

CHEM 123 Practice Problems

Work (and learn) from your text book and stay ahead of your instructor throughout the term. This will help you get the most out of the lectures. By working ahead, you can identify topics you find difficult **before** they come up in lectures. (See if your instructor's discussion helps you understand these difficult concepts. If not, ask for clarification during lectures.)

The week-by-week schedule outlined on the next few pages encourages you to build your problem-solving skills gradually. When doing the problems, write down all of your steps as if you were going to hand in your solutions for marking. A clear, organized approach will help you think through a problem. **Hints to help you with the Part b problems are available through the course websites.**

Note: CHEM 123 is the continuation of CHEM 120. There are a number of concepts from CHEM 120 which you must know (and should review, if necessary). These include:

- SI base units and SI prefixes
- reaction and solution stoichiometry (e.g. mass-to-moles conversions, molarity calculations, using the ideal gas equation and partial pressures)
- thermochemistry and Hess' Law
- basic organization of the periodic table and periodic trends
- drawing Lewis structures and predicting molecular geometry. You must also be able to assign formal charges. **Always show non-zero formal charges in any structure you draw!**
- bonding concepts (e.g. ionic vs. covalent bonding, polar covalent bonds, electronegativity)
- oxidation-reduction (redox) concepts (e.g. oxidation numbers, balancing redox reactions)

	Representative Problems (from Petrucci, Harwood, Herring & Madura, 9 th Edition)	Extra problems (see pages 7-9)
Week 1, Jan. 4-9	Chapter 12: 20, 26, 27, 28, 38, 42, 47, 50, 57, 63, 65(a), 65(b), 120, 122	B1-B4
Week 2, Jan. 11-15	Chapter 12: 69, 72, 74, 76, 97, 104, 106	B5-B9
Week 3, Jan. 18-22	Chapter 14: 4, 10, 11, 20, 21, 26, 33, 34, 36, 40	B10, B11
Week 4, Jan. 25-29	Chapter 14: 47, 49, 50, 55, 78, 93, 94	B12, B13
Week 5, Feb. 1-5	Chapter 15: 3, 12, 13, 16, 22, 29, 30, 36, 39, 43, 51, 57, 64, 69, 74, 86, 90, 94	B14-B17
Week 6, Feb. 8-12	Chapter 16: 6, 9, 10, 12, 20, 24, 29, 30, 32, 44, 49	
Week 7, Feb. 22-26 Term Test on Feb. 24	Chapter 16: 56, 57, 58, 60, 61, 63, 66, 67, 109, 111	B18, B19
Week 8, Mar. 1-5	Chapter 17: 10, 11, 15, 23, 31, 38, 43, 44, 53, 54	B20-B23
Week 9, Mar. 8-12	Chapter 17: 64, 71, 73, 94, 103 Chapter 18: 1, 4, 9, 19, 29, 34, 35	B24-B27
Week 10, Mar. 15-19	Chapter 18: 41, 42, 53, 54, 56, 69, 94, 97	B28, B29
Week 11, Mar. 22-26	Chapter 20: 6, 8, 13, 19, 33, 35	B30, B31
Week 12, Mar. 29-Apr. 2 Lectures end Apr. 5. Exams start Apr. 9.	Chapter 20: 41, 43, 44, 45, 61, 65, 66, 96, 98 Catch-up and review.	B32, B33