Schematic for problem 13, 14, 15

Notes:
1) $V_f$ of the LEDs is 2.0V
2) NO=normally open;
3) The PNP BJT is able to be saturated by the uC port
4) Vin low and high are as stated in the datasheet at Vdd=5.0V

Schematic for problem 39

For this circuit, BJT is saturated when $I_B = 4$ mA.

$V_{CE} = 0.7$ V