

Chemistry 1130 Exam 2 Study Guide

Chapter 7

7.1 Identify the solute(s) and solvent of a solution.

- Master Tutor Section 7.1
- Review Section 7.1 in the Concept Summary
- Review Example 7.1 and Learning Check 7.1
- For practice, do Exercises 7.2, 7.4

7.2 Demonstrate your understanding of terms related to the solubility of solutes in solution.

- Master Tutor Section 7.2
- Review Section 7.2 in the Concept Summary
- For practice, do Exercises 7.6, 7.8

7.4 Calculate the percent concentration ((w/w), (w/v), and (v/v) of a solution.

- Master Tutor Section 7.4
- Review Section 7.4 in the Concept Summary
- Review Examples 7.4, 7.5 and Learning Checks 7.4, 7.5
- For practice, do Exercises 7.32, 7.34, 7.38

7.7 a) Identify colligative properties of solutions. b) Determine how differences in concentration affect colligative properties.

- Master Tutor Section 7.7
- Review Section 7.7 in the Concept Summary
- For practice, do Exercises 7.62, 7.63

Chapter 9

9.1 Identify Arrhenius acids and bases.

- Master Tutor Section 9.1
- Review Section 9.1 in the Concept Summary
- For practice, do Exercise 9.2

9.2 Identify Bronsted acids and bases.

- Master Tutor Section 9.2
- Review Section 9.2 in the Concept Summary
- Review Example 9.1 and Learning Check 9.1
- For practice, do Exercises 9.6, 9.10, 9.12

9.4 a) Identify the products of the self-ionization of water. b) Calculate the $[\text{OH}^-]$ given in the $[\text{H}_3\text{O}^+]$ and vice versa.

- Master Tutor Section 9.4
- Review Section 9.4 in the Concept Summary
- Review Example 9.4 and Learning Check 9.4
- For practice, do Exercises 9.28, 9.30

9.5 a) Calculate pH given $[\text{H}_3\text{O}^+]$ and vice versa. b) Calculate pH given $[\text{OH}^-]$ and vice versa.

- Master Tutor Section 9.5
- Review Section 9.5 in the Concept Summary
- Review Examples 9.5, 9.6 and Learning Checks 9.5, 9.6
- For practice, do Exercises 9.34, 9.35a, c

Chapter 10

10.1 a) Identify alpha, beta, and gamma ray properties. b) Apply alpha, beta, and gamma properties to identify radiation tapes.

- Master Tutor Section 10.1
- Review Section 10.1 in the Concept Summary
- For practice, do Exercises 10.2, 10.4

10.2 Complete nuclear reaction equations.

- Master Tutor Section 10.2
- Review Section 10.2 in the Concept Summary
- Review Examples 10.1-10.3 and Learning Checks 10.1-10.5
- For practice, do Exercises 10.6, 10.8, 10.10, 10.12

10.3 a) Calculate isotope half-lives from data. b) Calculate the amount of radioactive isotope remaining from half-life data.

- Master Tutor Section 10.3
- Review Section 10.3 in the Concept Summary
- Review Examples 10.4, 10.5 and Learning Checks 10.6, 10.7
- For practice, do Exercises 10.16, 10.18, 10.20

Chapter 11

11.1 Distinguish between organic and inorganic compounds.

- Master Tutor Section 11.1
- Review Section 11.1 in the Concept Summary
- For practice, do Exercises 11.4 and 11.5

11.2 Differentiate between organic and inorganic compounds based on the generalities presented in Table 11.1

- Master Tutor Section 11.2
- Review Section 11.2 in the Concept Summary
- Review Learning Checks 11.1 and 11.2
- For practice, do Exercise 11.8

11.3 Identify structural isomers.

- Master Tutor Section 11.3
- Review Section 11.3 in the Concept Summary
- Review Example 11.1 and Learning Check 11.3
- For practice, do Exercises 11.18, 11.20

11.4 and 11.5 Identify alkane structures and determine the number of hydrogen atoms needed to complete a carbon skeleton structure.

- Master Tutor Sections 11.4, 11.5
- Review Sections 11.4, 11.5 in the Concept Summary
- Review Example 11.2 and Learning Checks 11.4, 11.5
- For practice, do Exercises 11.24, 11.28

11.6 Classify an alkane as branched or normal. Identify different conformations of a compound.

- Master Tutor Section 11.6
- Review Section 11.6 in the Concept Summary
- Review Example 11.3 and Learning Check 11.6
- For practice, do Exercise 11.30

11.7 a) Identify and name the longest carbon chain in a diagram. Identify and name the alkyl groups methyl-, ethyl-, propyl-, and isopropyl-.

b) Give IUPAC names to alkanes when given a structure, or vice versa.

c) Give the correct IUPAC alkane name when given an incorrect one.

- Master Tutor Section 11.7
- Review Section 11.7 in the Concept Summary
- Review Example 11.4 and Learning Checks 11.7-11.11
- For practice, do Exercises 11.32, 11.33, 11.34, 11.36, 11.42

11.8 Give IUPAC names to cycloalkane when given a structure, or vice versa. Determine the number of hydrogen atoms needed to complete a cycloalkane structure.

- Master Tutor Section 11.8
- Review Section 11.8 in the Concept Summary
- Review Example 11.5 and Learning Check 11.12
- For practice, do Exercises 11.44, 11.46, 11.48

11.9 Determine if a compound can exhibit geometric isomerism and identify it as cis- or trans-.

- Master Tutor Section 11.9
- Review Section 11.9 in the Concept Summary
- Review Example 11.6 and Learning Check 11.13
- For practice, do Exercises 11.52, 11.54

11.10 Know alkanes are non-polar, hydrophobic, and less dense than water and cannot hydrogen bond. Know boiling points increase as the number of carbon increase in an alkane and that methane, ethane, propane and butane are gases at room temperature.

- Master Tutor Section 11.10
- Review Section 11.10 in the Concept Summary
- For practice, do Exercise 11.56

11.11 Know that, except for combustion, alkanes are basically uncreative. Identify CO_2 and H_2O as the products of complete combustion, and CO and H_2O as the products of incomplete combustion. Given the number of moles of an alkane or cycloalkane, calculate the number of moles of CO_2 or H_2O produced by complete combustion.

- Master Tutor Section 11.11
- Review Section 1.11 in the Concept Summary
- For practice, do Exercises 11.60, 11.62

Remember to place the Key Reactions on your exam note sheet.