Lab 7: Ripple and Synchronous Counters (Divide-by Circuits)

Special instructions:

- If you use an LED, be sure to place a roughly 200 ohm resistor in series to keep from blowing it.
- Be careful to use the TTL output on the frequency generator for your clock input.
- Note that the flip-flop reset pins should be set HIGH.

1. Design a divide-by-four ripple counter (2-bit counter), based on T flip-flops. Use the 74LS73 JK flip-flop to make your T flip-flops. You can use Fig. 8-56 A in Horowitz & Hill as a basis for your design.
2. Design a divide-by-four synchronous counter, based on T flip-flops. Use the 74LS73 JK flip-flop to make your T flip-flops. You can use Fig. 8-54 A in Horowitz & Hill as a basis for your design.

Fig. 1. 74LS73 chip pin diagram.