

① Write the logic equation for the diagrams below:

	$X = AB (+) \text{not}B$
	$X = \text{not}(A(+B)) * \text{not}(A+B)$
	$X = \text{not}((C + \text{not}B) * (A(+B)))$
	$X = \text{not}(((A(+B)) * (B(+C))) + (A(+B)))$

② Draw the diagram for the logic equations below:

1. $\text{Out1} = A + C + BD + (\text{not}B \text{ not}D)$
2. $\text{Out2} = \text{not}B + (\text{not}C \text{ not}D) + CD$
3. $\text{Out3} = B + \text{not}C + D$
4. $\text{Out4} = (\text{not}B \text{ not}D) + (C \text{ not}D) + (BC\text{not}D) + (\text{not}B C) + A$

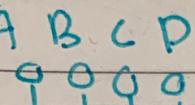
1)

A

B

C

D



2)

C

D

0 0

0 1

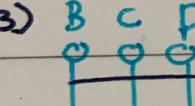
1 0

1 1

B

C

D



3)

B

C

D

0 0

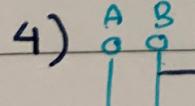
0 1

A

B

C

D



4)

A

B

C

D

1 1 1

0 0 0

0 0 1

0 1 0

1 0 0

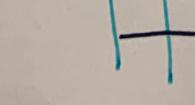
1 0 1

A

B

C

D



③ Simplify the K-map Tables below and write the logical equations:

Table 1

ab/	00	01	11	10
c				
0		1		
1		1	1	

Equation ;
notA*B + CB

Table 2

ab/	00	01	11	10
c				
0		1		1
1		1	1	1

Equation ;
notAB + CB + AnotB

Table 3

ab/	00	01	11	10
c				
0	1			1
1	1			1

Equation ;
notB

Table 4

ab/	00	01	11	10
c				
0	1	1	1	1
1			1	

Equation ;
notC+AB

Table 1

ab/	00	01	11	10

cd

00	1			1
01				
11				
10	1			1

④ The apartment below needs a notification system that sends an SMS to the owner when:

- Any of the two windows is open when the main door is locked,
- The baranda's door is open when the main door is locked,
- The TV screen is ON when the washing machine and the dish washing machine are ON.

Add 3 more rules and find the equation for the notification system.

