

**ECE 27000 Spring-22**  
**Practice Problems 1**

Note: The problems below will allow you to practice the material covered in week 1. Since the homework website has not been set up yet, a homework has not been assigned yet, and it is not possible for you to submit your solution. The homework website will be set up as soon as possible.

Solve the following problems.

1. Chapter 1, page 34, drill problem 1.5.
2. Chapter 1, page 34, drill problem 1.9.
3. Chapter 1, page 34, drill problem 1.10.
4. Show that it is possible to implement an AND function using only OR gates and inverters.
5. Consider the circuit used in the lecture to illustrate a timing diagram. For the same circuit, use two sets of values for x, y and z (the example in the lecture uses three sets of values). With these two sets of values, draw a timing diagram that shows falling transitions on x, f1 and f2. Mark the propagation delays from x to f1, and from f1 to f2.
6. Draw a complex CMOS gate for the function  $Z=(A*B*C+D*E)'$ .