Counters (Show K-Map and Timing-Diagram):

1. Implement 4-bit Ripple up counter using JK flip flop (Q' and Positive Clock Pulse)
2. Implement MOD-11 Ripple up counter using JK Flip Flop (Q and Negative Clock Pulse).
3. Implement 4-bit Synchronous up counter using JK flip flop.
4. Implement 4-bit Synchronous down counter using JK flip flop.
5. Implement 3 bit up/down Ripple counter using T flip flop.
6. Implement the following counter using JK FF: Green->Yellow->Red->Yellow->Green

Registers (Show truth table and Timing-Diagram):

1. For a given input in SISO/SIPO show the output of each flip-flop after each clock pulse. You should include truth table and timing diagram.
2. Block diagram and explanation with truth table of PISO/PISO including shift/load or right/left operation.
3. Explanation of universal shift register with block diagram.

PLA, PAL (Show truth table and Timing-Diagram):

1. Given, F1(A,B,C) = $\sum(2, 6)$; F2(A,B,C) = $\sum$ (1,2,4,7). Implement these functions using PLA
2. Given, F1(A,B,C, D) = $\sum(1,4,5,7, 11, 14)$, F2(A,B,C, D) = $\sum(0,1,3,5,7, 9, 12)$. Implement these functions using PAL
3. Given, F1(A,B,C, D) = $\sum(1,4,5,7, 11, 14)$, F2(A,B,C, D) = $\sum(0,1,3,5,7, 9, 12)$. Implement these functions using PROM..