

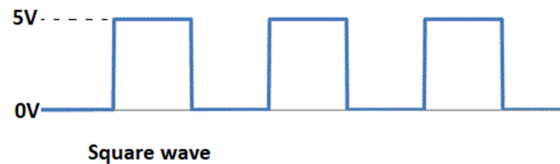
CMPE212 Lab13- Designing and Implementing 4-bit Synchronous Counter

Objective

To implement the assigned 4-bit synchronous counter and observe its states in hexadecimal equivalent in a 7-segment display.

Instructions

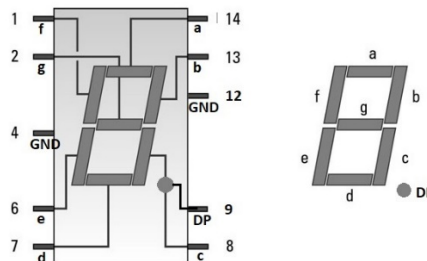
1. Set your function generator to produce the following clock signal with frequency 1 Hz . Remember the settings- FUNC: SQUA; FREQ: 1; AMPL: 2.5, OFFSET: 1.25.



2. Build your designed circuit.
3. Connect Clock pins of the flip-flop to the function generator, switch the power module ON and observe the output.
4. If your circuit doesn't work properly, submit a detailed diagram of your circuit showing connections of all the pins.

***NOTES:

- 1) Refer to the following pin diagram of your 7-segment display-



- 2) Note carefully if you have IC 7476 or 74112 for the JK flip-flop. Also, IC MC14495 or DM9368 for the 7-segment display driver. If it's 74112 and/or DM9368, make changes to the circuits according to the corresponding pinout diagram.
- 3) Check carefully if the ground of the function generator and your circuit are connected. They should be always **connected (shorted)**.
- 4) Don't connect the clock signal from the signal generator without observing the signal in the oscilloscope first.

Remarks

As always-

- Don't forget to use resistors in series with your 7-segment display.
- Don't forget to return the breadboards, multimeters, and cables. Remember, you have 10% of the points for cleaning the workbench.