

1.22 (a)  $(746)_{10} = (0111\ 0100\ 0110)_{BCD}$

$$(b) (746)_{10} = (1011101010)_2$$

```
(c)(/45)10=(01010111 01010100 01010110)ASCII
```

1.23 (a) Sign bit=0

$$\text{Exponent}=10000010=(130)_{10}=127+3$$
$$\text{Binary} = (1.1000\ 0010) \times 2^3$$

(b) Sign bit=1

$$\text{Exponent} = 01111000 = (120)_{10} = 127 + (-7)$$
$$=(0.00000010100011)_2$$

### 1.24 Correction factor

```
(i) --0011 if sum < 9
```

三、

$$\begin{array}{r} 0011 \\ + 0100 \\ \hline 0111 \end{array}$$
$$\begin{array}{r} -0011 \\ \hline 0100 \end{array} \quad \begin{array}{l} <--- \\ \text{minus } 3 \end{array}$$

```
(ii) 0011 if sum > 9
```

✕

$$\begin{array}{r} 3 \\ + 9 \\ \hline 12 \end{array} \qquad \begin{array}{r} 0110 \\ + 1100 \\ \hline 10010 \end{array}$$

```

0011 0011  <--- add 3
0100 0101
-----

```

## Chapter 2

# BOOLEAN ALGEBRA

$$2.1 \quad (1) \quad \begin{array}{c|c|c|c} A & B' & AB' & C \\ \hline \hline & & C & AB' + C \end{array}$$

	0		0		0		0	F=0
(2)	A	B'	C	D	AB'	C'D	CD F	

$F = 1$   

A	B	C	D	B'	C'D	A+B'	+C'D	A'B	A'B(A+B'+C'D)	B'D	F
0	0	1	0	1	0	1	0	1	1	0	1

[illegible]

$$(5) \quad \begin{array}{|c|c|c|c|} \hline A & B & C & D \\ \hline B & C & D & A+B \\ \hline A+B & C & C & (A+B)'C+D' \\ \hline AB & A'B & A'B' & A'B'' \\ \hline \end{array}$$

[illegible]

2.2 (1)  $\theta = XY' + X'Z' + XYZ$

[illegible]
$$(2) \theta = (x' + y)(x' + z')(x + z)$$

X	0	0	0	0	0	0	0	1	1
Y	0	0	0	1	1	0	0	1	1
Z	0	1	0	1	0	1	0	1	1
X <sub>1</sub>	1	1	1	1	1	0	0	0	0
Z <sub>1</sub>	1	0	0	1	0	1	0	0	0
X <sub>2</sub>	1	1	1	1	1	1	1	1	1
Y <sub>2</sub>	1	1	1	1	1	1	1	1	1
X <sub>3</sub>	1	1	1	1	1	1	1	1	1
Z <sub>3</sub>	1	1	1	1	1	1	1	1	1
X <sub>4</sub>	0	1	0	1	1	1	1	1	1
Z <sub>4</sub>	0	1	0	1	1	1	1	1	1
X <sub>5</sub>	0	1	0	1	1	1	1	1	1
Z <sub>5</sub>	0	1	0	1	1	1	1	1	1