EE 200 DIGITAL LOGIC DESIGN EXPERIMENT #1

BINARY AND DECIMAL NUMBERS

OBJECTIVE:

- To demonstrate the count sequence of binary number and the binary-coded decimal (BCD) representation.

APPARATUS:

- IC type 7493 4-bit ripple counter

BINARY COUNT

1. Turn off the power switch.
2. Connect the IC type 7493 as shown in Fig. 3 Pin 14 is connected to PB1.
3. Turn the power on and observe the four indicator lamps. The 4-bit number in the out is incremented by one for every pulse generated by pushing the pulser button PB1
4. Disconnect the input of the counter at pin 14 from PB1 and connect it to the FUNCTION GENERATOR (lead TTL).
5. Set frequency selector to “time 1” (1 Hz). This will provide an automatic binary count.

THE BCD COUNT

1. Turn off the power switch.
2. Connect the IC type 7493 as shown in Fig.4 Pin 14 is connected to PB1.
3. Turn the power on and observe the four indicator lamps. The 4-bit number in the lambs is incremented by one for every pulse generated by pushing the pulser button PB1 following the sequence 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 1, 2, 3, ….
4. Disconnect the input of the counter at pin 14 from PB1 and connect it to TTL. Set frequency selector to “time 1” (1 Hz). This will provide an automatic binary count.

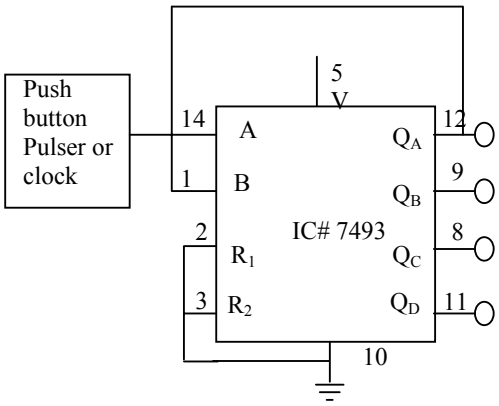

Fig.3 Binary Counter

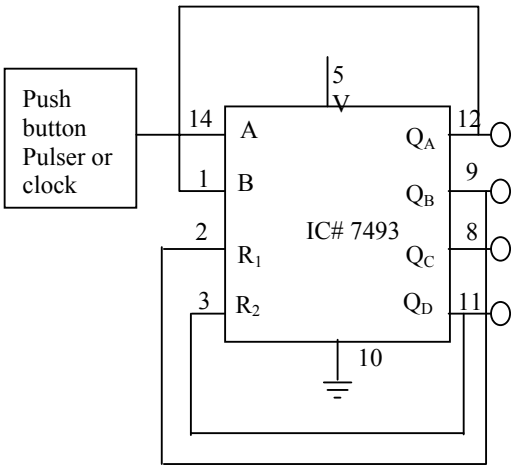

Fig.4 BCD counter