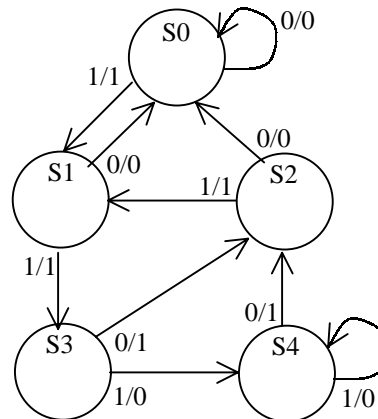


Quiz # 7 Solution

Consider the following Mealy Machine State Diagram. Using the state assignment heuristics presented in class, perform a “good” state assignment. Justify your selection.



Fill in your state assignment adjacencies in the following three state variable (Q_2, Q_1, Q_0) K-map:

| | | $Q_2 Q_1$ | | | |
|-------|---|-----------|----|----|----|
| | | 00 | 01 | 11 | 10 |
| Q_0 | 0 | S0 | S1 | | S3 |
| | 1 | S2 | | | S4 |

Explain why have you chosen to place certain states next to each other in the K-map:

High Priority (same child):

Medium Priority (same parent):

S0-S1, S1-S2, S3-S4, S0-S2

S2-S4, S0-S1, S0-S3

We try to put states in high priority next to each other and then try to accommodate medium priority states. Not placing states in the “ $Q_2 = 1, Q_1 = 1$ ” column reduces amount of logic states.