ICS_assignment2

T1

(a)

0 00000001 00000000000000000000000

2^{-126}

(b)

0 00000000 11111111111111111111111

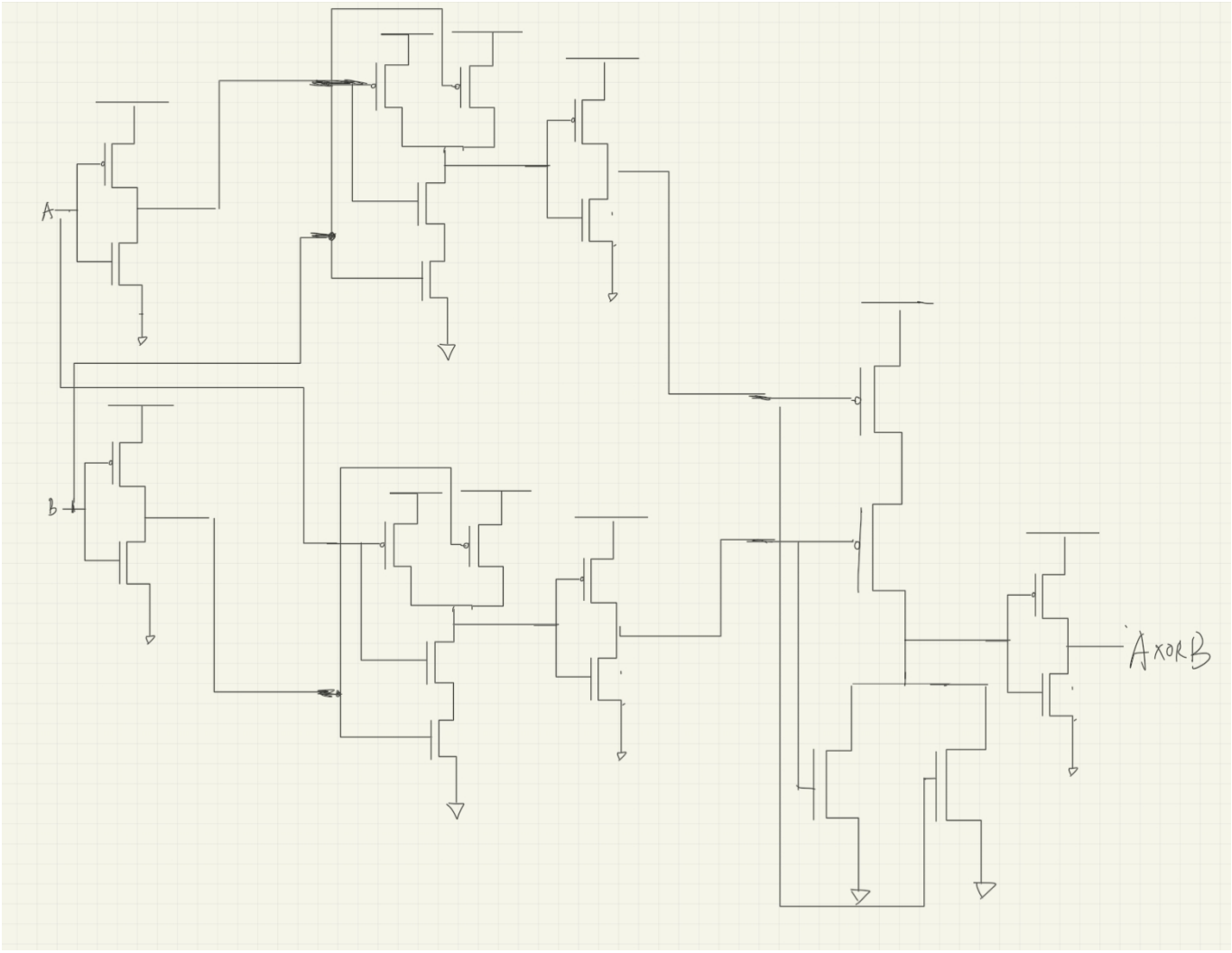
$(1-2^{-23})\times 2^{-126}$

T2

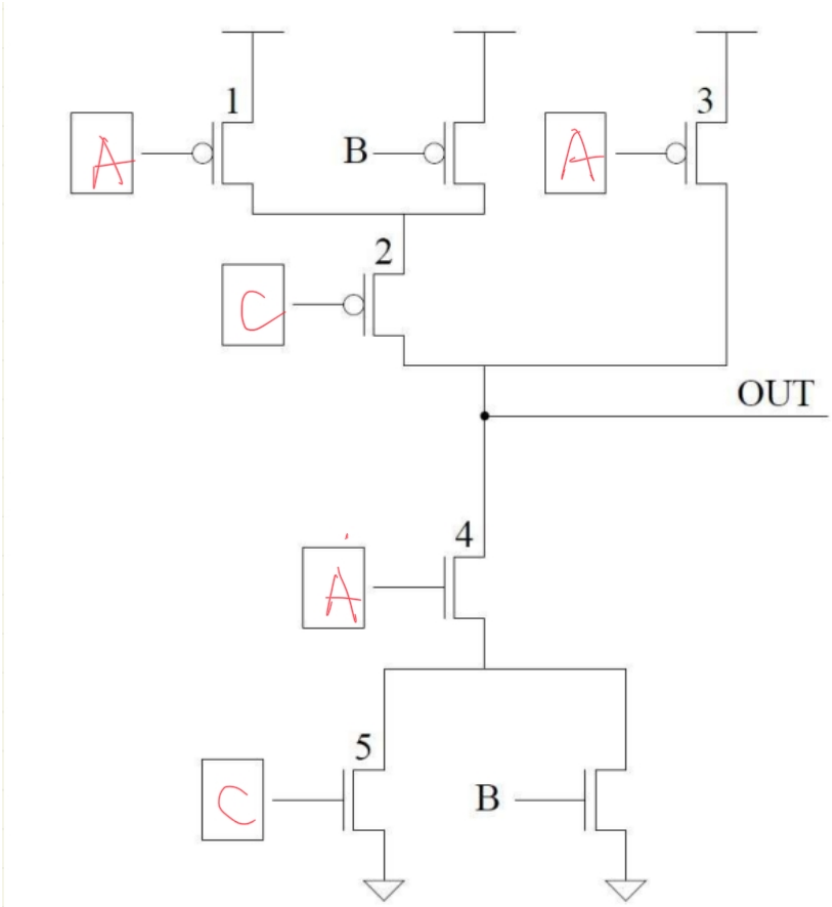
0111 1111 1111 1111 1111 1111 1111 1111

$2^{31}-1$

T3



T4



A	B	C	OUT
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	0

T5

- X
- 1
- 0
- X
- 0

T6

- Figure 3.39是一个两输入多路复用器，D为输出
- Figure 3.40是一个锁存器，它存储先前存储在锁存器中的数据值。

T7

(a)

32

(b)

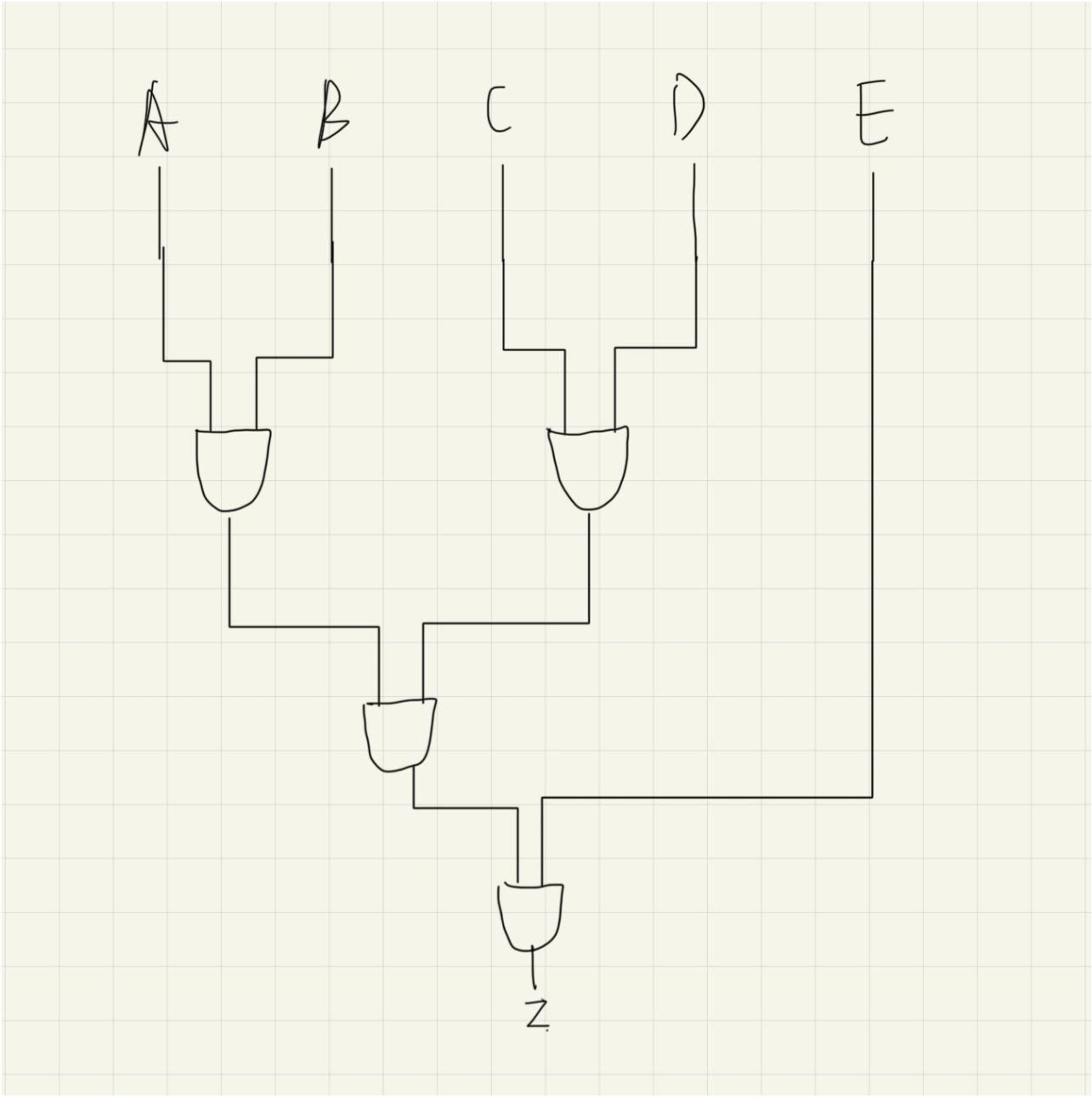
1

4

T8

1. 3
2. $Z = ((((A\ \ AND\ \ B)\ \ AND\ \ C)\ \ AND\ \ D)\ \ AND\ \ E)$

   $Z = (((A\ \ AND\ \ B)\ \ AND\ \ (C\ \ AND\ \ D)\ \ AND\ \ E)$



T9

- $50 = 6 \times 8 + 2$

```
after cycles : 111000
```

-
```
after cycle1 : 100000

after cycle2 : 111000
```

```
after cycle3 : 111110

after cycle4 : 011111

after cycle5 : 000111

after cycle6 : 000001

after cycle7 : 100000
```

每经过6个时钟周期循环一次

T10

$X\ NAND\ 1\ = NOT\ X$

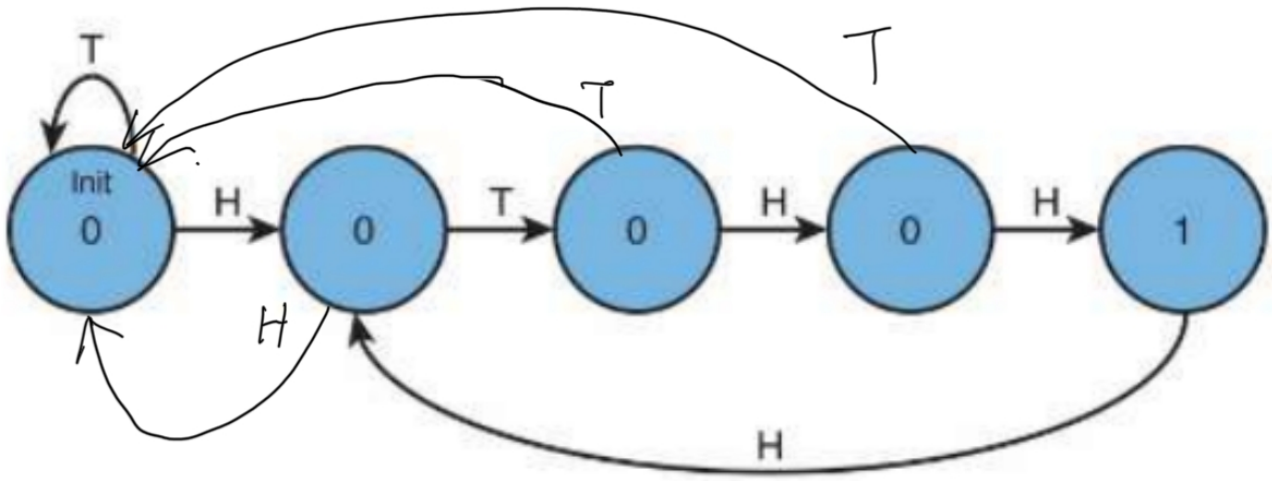
$(X\ NAND\ Y)\ NAND\ 1\ = X\ AND\ Y$

$((NOT\ X)\ NAND\ (NOT\ B)) = X\ OR\ Y$

可知NAND可以组合出OR，AND，NOT三种门，而这三种门又可以实现任意逻辑函数，故XAND具有逻辑完备性。

T11

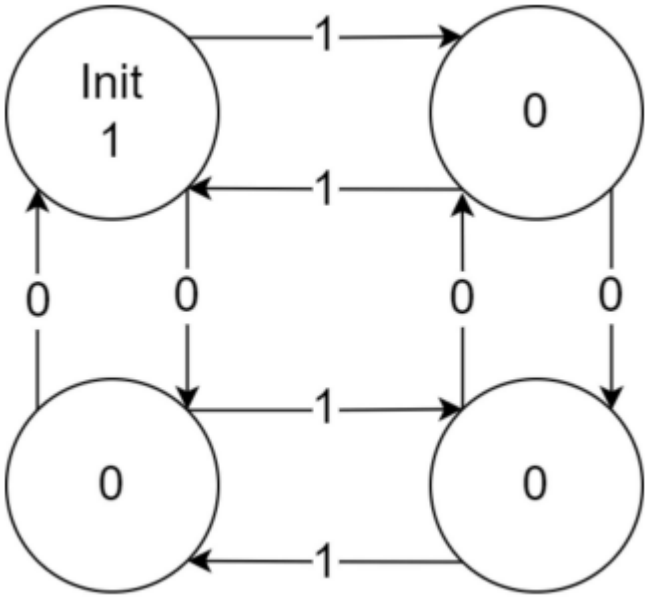
(a)



(b)

6

T12



T13

2^{11}