

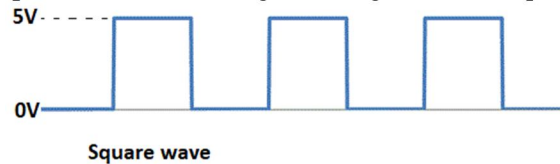
CMPE212 Lab11- Making T Flip-Flop with JK Flip-Flop and Interfacing 7-Segment Display with MC14495 Driver

Objective

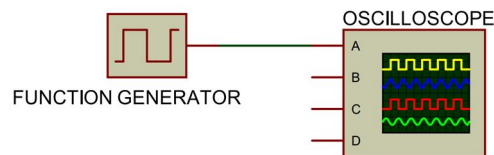
To learn how to use function generator and oscilloscope, making T flip-flop with JK flip-flop and interfacing 7-segment display with MC14495 driver.

Instructions

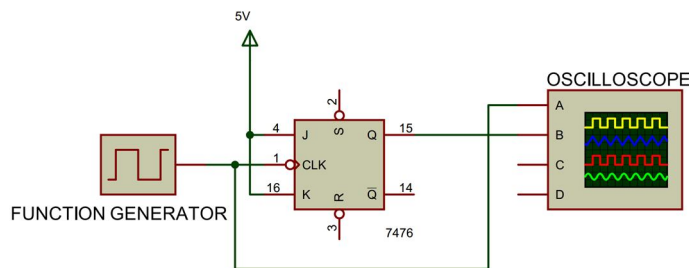
- Set your function generator to produce the following clock signal with frequency 2 Hz -



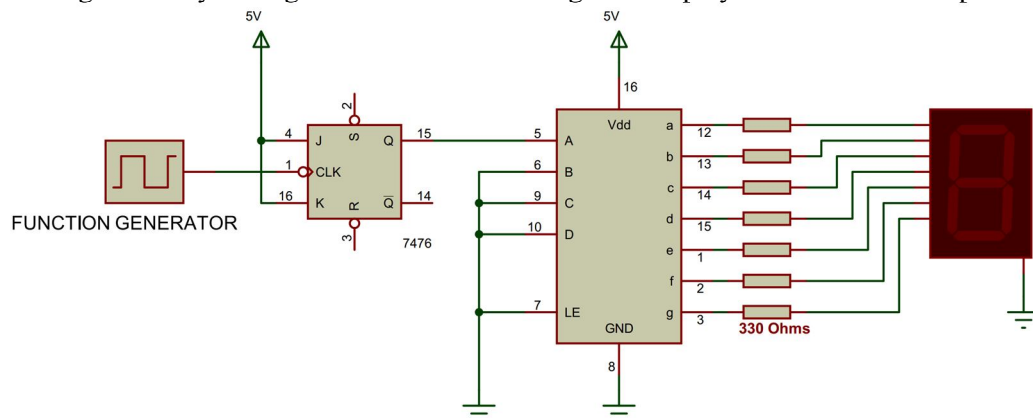
- Observe the generated clock pulse by connecting it directly to the O-scope using BNC-BNC cable and show it to the TA.



- Make a T flip-flop using JK flip-flop. Feed the clock pulse generated in step 1 in the 'CLK' pin of the flip-flop. Connect the output of the function generator to channel-1 and output of the flip-flop to the channel-2 of the O-scope. Show the output to your TA.



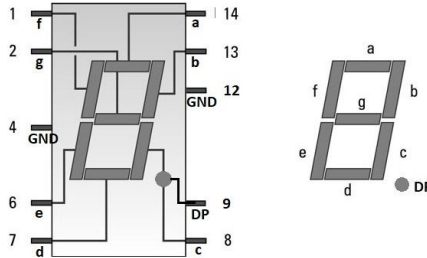
- Make the following circuit by adding MC14495 IC and 7-segment display to the circuit in step 3.



5. Show the result to your TA.

***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. If it's 74112, make changes to the circuits in step 3 and 4 according to the pinout diagram.
- 3) Check carefully if the ground of the function generator, your circuit and the oscilloscope 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.