You are expected to solve homework problems individually. If needed, you may seek help from your friends. However, do not copy. Show all steps with your solutions for full credit.

**Name: / 50**

1. (15 points) Write the truth table and draw the logic diagram of a 3-to-8-line decoder with active low enable input.
2. (20 points) Construct a 5-to-32-line decoder with four 3-to-8-line decoders with enable and a 2-to-4 line decoder. Use block diagrams for the components.
3. (15 points) A combinational circuit is specified by the following three Boolean functions. Using a decoder and external gates, design the combinational circuit.
   1. *F*1(*A*, *B*, *C)* = ∑(2,5,7)
   2. *F*2(*A*, *B*, *C)* = ∑(2,3,4)
   3. *F*3(*A*, *B*, *C)* = ∑(0, 6, 7)