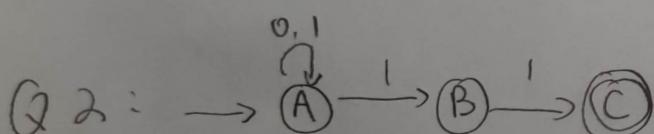
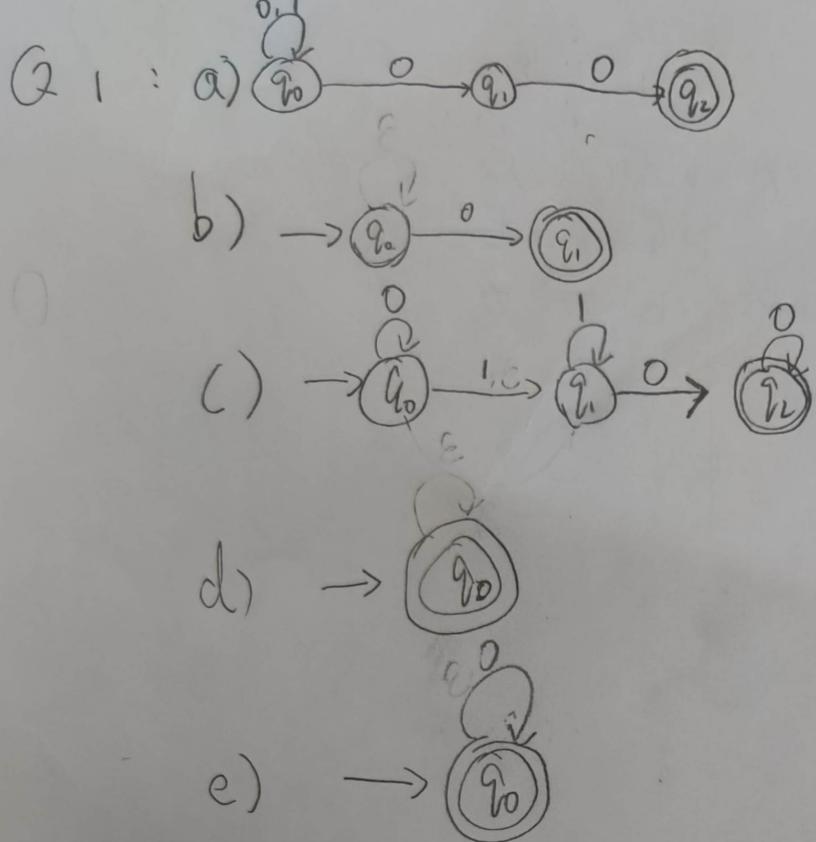


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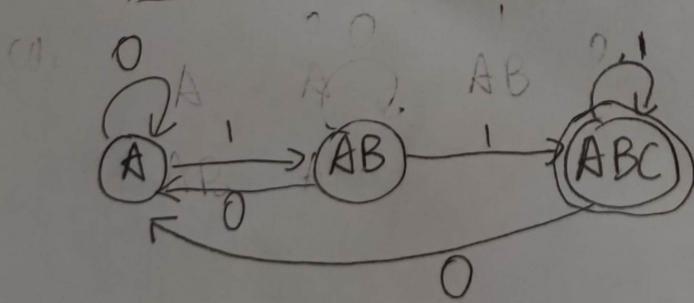


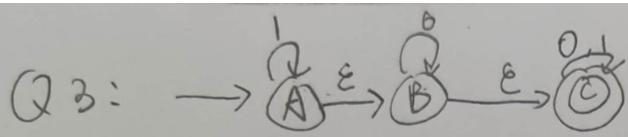
①

	0	1
A	A	A, B
B	$\emptyset$	C
C	$\emptyset$	$\emptyset$

②

	0	1
A	A	AB
AB	$\emptyset$	ABC
ABC	A	ABC

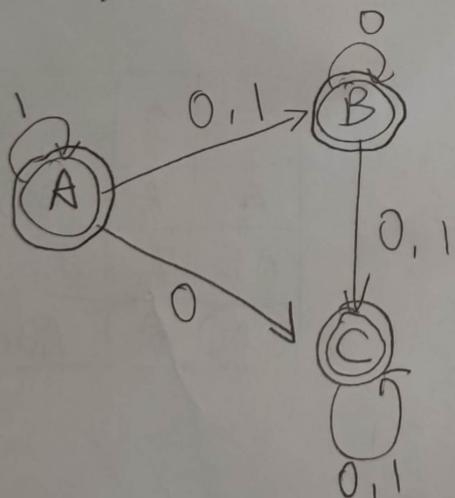




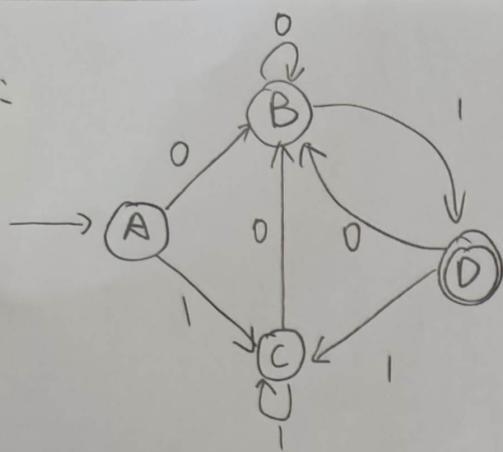
	$\epsilon^*$	0	$\epsilon^*$
$A \xrightarrow{\epsilon} B$	B	$B, C$	
$\downarrow A$	$\emptyset$	$\emptyset$	
$B \xrightarrow{\epsilon} B$	B	$B, C$	
$\downarrow C$	C	C	
$C \xrightarrow{\epsilon} C$	C	C	

	$\epsilon^*$	1	$\epsilon^*$
$A \xrightarrow{\epsilon} B$	$\emptyset$	$\emptyset$	
$\downarrow A$	A	A, B	
$B \xrightarrow{\epsilon} B$	$\emptyset$	$\emptyset$	
$\downarrow C$	C	C	
$C \xrightarrow{\epsilon} C$	C	C	

A	0	1
A	BC	AB
B	BC	C
C	C	C



Q 4 :

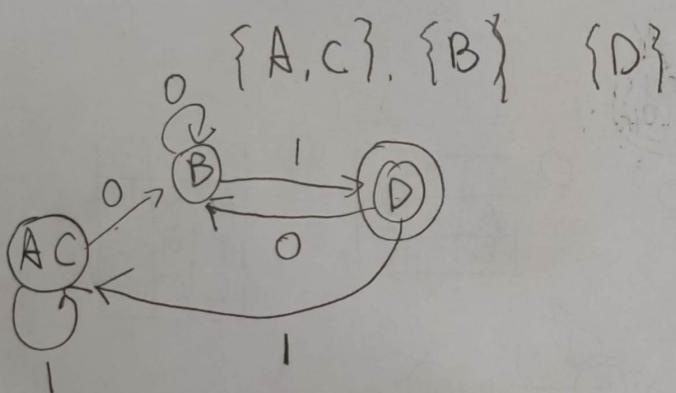


	0 , 1	
A	B	C
B	B	D
C	B	C
D	B	C

0 → equivalence. {A, B, C} {D}

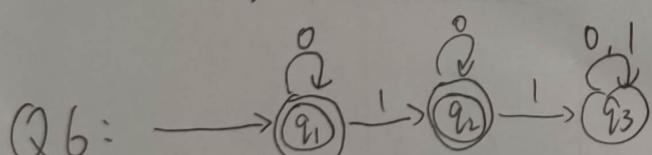
1 → equivalence {AC}, {B} {D}

2 →



Q5: a)  $(a+b)(a+b)^*$

b)  $(\epsilon+a+b)(\epsilon+a+b)(\epsilon+a+b)$



Final state  $q_1$ .

$$q_1 = \epsilon + q_1 \cdot 0$$

$$q_1 = \epsilon \cdot 0^* = 0^*$$

$$q_3 = q_3 \cdot 0 + q_3 \cdot 1 + q_2 \cdot 1$$

$$q_2 = q_2 \cdot 0 + q_1 \cdot 1$$

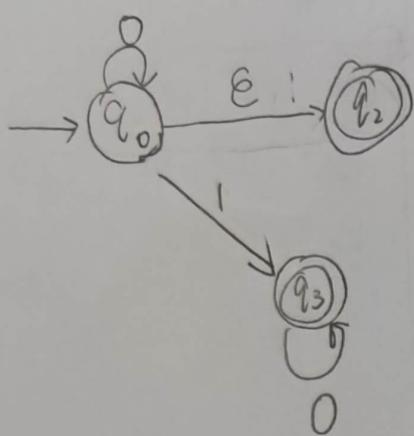
$$q_1 = q_1 \cdot 0$$

$$q_3 = q_1 \cdot 1 + q_2 \cdot 0 \quad R = 0^* + 0^* 1 0^*$$

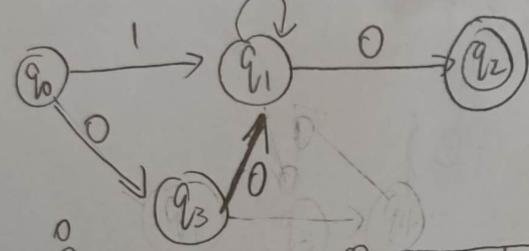
$$q_2 = 0^* 1 + q_2 \cdot 0 \quad = 0^* (\epsilon + 1 0^*)$$

$$q_2 = 0^* 1 0^*$$

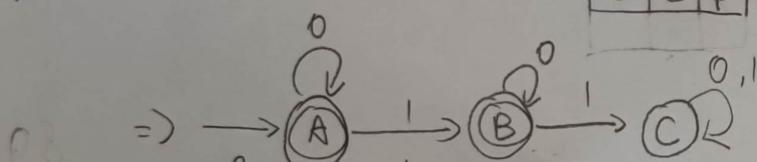
$$Q7 \quad a) \quad 0^* + 0^* \mid 0^* = 0^*(\epsilon + 10^*)$$



$$b) \quad 10 + (1+00)1^*0$$



$$Q8: \quad a) \rightarrow A \xrightarrow{1} B$$



	0	1
A	A	B
B	B	$\phi$

(3)	0	1
A	A	B
B	B	C
C	C	C

$$b) \rightarrow A \xrightarrow{\epsilon} B$$

	$\epsilon$	0	$\epsilon$
A	A	AB	AB
B	B	A	AB
B	B	A	AB

	$\epsilon$	0	$\epsilon$
A	A	$\phi$	$\phi$
B	B	B	B
B	B	B	B

$\Rightarrow$

	0	1
A	AB	B
B	AB	B

$$\begin{array}{ccccc} & & & & \\ & A & \xrightarrow{0,1} & B & \xrightarrow{0,1} \\ & & & & \\ & & & & \end{array}$$

NFA to DFA:

	0	1
A	AB	B
B	AB	B

	0	1
A	AB	B
AB	AB	B
B	AB	B

