ECE 27000 Spring-22
Practice Problems 8

Note: The problems below will allow you to practice the material covered in week 8. A homework will be available separately. Do not attempt to submit practice problems for grading.

Solve the following problems.

1. Consider the implementation of a 4-to-16 binary decoder using 2-to-4 binary decoders from the lecture notes. Using the internal structure of a 2-to-4 binary decoder, show the gates implementing Y0, Y5, Y10 and Y15. Compare to the internal structure of 4-to-16 binary decoder.

2. Extend the seven-segment decoder from the lecture notes to display each one of four capital letters of your choice. Write the truth table and the logic expression for two outputs of your choice.

3. Write the output functions for a 16-to-4 encoder, and for a 32-to-5 encoder.

4. Construct an 8-to-1 multiplexer using only 2-to-1 multiplexers.