Self-Study Questions (do not submit): Textbook exercises 1.9, 1.11, 1.21, 1.47, 1.59, 1.73, 1.75, 1.83, 1.85, 1.87, 2.1, 2.3, 2.13, 2.15, 2.17, 2.27, 2.33, 2.35, 2.37, 2.43. Many of these exercises will help you with the exercises below that are to be submitted.
Solutions: http://booksite.elsevier.com/9780123944245

Exercises to be submitted:

• Chapter 1 Exercises: 1.10, 1.12, 1.22, 1.30, 1.46, 1.52, 1.56, 1.60[(b) only], 1.74, 1.82, 1.86, 1.88

• Chapter 1 Exercise 1.84: For parts (a) and (b), the circuits should be a single CMOS gate each, constructed using nMOS and pMOS transistors. For part (c), you will need to construct a CMOS gate plus a separate inverter.

• Redo Example 1.23 (page 34): Redo this example, but with the following numbers: 10 watt-hour battery, 500 MHz operation, 2.5 W of antenna broadcast power. All other numbers remain the same.

• Chapter 2 Exercises: 2.2[(c) and (d) only], 2.4[(c) and (d) only], 2.18 (Boolean equations only, no circuit), 2.24, 2.26, 2.40, 2.44, and Interview Question 2.2.

• Prove the Boolean Identity #15 of Lecture 3 slide 10 using the other identities on that slide: 
\[(X + Y)(X + Z) = X + YZ\]. Note: Show step-by-step Boolean simplification.

• Prove the 2nd of the two versions of the Consensus Theorem on slide 23 of Lecture 3 using the identities on slide 10: 
\[(X + Y)(\overline{X} + Z)(Y + Z) = (X + Y)(\overline{X} + Z)\]. Note: Show step-by-step Boolean simplification.

• The next page shows four Karnaugh Maps. Please print that page and show your work on it, and submit it with the rest of your responses for this assignment. Optimize the logic implementation of Y by drawing the “ovals” on top of each K-Map; only draw those ovals that will be included in the optimal implementation. Then write the resulting Boolean expression below the K-Map. All missing entries in the K-Maps are 0s.
Solution: $Y = \text{[diagram]}$