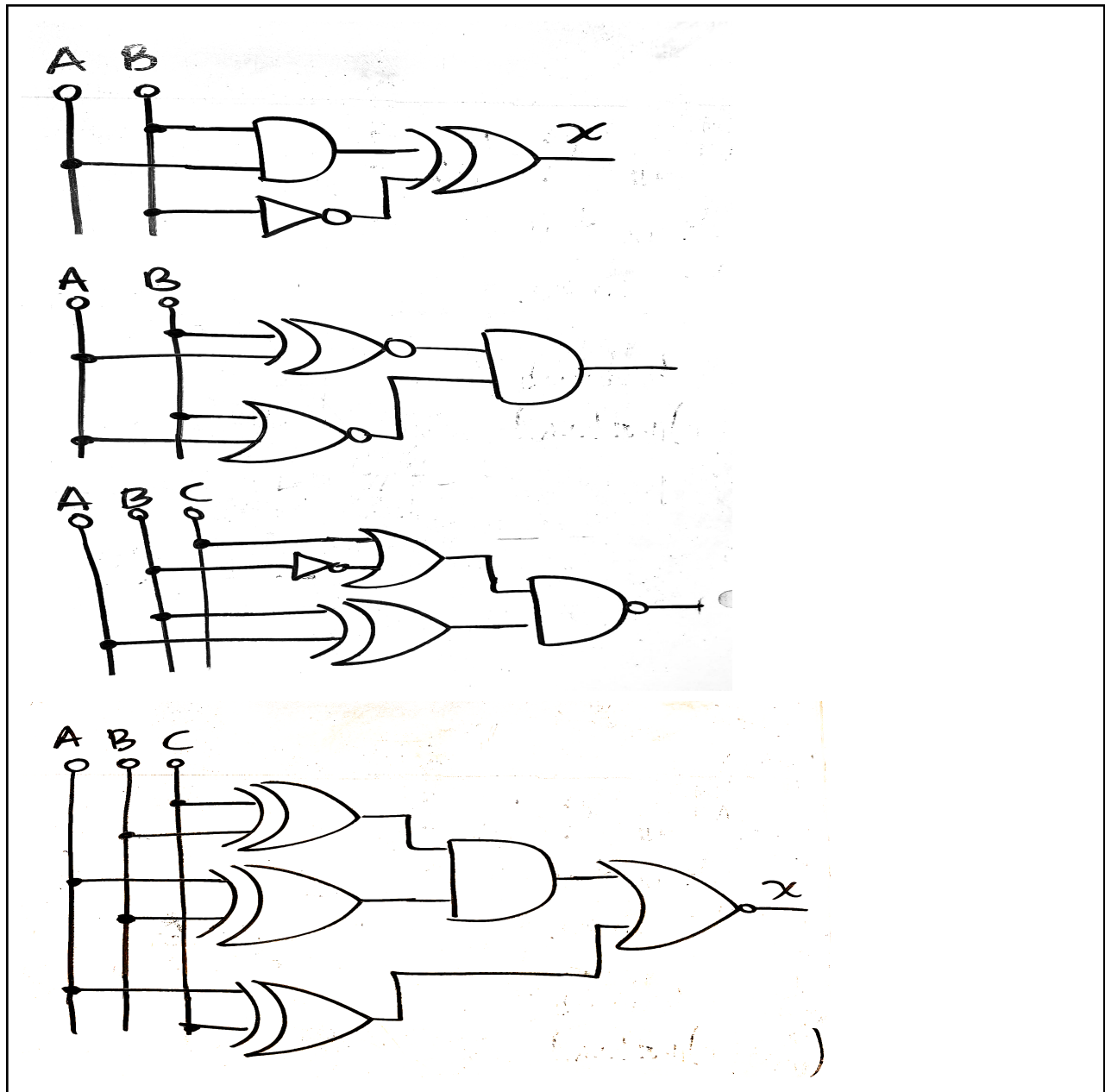① Write the logic equation for the diagrams below:

② Draw the diagram for the logic equations below:
1. Out1 = A + C + BD + (**not**B **not**D)
2. Out2 = **not**B + (**not**C **not**D) + CD
3. Out3 = B + **not**C + D
4. Out4 = (**not**B **not**D) + (C **not**D) + (BC**not**D) + (**not**B C) + A

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

Table 1

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

Table 2

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

Table 3

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

Table 4

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

Table 1

ab/ cd	00	01	11	10
00	1			1
01				
11				
10	1			1

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

     a. Any of the two windows is open when the main door is locked,

     b. The baranda's door is open when the main door is locked,

     c. The TV screen is ON when the washing machine and the dish washing machine are ON.

Add 2 more rules and find the equation for the notification system.