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1 – Analyze and draw V_{R2} vs Vbatt for circuit 1 with Vbatt ramping from 0V to 5V (assume V_D = 0.7V, be sure to indicate Vbatt voltages of interest) 20pts

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2 – Create a truth table for circuit 2 and indicate the output voltage for each state(assume the inputs are 0 and 3.3V and V_D = 0.7V) 20pts

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3 – Determine the voltages V(3) and V(6) in circuit 3 for input voltages (Vin) of 0.5V, 1.5V, 2.5V, 3.5V and 4.5V. Assume V_{BEon} = 0.65V for both transistors and β_{npn} = 200, β_{pnp} = 185. 20pts

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4 – Simulate circuit 3 and provide the simulated values for V(3) and V(6). Provide a plot or DC analysis points. 30pts

5 – Explain any discrepancies: 10 pts

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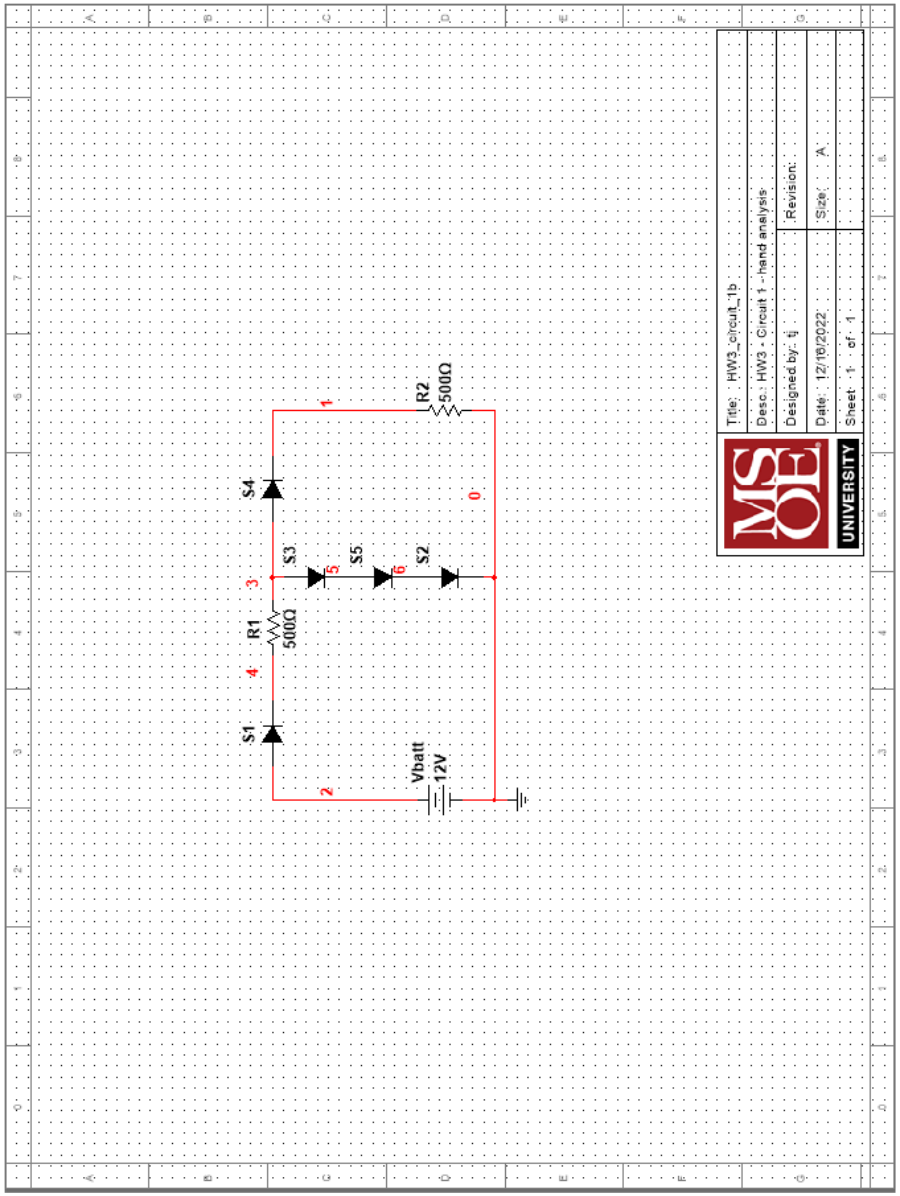
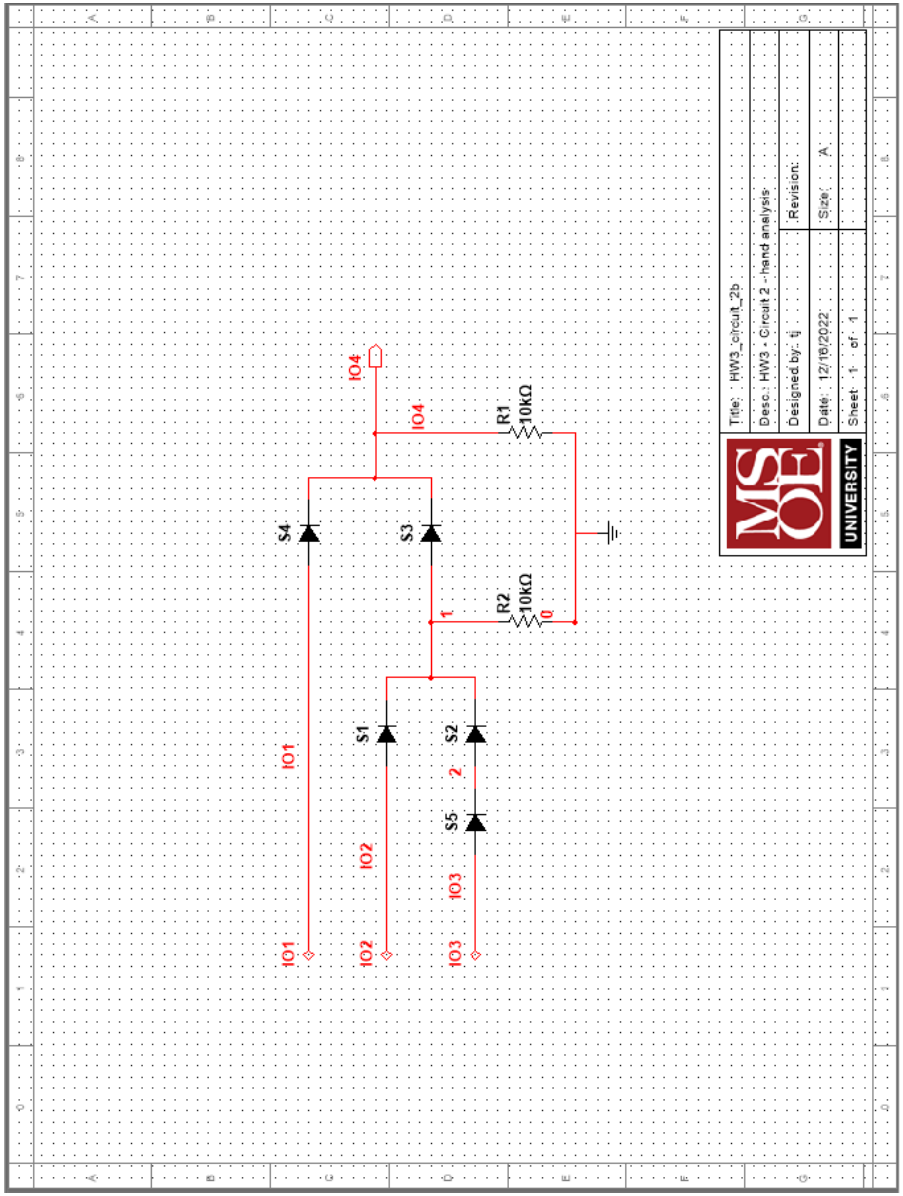
Circuit 1 - circuit for prob 1



Circuit 2 - circuit for prob 2



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Circuit 3 - circuit for probs 3, 4, 5