

Problem 2 (Alternate Solution):

| Present Q_2, Q_1, Q_0 | Next Q_2^*, Q_1^*, Q_0^* | D_2, S_1, R_1, J_0, K_0 |
|----------------------------|-------------------------------|---------------------------|
| 0 0 0 | x x x | x x x x x |
| 0 0 1 | 0 1 1 | 0 1 0 x 0 |
| 0 1 0 | 1 1 0 | 1 x 0 0 x |
| 0 1 1 | 0 1 0 | 0 x 0 x 1 |
| 1 0 0 | x x x | x x x x x |
| 1 0 1 | 0 0 1 | 0 0 x x 0 |
| 1 1 0 | 1 1 1 | 1 x 0 1 x |
| 1 1 1 | 1 0 1 | 1 0 1 x 0 |

D_2 :

| $Q_2 Q_1$ | Q_0 | 0 | 1 |
|-----------|-------|---|---|
| 00 | | x | 0 |
| 01 | | 1 | 0 |
| 11 | | 1 | 1 |
| 10 | | x | 0 |

$$D_2 = \bar{Q}_0 + Q_2 Q_1$$

S_1 :

| $Q_2 Q_1$ | Q_0 | 0 | 1 |
|-----------|-------|---|---|
| 00 | | x | 1 |
| 01 | | x | x |
| 11 | | x | 0 |
| 10 | | x | 0 |

$$S_1 = \bar{Q}_2$$

R_1 :

| $Q_2 Q_1$ | Q_0 | 0 | 1 |
|-----------|-------|---|---|
| 00 | | x | 0 |
| 01 | | 0 | 0 |
| 11 | | 0 | 1 |
| 10 | | x | x |

$$R_1 = Q_0 Q_2$$

J_0 :

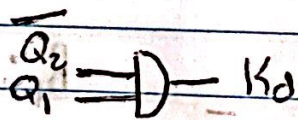
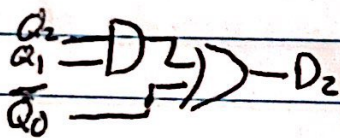
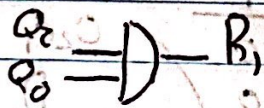
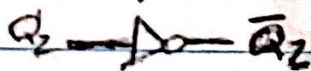
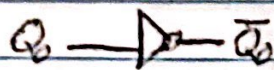
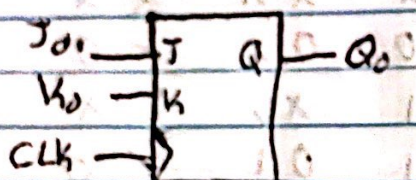
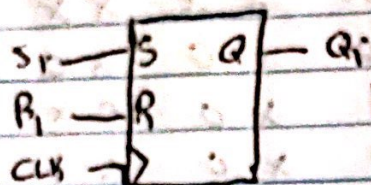
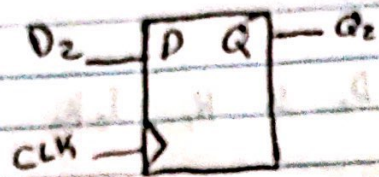
| $Q_2 Q_1$ | Q_0 | 0 | 1 |
|-----------|-------|---|---|
| 00 | | x | x |
| 01 | | 0 | x |
| 11 | | 1 | x |
| 10 | | x | x |

$$J_0 = Q_2$$

K_0 :

| $Q_2 Q_1$ | Q_0 | 0 | 1 |
|-----------|-------|---|---|
| 00 | | x | 0 |
| 01 | | x | 1 |
| 11 | | x | 0 |
| 10 | | x | 0 |

$$K_0 = \bar{Q}_2 Q_1$$



| | | |
|---|---|----|
| 0 | 0 | 00 |
| 0 | 0 | 10 |
| 1 | 0 | 11 |
| x | x | 01 |

| | | |
|---|---|----|
| 1 | x | 00 |
| x | x | 10 |
| 0 | x | 11 |
| 0 | x | 01 |

| | | |
|---|---|----|
| 1 | 0 | 00 |
| 0 | x | 00 |
| 1 | x | 10 |
| 0 | x | 11 |
| 0 | 0 | 01 |

| | | |
|---|---|----|
| 1 | 0 | 00 |
| x | x | 00 |
| x | 0 | 10 |
| x | 1 | 11 |