7.19
8.6

a) $Min = 2^L = \cancel{32} \; 1$
     $Max = 2^L = 32$

b) $Min = 2^j = 8$
     $Max = 2^j = 8$

c) $Min = 0$
     $Max = 2^L \cdot 2^j = 256$

d) $Min = 1$
     $Max = min(2^k, 2^L) = \cancel{2}32$

#1
8.7

$Q_A^+ = T\overline{Q}_A + \overline{T}Q_A = \overline{(Q_B \oplus I)} \, \overline{Q}_A + (Q_B \oplus I) \, Q_A$
$Q_B^+ = \overline{Q}_A$
$Z = \overline{(I Q_B)} \, Q_A$

Q_A	Q_B	I	Q_A^+	Q_B^+	Z
0	0	0	1	1	0
0	0	1	0	1	0
0	1	0	0	1	0
0	1	1	1	1	0
1	0	0	0	0	1
1	0	1	1	0	1
1	1	0	1	0	1
1	1	1	0	0	0
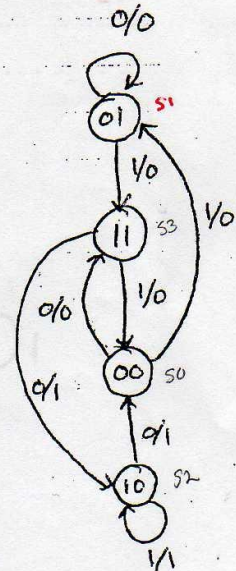
T	Q	Q^+
0	0	0
0	1	1
1	0	1
1	1	0

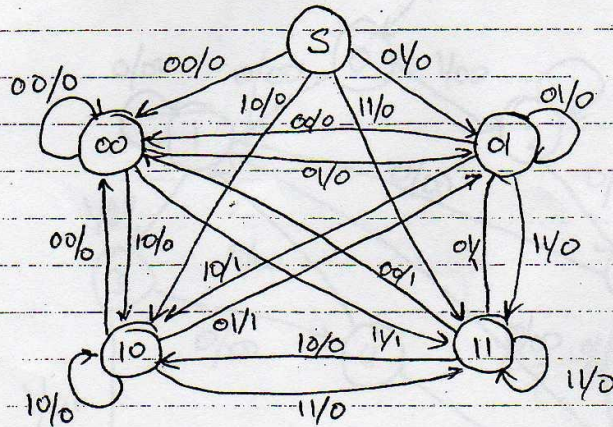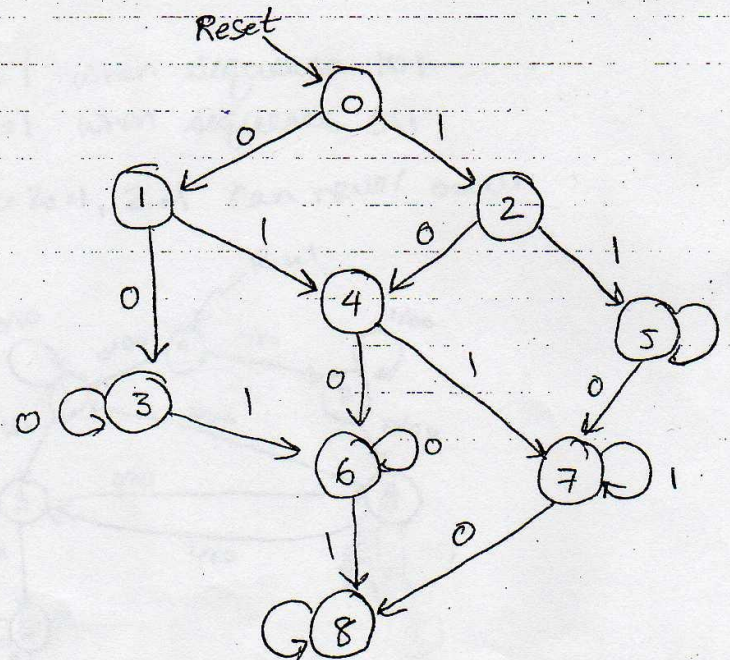#2

8-12

* assume o/p = 0 when no info.
* no info for S

7.22

8.13

7.23
8.14

94

$Z_1 = 1$ when sequence 101
$Z_2 = 1$ when sequence 011

Once $Z_2 = 1$, $Z_1 = 1$ can never occur

Reset

0/00 0/100 0 1/00 1/00

1 ⟲

1/00 0/00 2

1/00 0/00

3 0/00 4

1/10

1/01

1/00 5

0/00

1/01 0/00 6 0/00

1/00

7