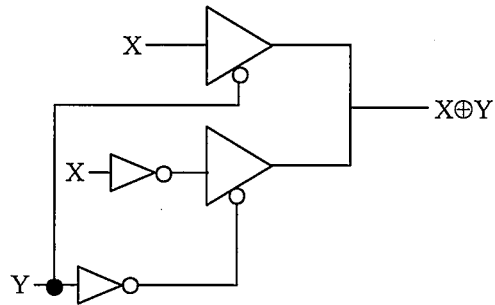


Ans 如圖所示：

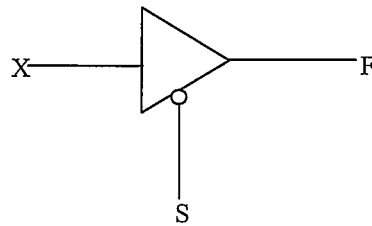


觀念說明

所謂的tri-state gate圖示如下：

當 $S = 0$ ， $F = X$ （將 X 傳送出去）

$S = 1$ ， $F =$ 高阻抗（即無法傳輸出去）



§ 5-8 綜合試題

• 練習 1 •

Consider the design of a counter with the following repeated binary sequence: 0, 1, 2, 4, 5, 6, using three JK flip-flops A_2 , A_1 , and A_0 . Which of the following corresponds to the input equation of A_1 ?

- (A) $J = A_1$, $K = A_1$
- (B) $J = A_0$, $K = A_0$
- (C) $J = A_0$, $K = 1$
- (D) $J = A'$, $K = 1$

【90交大資科】

Ans

(C)

Present State			Next State				
A_2	A_1	A_0	A_2	A_1	A_0	JA_1	KA_1
0	0	0	0	0	1	0	X
0	0	1	0	1	0	1	X
0	1	0	1	0	0	X	1
0	1	1	X	X	X		
1	0	0	1	0	1	0	X
1	0	1	1	1	0	1	X
1	1	0	0	0	0	X	1
1	1	1	X	X	X		

所以

 JA_1 :

$A_2 \backslash A_1A_0$	00	01	11	10
0		1	X	X
1		1	X	X

 $JA_1 = A_0$ KA_1 :

$A_2 \backslash A_1A_0$	00	01	11	10
0	X	X	X	1
1	X	X	X	1

 $KA_1 = 1$

• 練習 2 •

In the following, you're asked to design an Arithmetic Logic Unit(ALU) needed in a CPU.

這個ALU含有下列5運算：ADD, EXOR, EXNOR, AND, OR。這個ALU的核心部分是由一位元的全加法器（1-bit full-adder, or FA）所構成。