

H.W. #10 CpE 100 Spring 2021

Show your work for credit (!) and put a box around each of your answers!

1. Design, using Karnaugh maps, and simulate, using LTspice, a digital logic circuit that takes a 3-bit input code that corresponds to the days of the week, that is, 001 is Sunday, 010 is Monday, 011 is Tuesday, etc. and generates an output high,  $Y (= 1)$ , when it's the weekend. When the input code corresponds to a weekday  $Y = 0$ . The input code 000 is a don't care. (5 points)
2. Work Exercise 2.13 on page 98 of the textbook. (3 points)
3. Design, and simulate, a 4-bit decoder. The decoder has 4-bits as inputs (0000 to 1111) and 16 1-bit outputs, 0-15. For example, output 0 goes high when the input code is 0000 while the other 15 outputs stay low. Output 10 goes high (and the other outputs stay low) when the decoder input code is 1010. (4 points)