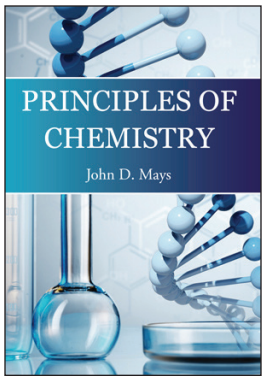
Principles of Chemistry

Errata



We always strive to make our textbooks as accurate as possible, but sadly, errors are a reality. We very much appreciate friends who report errata that are not included in this document!
Please send new errata to info@centripetalpress.com

Last revised: January 28, 2022

Principles of Chemistry (2016)

Chapter 1 Exercises

10.d. The answer in kelvins is $255.37\overline{2}$.

Chapter 2 Exercises

33.c. 2.91×10^{22} atoms

Exam 2, #6: Answer should be 60.052 g/mol

Chapter 3 Exercises

20.i. neodymium

23. No: $[Rn]7s^2 5f^{14}$

33.c. 2.91×10^{22}

38. Units in the answer should be cm^3.

46.e. 1300.05 bar

Chapter 4

p. 104 The opening of the first paragraph should read, "The first 92 elements...are found in nature. Elements 93–118 have been synthesized in laboratories..."

Chapter 4 Exercises

10. The problem statement should refer to cesium (Cs). Answer: Mg < Na < Ba < Cs

Chapter 5 Exercises

20.a. The Be—F bond is ionic

22. The molar mass of $CaCO_3$ is 100.087, giving a result of 1.8051×10^{24}.

Chapter 6, Section 6.2.1

1. In the discussion of metals, three crystal structures should be mentioned, not just two. The close packing structures (depicted in the figures) are hexagonal close packing (hcp) and

cubic close packing (ccp)—for which the unit cell is fcc. The third metallic structure is body-centered cubic (bcc). The most common structures are the close packing structures, hcp and ccp, but bcc also occurs.

2. In Figure 6.8 and 6.9, and in the paragraph discussing the figures, references to bcc are incorrect and should be hcp instead. Thus, the two structures depicted in Fig 6.8 are hcp on the left and ccp/fcc on the right. In Fig 6.9, the upper part is hcp and the lower part is ccp/fcc. Although bcc occurs in metals, it is not shown in any of the diagrams.

3. For clarity, note that the description of the ferrite and austenite structures of iron is correct as written—the two structures are bcc and ccp/fcc. However, the description is misleading because bcc is not actually shown in the figure, hcp is.

Chapter 7 Exercises

14.i. reaction products should be LiI(aq) and K(s)

20. The question should say that the reaction takes place in excess *carbon monoxide*.

Chapter 9

14.b. 4.20×10^2 kg

Chapter 10

34. The first answer is 3.46 *m*

46. 8.50 atm

Chapter 11 Exercises

4.g. The answer is diprotic

21. Add the following note to the answers given in the text: These answers all show the formation of carbonic acid, H_2CO_3. This acid is unstable and immediately breaks down to CO_2 and water. Thus, each equation could be shown as: ...+ CO_2 + H_2O.

25. The first two sentences of the question should read: According to the activity series of metals (Table 7.2), copper does not react with sulfuric acid. However, if the acid is hot enough and concentrated enough, copper reacts with H_2SO_4 in a single-replacement reaction.

28.g. *basic*

Chapter 12 Exercises

For exercise 2, the following descriptions should accompany the equations in the answer key.

a. Not a redox reaction.
b. Cl is reduced; it is the oxidizing agent. O is oxidized; it is the reducing agent.
c. S is reduced; it is the oxidizing agent. Br is oxidized; it is the reducing agent.
d. Not a redox reaction.
e. Cl is reduced; it is the oxidizing agent. I is oxidized; it is the reducing agent.
f. N is reduced; it is the oxidizing agent. S is oxidized; it is the reducing agent.

6.f. The total number of water molecules shown on the right side of the final equation should be 2,

not 1.

For exercise 7, the following descriptions should accompany the equations in the answer key.

a. oxidizing agent: Fe; reducing agent: S
b. oxidizing agent: Cl; reducing agent: I
c. oxidizing agent: Mn; reducing agent: C
d. oxidizing agent: Cl; reducing agent: O
e. oxidizing agent: N; reducing agent: Al
f. oxidizing agent: Mn; reducing agent: Cl
g. oxidizing agent: N; reducing agent: S
h. oxidizing agent: Mn; reducing agent: Br

Digital Resources

Exam 2

#6: Answer should be 60.052 g/mol

Fall Semester Exam

1.d. The compound should be Cl_2O. The answer given is for this compound.

4. Our given solution is correct except for the final result, which should be 1.549×10^{-19} J.

10. The molecular mass of propane used in our solution is incorrect. It should be 44.096 g/mol, giving a result of 8.194×10^{25} carbon atoms.

16.b. iron(III) oxide

20. Correct answer is $Mg < Ca < Sr^{2+} < Sr < Ba^{2+}$

Spring Semester Exam

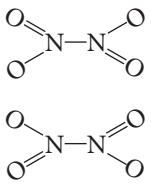
7.b. The ionic equation should have $2Ag^{+}(aq)$ on both sides (not $2Ag^{2+}(aq)$)

Principles of Chemistry Solutions Manual

Chapter 3 Exercises

46.e. 1300.05 bar

Chapter 5 Exercises



12.o. N_2O_4

19.a.

$$750 \text{ mg } Al(OH)_3 \cdot \frac{1 \text{ g}}{1000 \text{ mg}} \cdot \frac{\text{mol}}{78.0034 \text{ g}} = 0.00961 \text{ mol } Al(OH)_3$$

$$0.00961 \text{ mol } Al(OH)_3 \cdot \frac{3 \text{ mol HCl}}{1 \text{ mol } Al(OH)_3} = 0.0288 \text{ mol HCl}$$

Rounding this result to 2 sig digs gives 0.029 mol HCl.

19.b.

$$750 \text{ mg } Al(OH)_3 \cdot \frac{1 \text{ g}}{1000 \text{ mg}} \cdot \frac{\text{mol}}{78.0034 \text{ g}} = 0.00961 \text{ mol } Al(OH)_3$$

$$0.00961 \text{ mol } Al(OH)_3 \cdot \frac{3 \text{ mol } H_2O}{1 \text{ mol } Al(OH)_3} = 0.0288 \text{ mol } H_2O$$

$$0.0288 \text{ mol } H_2O \cdot \frac{18.02 \text{ g}}{\text{mol}} = 0.5198 \text{ g } H_2O$$

After the 7.19.b. solution, add: Rounding this result to 2 sig digs gives 0.52 g H_2O.