1. Convert T Flip-Flop to JK Flip-Flop.

2. Simulate on Proteus: (Make one schematic for the entire problem)
   a) Take a number from 0 to 255 (8 bit) using logic-states and count the number of 1 bits using an adder.

   b) Count the number of 1 bits at odd positions.(Indexing starts from 0 at LSB)

   Example- $(11111110)_2$ == $(254)_{10}$
   Number of 1 bits=7
   Number of 1 bits at odd position=4 (1,3,5,7)

   c) Display the above answer on a seven segment display.

   d) Invert the bits only at the odd positions and display the output 8 bit number as logic-probes.

3. Construct a 4 bit X 4 bit multiplier and implement it in Proteus.

4. Take a 7 bit number from 5-127 and add 5 to it in one clock cycle and divide by 2 in the next clock cycle alternately until it becomes 5. No output is required here, just display the number after every cycle as logic probes. Implement it in Proteus.

   Example- $(0001100)_2$ = $(12)_{10}$ becomes 17, 8, 13, 6, 11, 5.