Practice Exam
Palmer Graves, Instructor

MULTIPLE CHOICE

Section 1.2 Chemistry and the Elements

1. What is the chemical symbol for tin?
   a) Fe
   b) Sn
   c) Ta
   d) Ti

Section 1.3 Elements and the Periodic Table

2. Bromine belongs to the _____ group of the periodic table.
   a) alkali metal
   b) alkaline earth
   c) halogen
   d) noble gas

Section 1.6 Measuring Mass

3. A student weighed 3000 μg of sulfur in the lab. This is the same mass as
   a) 3.000×10^{-6} g.
   b) 3.000×10^{-3} kg.
   c) 3.000×10^{3} mg.
   d) 3.000×10^{6} ng.

Section 1.8 Derived Units: Measuring Volume

4. Convert 100 cm^3 to m^3.
   a) 1×10^{-4} m^3
   b) 1×10^{-3} m^3
   c) 1×10^{2} m^3
   d) 1×10^{8} m^3

Section 1.13 Properties of Matter: Density

5. A piece of metal ore weighs 8.25 g. When a student places it into a container of water, the liquid level rises from 21.25 mL to 26.47 mL. What is the density of the ore?
   a) 0.312 g/mL
   b) 0.633 g/mL
   c) 1.58 g/mL
   d) 3.21 g/mL

Practice Exam
Palmer Graves, Instructor

Sections 2.3 - 2.6 Elements and Atoms

6. How many protons (p) and neutrons (n) are in an atom of $^{90}_{38}Sr$?
   a) 38 p, 52 n
   b) 38 p, 90 n
   c) 52 p, 38 n
   d) 90 p, 38 n

Sections 2.7 and 2.8 Compounds and Mixtures, Molecules and Ions

7. How many electrons are in the ion Zn^{2+}?
   a) 28
   b) 30
   c) 32
   d) 65

Section 2.9 Acids and Bases

8. Which one of the following compounds is an acid?
   a) BaO
   b) CH_4
   c) HBr
   d) KOH

Section 2.10 Naming Compounds

9. What is the formula for strontium hydroxide?
   a) SrH_2
   b) SrOH
   c) $SrOH_2$
   d) $Sr(OH)_2$

10. What are the names of the ions Ba^{2+}, Sn^{2+}, and Se^{2-}?
    a) barium, tin, and selenium
    b) barium, tin(II), and selenide
    c) barium(II), tin(II), and selenium(II-)
    d) barous, stannous, and selenide

Section 3.1 Balancing Chemical Equations

11. What is the **sum** of the coefficients when the following equation is balanced using the lowest, whole numbered coefficients?
    _____ $PH_3(g)$ + _____ $O_2(g) \longrightarrow$ _____ $P_4O_{10}(s)$ + _____ $H_2O(g)$
    a) 10
    b) 12
    c) 19
    d) 22

Practice Exam
Palmer Graves, Instructor

Section 3.3 Avogadro's Number and the Mole

12. What is the molar mass of calcium permanganate?
    a) 159 g/mol
    b) 199 g/mol
    c) 216 g/mol
    d) 278 g/mol

13. How many grams are there in 0.500 mol of dichlorodifluoromethane, CF_2Cl_2?
    a) 4.14×10^{-3} g
    b) 60.5 g
    c) 121 g
    d) 242 g

14. How many moles are there in 1.50 g of ethanol, CH_3CH_2OH?
    a) 0.0145 mol
    b) 0.0326 mol
    c) 30.7 mol
    d) 69.0 mol

15. How many molecules are there in 5.00 g of $FeSO_4$?
    a) 5.46×10^{-25} molecules
    b) 1.98×10^{23} molecules
    c) 1.83×10^{25} molecules
    d) 4.58×10^{25} molecules

16. How many grams does 8.50×10^{23} molecules of NH_3 represent?
    a) 0.00830 g
    b) 0.417 g
    c) 2.40 g
    d) 120 g

Section 3.4 Stoichiometry: Chemical Arithmetic

17. How many moles of CuO are produced from 0.450 mol of Cu_2O in the following reaction?

$$2\ Cu_2O(s) + O_2(g) \longrightarrow 4\ CuO(s)$$

    a) 0.225 mol
    b) 0.450 mol
    c) 0.900 mol
    d) 4.44 mol

18. Dinitrogen monoxide gas decomposes to form nitrogen gas and oxygen gas. How many grams of oxygen are formed when 5.00 g of dinitrogen monoxide decomposes?
    a) 0.909 g
    b) 1.82 g
    c) 3.64 g
    d) 7.27 g

Practice Exam
Palmer Graves, Instructor

Section 3.5 Yields of Chemical Reactions

19. If 10.0 g of calcium metal reacts with water and produces 5.00 g of calcium hydroxide, what is the percent yield for the following reaction?

$$Ca(s) + 2\ H_2O(l) \longrightarrow Ca(OH)_2(aq) + H_2(g)$$

a) 13.5%
b) 27.1%
c) 50.0%
d) 92.4%

Practice Exam
Palmer Graves, Instructor

1. b)

Chapter: 1 QUESTION: 3

2. c)

Chapter: 1 QUESTION: 11

3. d)

Chapter: 1 QUESTION: 39

4. a)

Chapter: 1 QUESTION: 45

5. c)

Chapter: 1 QUESTION: 71

6. a)

Chapter: 2 QUESTION: 20

7. a) periodic table required

Chapter: 2 QUESTION: 35

8. c)

Chapter: 2 QUESTION: 56

9. d) periodic table required

Chapter: 2 QUESTION: 65

10. b)

Chapter: 2 QUESTION: 80

11. c)

Chapter: 3 QUESTION: 4

12. d)

Chapter: 3 QUESTION: 11

13. b)

Chapter: 3 QUESTION: 15

14. b)

Chapter: 3 QUESTION: 16

15. b)

Chapter: 3 QUESTION: 17

16. c)

Chapter: 3 QUESTION: 18

Practice Exam
Palmer Graves, Instructor

17. c)

Chapter: 3 QUESTION: 29

18. b)

Chapter: 3 QUESTION: 34

19. b)

Chapter: 3 QUESTION: 36