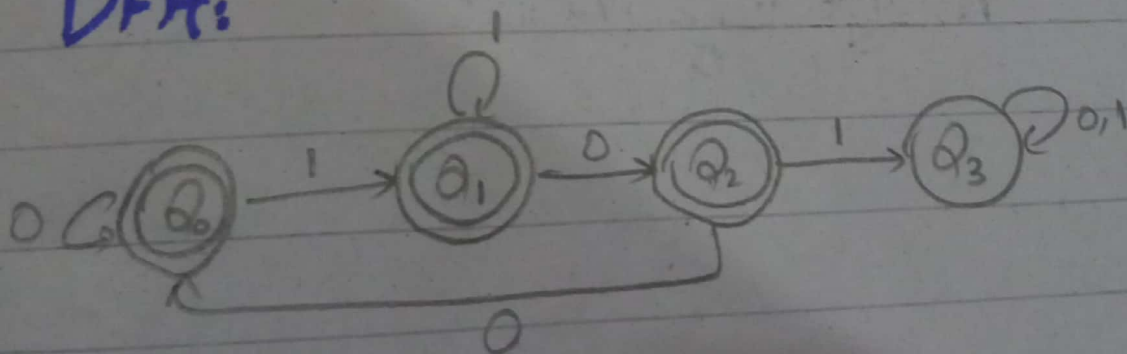
DFA:

Q15

Regular Expression:
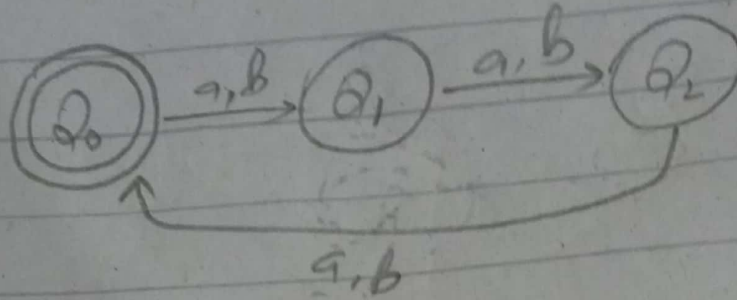$$(0+\lambda)(00+1)^*(0+\lambda)$$

DFA:

Q16

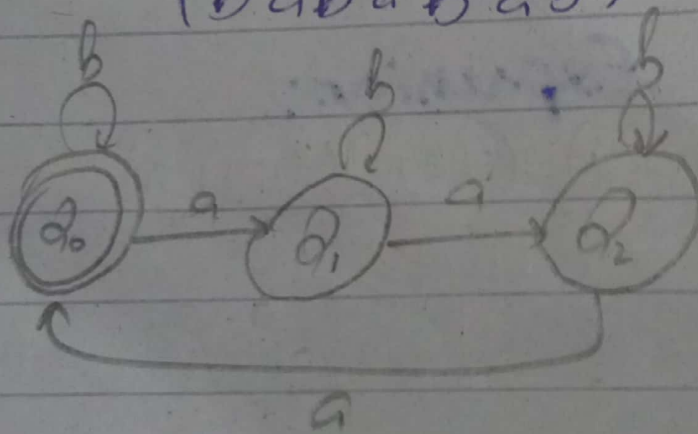Regular Expression:
$$((a+b)(a+b)(a+b))^*$$
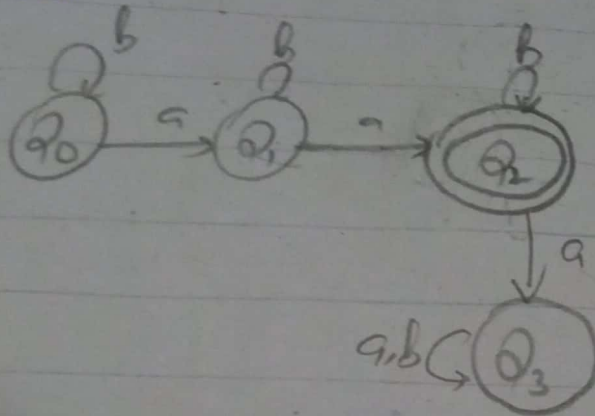
DFA:

Q17

Regular Expression:

$$(b^*ab^*ab^*ab^*)^*$$
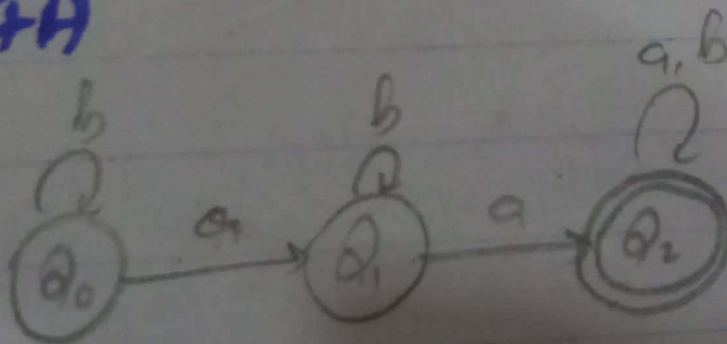
DFA:

Q.18

Regular Expressions:

$$b^* a b^* a b^*$$

DFA:

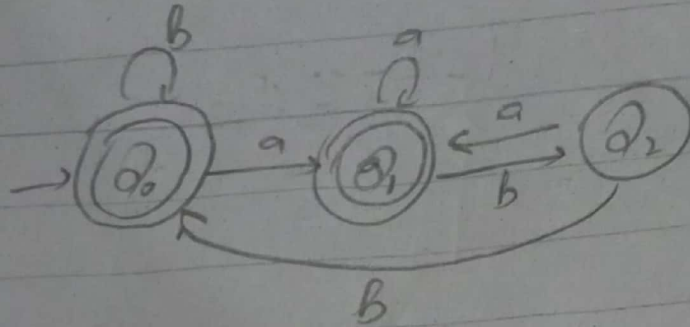
Q.19

Regular Expression:

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

DFA

Q20 Regular Expression:

$$\lambda + a + b + (a+b)^* (aa + bb + ba)$$
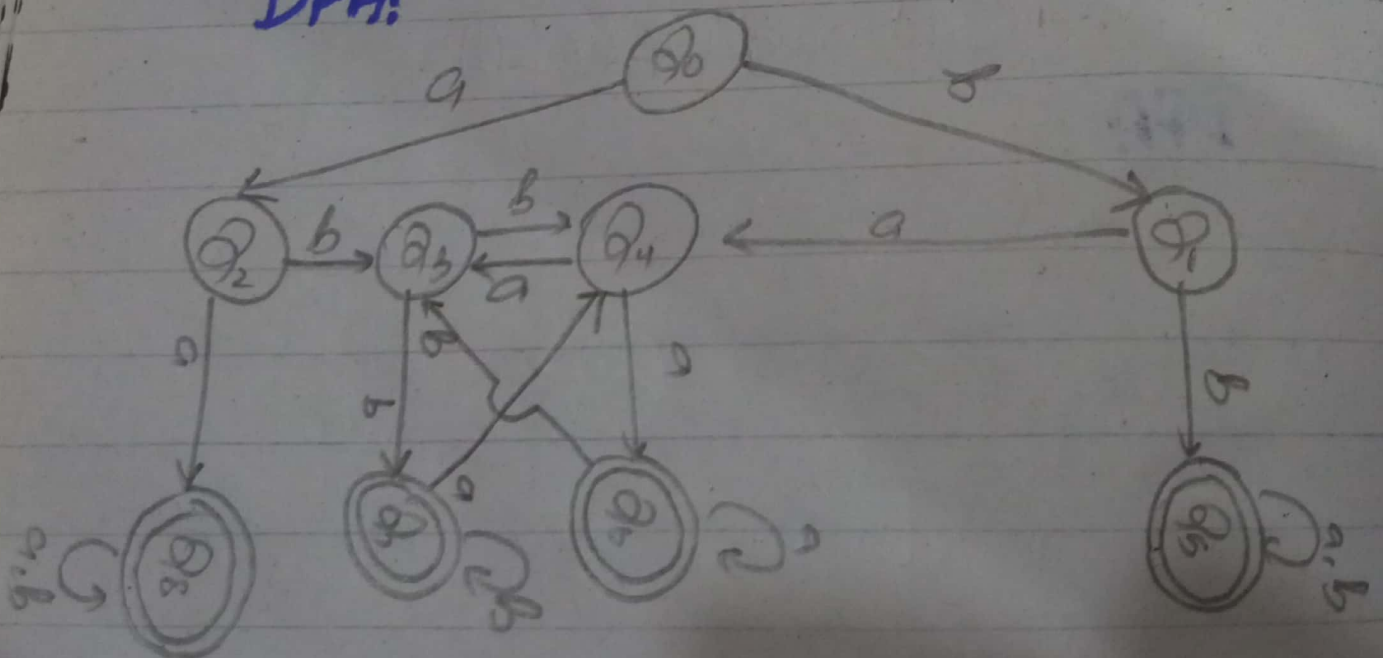
DFA:

Q21 Regular Expression:

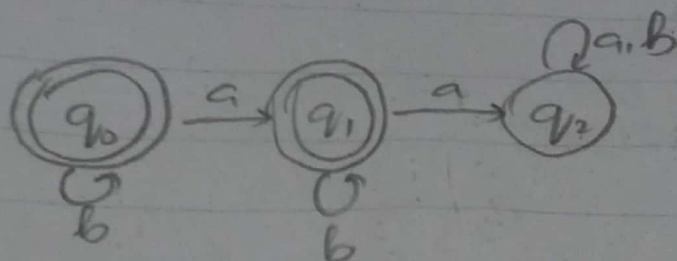$$aa(a+b)^*_+ (a+b)^* aa + bb(a+b)^* + (a+b)^* bb$$

DFA:

Q22

Regular Expression:
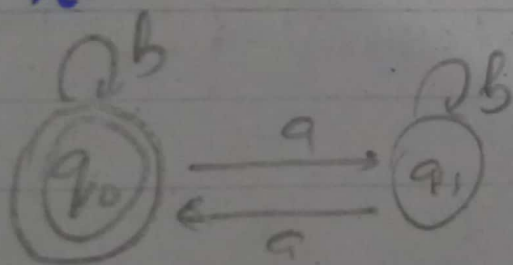$$(b^*ab^*b^* + b^*bab^*)^* + b^*$$

DFA:
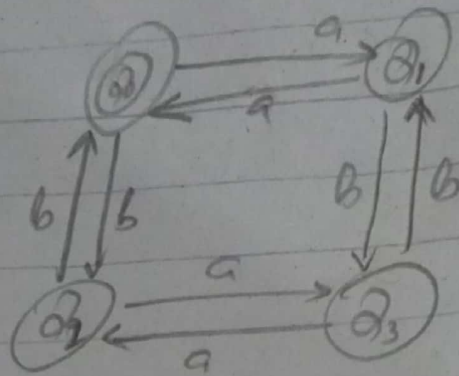

Q23

Regular Expression:

$$(b^*ab^*ab^*)^* b^*$$

DFA:

Q.24

Regular Expression:

$$(aa+bb+(ab+ba)^*)^+$$

DFA:

Q.25

Regular Expression:

$$(b+ab)^*(\lambda+a+aa)(b+ba)^*$$

DFA: