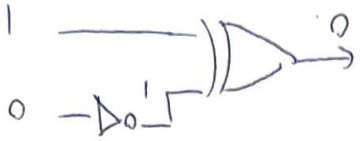
B08290603 黃至祥

#1. upper input is 1

lower input is 0.

a

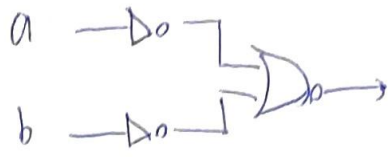


b.

c.

Ans: (0, 0, 1)

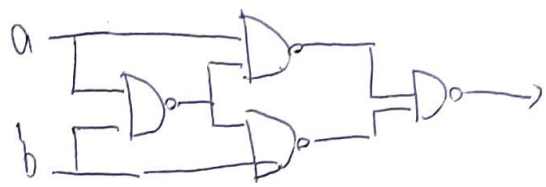
#2. (a)



Ans:

b \ a	0	1
0	0	0
1	0	1

(b)



Ans:

b \ a	0	1
0	0	1
1	1	0

#3.

a.

Ans: $8 \times 256 + 10 \times 16 + 9$

$= 2048 + 160 + 9 = 2217$

b.

$D \times 256 + C \times 16 + B$

$= 3531$

c. $E \times 256 + F \times 16 + 3$

$= 3827$

d.

$A \times 256 + 0 \times 16 + 1$

$= 2561$

e. $C \times 256 + 9 \times 16 + 16$

$= 3225$

#19. A = 65 = 0b'01000001

Ans; computer science!

#26. Ans.

a. 0xA = 10 b. 0x14 = 16 + 4 = 20 c. 0x1E = 16 + 14 = 30

d. 0x28 = 32 + 8 = 40 e. 0x32 = 48 + 2 = 50 f. 0x3C = 48 + 12 = 60

g. 0x46 = 64 + 6 = 70 h. 0x65 = 96 + 5 = 101 i. 0xCA = 192 + 10 = 202

j. 0x12F = 256 + 32 + 15 = 303

k. 0x194 = 256 + 16x9 + 4 = 256 + 144 + 4 = 404

l. 0x1F9 = 256 + 15x16 + 9 = 256 + 240 + 9 = 505

#27. Ans.

a. 110 = 0b'01101110 b. 99 = 0b'11000011 c. 72 = 0b'01001000

d. 81 = 0b'01010001 e. 36 = 0b'00100100

#29.

a. -12 + 16 = 0b'00000100 b. 0 + 16 = 0b'00010000 c. 10 + 16 = 0b'00011010

d. -8 + 16 = 0b'00001000 e. 9 + 16 = 0b'00011001

#30.

a. 010101 = 16 + 4 + 1 = $(21)_{10}$

b. 101010 = 32 + 8 + 2 = $(42)_{10}$

c. 110110 = 32 + 16 + 6 = $(54)_{10}$

d. 011011 = 16 + 8 + 3 = $(27)_{10}$

e. 111001 = 32 + 16 + 8 + 1 = 32 + 24 + 1 = 56 + 1 = $(57)_{10}$

#32. Ans:

B08290b0 黃至祥

a. 00101+01000 = 01101 = $(13)_{10}$

b. 11111+00001 = 00000 = $(0)_{10}$ "overflow!"

c. 01111+00001 = 10000 = $(16)_{10}$

d. 10111+11010 = 10001 = $(17)_{10}$ "overflow!"

e. 11111+11111 = 11110 = $(30)_{10}$ "overflow!"

f. 00111+01100 = 10011 = $(19)_{10}$

#33 Ans:

a. $(5+1)_{10}=(6)_{10}$ = 0b'00110

b. $(5-1)_{10}=(4)_{10}$ = 0b'00100

c. $(12-5)_{10}=(7)_{10}$ = 0b'00111

d. $(8-7)_{10}=(1)_{10}$ = 0b'00001

e. $(12+5)_{10}=(17)_{10}$ = 0b'10001

f. $(5-11)_{10}=-6$ = 0b'11010

00110
11001+1
=11010

#35. a. 5 3/4 = 5.75 = 0b'101.11

b. 15 15/16 = 15.9375 = 0b'1111.1111

c. 5 3/8 = 5.375 = 0b'101.011

d. 1 1/4 = 1.25 = 0b'1.01

e. 6 5/8 = 6.625 = 110.101

#36. 85.125 = 0b'1010101.001

$= 1.010101001 \times 2^6$

單精度

0.125 × 2 = 0.25

0.25 × 2 = 0.5

0.5 × 2 = 1

85 ÷ 2 = 42 ... 1

42 ÷ 2 = 21

21 ÷ 2 = 10 ... 1

10 ÷ 2 = 5 ... 0

5 ÷ 2 = 2 ... 1

2 ÷ 2 = 1

Ans: 0 10000101 01010100100000000000000

#37.

a. $-7\frac{1}{2} = -7.5$

$(7.5)_{10} = (111.1)_2 = (1.111)_2 \times 2^2$

$(-7.5)_{10} = 1101\ 1110$ #

b. $\frac{1}{2} = 0.5 = (0.1)_2 = 1 \times 2^{-1}$

$(0.5)_{10} = 0010\ 0000$

c. $-3\frac{3}{4} = -3.75$.

$(3.75)_{10} = (11.11)_2 = (1.111)_2 \times 2^1$

$-3\frac{3}{4} = 1100\ 111$

d. $\frac{7}{32} = (0.21875)_{10} = (0.00111)_2 = 1.11 \times 2^{-3}$

$\frac{7}{32} = 0000\ 1100$

e. $31/32 = 0.96875 = (0.11111)_2 = 1.1111 \times 2^{-1}$

$31/32 = 0010\ 1111$