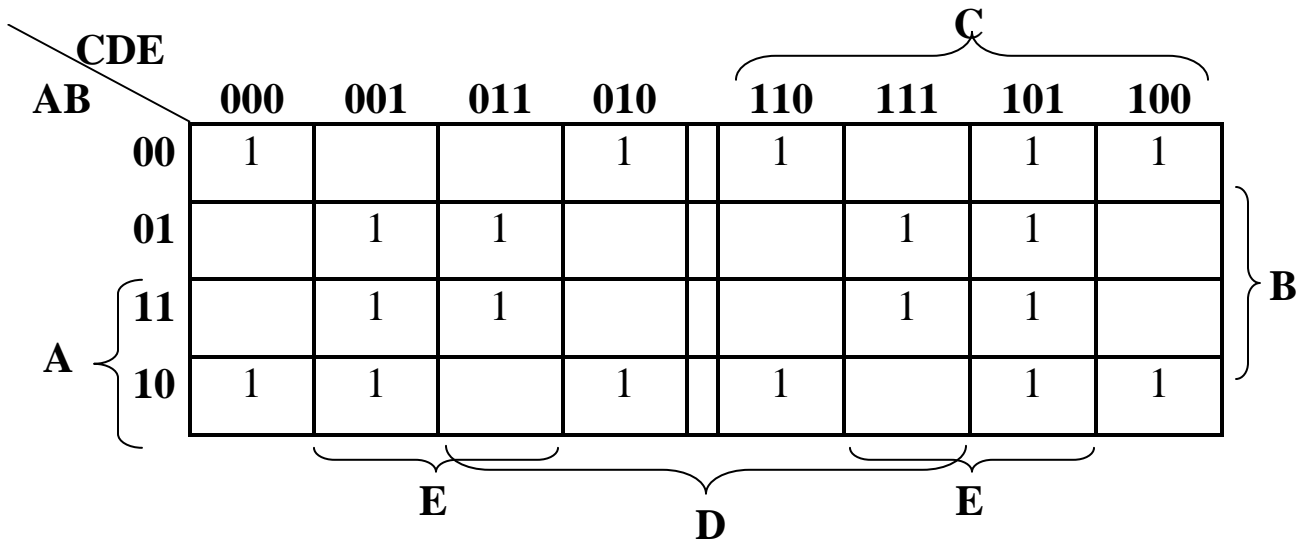
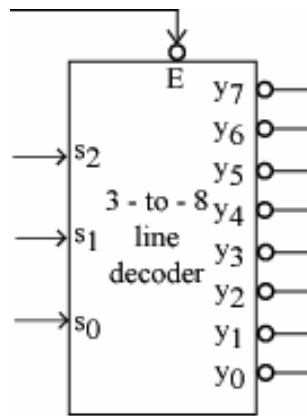


(a) (2 points) Consider a Boolean function specified on a K-map (of five variables) shown below.



Implement this function using the decoder shown below and a single AND gate. The decoder has Enable input as shown.



Hint: this problem requires some initial thinking, rather than busy work.

(b) (2 points) Consider a ripple counter shown below.
Show complete transition diagram for this counter, assuming initial state 0000. What is the function of this counter?
Then repeat your analysis for an identical counter constructed using *positive* edge-triggered JK flip-flops, instead of negative edge-triggered flip-flops (as shown in the circuit below). Assume initial state 0000.

