

Note: items marked with \* you should be able to perform on a closed book exam.

### Chapter 14 Learning Objective Checklist

Be sure to review the margin notes and boxed comments for major concepts. Also read the chapter summary.

After studying this chapter you should be able to:

- write the mole balances using  $\xi$  for a given feed properly using the stoichiometric numbers for single and multiple reactions.\*
- write the mole fractions using  $\xi$  for single and multiple reactions.\*
- solve for the equilibrium  $\xi$  and the equilibrium mole fractions for a given  $K_a$  and  $P$ .\*
- properly include inerts in chemical equilibrium calculations.\*
- explain and apply LeChatelier's principle.\*
- find  $\Delta G^\circ_{298}$  and  $\Delta H^\circ_{298}$  for a given reaction.\*
- find  $\Delta G^\circ_T$  and  $K_{aT}$  using the shortcut van't Hoff equation.
- set up the energy balance for a given feed and equilibrium conversion, testing for closure or solving for  $Q$ .