

Chemistry 20 final review Tro 5th edition

General information:

- Final is all multiple-choice

- Bring:

calculator

pencil

3 x 5 card of notes (2 sides)

-Given:

A periodic table

Conversion factors

Any tables you might need (density, electronegativities, etc.)

The diagonal rule (used for electron configuration)

Polyatomic ion formulas

Chapter 1 - no material on final

Chapter 2 Sections 2-10

a. scientific notation

b. significant figures

c. converting between units

d. Density

Suggested problems # 31, 49, 57, 59, 61, 71, 73, 91, 101

Chapter 3 Sections 4, 5, 6

a. classifying matter

b. elements, compounds, homogeneous and heterogeneous mixtures

c. physical and chemical changes

Suggested problems 35, 41

Chapter 4 Sections 4-8

a. Parts of the atom- protons, neutrons, electrons

b. Determining protons, neutrons and electrons from the periodic table or from atomic notation ($^{25}_{12}\text{Mg}$ etc)

c. Isotopes

d. The parts of the periodic table - metals, halogens, noble gases etc.

e. Ions

Suggested problems 33, 35, 43, 51, 59, 61, 75, 77

Chapter 5 Sections 3-10

a. Naming compounds

b. Naming ionic compounds

c. Naming acids

d. Naming molecular (covalent) compounds

Suggested problems 45, 55, 59, 61, 63, 65, 69, 71, 77, 79

Chapter 6 Sections 3, 4

The mole

P.T. Avogadro's #
Grams -----→ moles -----→ molecules/atoms/formula units

Suggested problems # 19, 25 51, 53

Chapter 7 Sections 3-7

- Chemical reactions
- Balancing reactions
- Double displacement reactions
- Soluble compounds

Suggested problems 37, 51, 65, 69, 73

Chapter 8 Stoichiometry

PT coeff of rx PT
Grams_A ----→ moles_A --→ moles_B --→ grams_B

Suggested problems 21, 29, 33, 39

Chapter 9 Sections 4, 6, 7

- Bohr model of the atom
- Electron configurations
- Valence electrons

Suggested problems 53, 55, 61

Chapter 10 Sections 2, 4, 5, 7, 8

- Chemical bonding
- Ionic versus covalent bonding
- Lewis structures of covalent compounds
- Shapes of molecules
- Polarity
- Electronegativity

Suggested problems 47, 53, 65 a-c, 85, 89

Chapter 11 Gases- not on final

Chapter 12 Liquids and Solids- not on final

Chapter 13 Sections 2, 3, 6, 7

- Solutions
- Molarity = moles/liters *or* $M \times L = \text{moles}$
- Mass percent
- Saturated, unsaturated supersaturated
- Solution dilution $C_1 \times V_1 = C_2 \times V_2$

Suggested problems 63, 71, 73, 83, 87

Chapter 14 Sections 2, 3, 5, 6, 8,9

a. Acid base properties

b. The pH scale

c. Neutralization reactions

d. Calculating pH, $[\text{H}_3\text{O}^+]$, and $[\text{OH}^{1-}]$

$$\text{pH} = -\log [\text{H}_3\text{O}^+]$$

$$[\text{H}_3\text{O}^+][\text{OH}^{1-}] = 1 \times 10^{-14}$$

e. Titration calculations

Suggested problems 39, 61, 63, 65, 67, 69, 71, 75