1) What is the mass in grams of 1.000 mole of P2O5?

A) 239.03 g

B) 61.96 g

C) 142.0 g

D) 46.98 g

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

2) What is the mass in grams of 1.000 mole of a compound whose formula is C3H7O2?

A) 29.14 g

B) 68.22 g

C) 37.54 g

D) 75.09 g

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

3) Which of the following has the least number of atoms?

A) (NH4)3PO4

B) Na2P2O3

C) (NH4)2Cr2O7

D) K4Fe(CNO)6

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

4) Which of the following has the greatest number of atoms?

A) (NH4)3PO4

B) Na2P2O3

C) (NH4)2Cr2O7

D) K4Fe(CNO)6

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

5) The correct sequence of decreasing number of atoms per formula unit in the following is \_\_\_\_\_\_\_\_.

A) (NH4)3PO4 > Na2P2O3 > Na3PO4

B) Na3PO4 > (NH4)3PO4 > Na2P2O3

C) Na2P2O3 > Na3PO4 > (NH4)3PO4

D) (NH4)3PO4 > Na3PO4 > Na2P2O3

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

6) The number of oxygen atoms in 1 mole of Al2(SO4)3 is \_\_\_\_\_\_\_\_.

A) 3

B) 4

C) 12

D) none of the above

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

7) The molar mass of Ca3(PO4)2 is \_\_\_\_\_\_\_\_.

A) 310

B) 279

C) 246

D) 215

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

8) The molar mass for Pb(CO3)4 is \_\_\_\_\_\_\_\_.

A) 447

B) 409

C) 327

D) 303

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

9) Which of the following has a molar mass equal to 133?

A) (NH4)3PO3

B) Ca3(PO4)2

C) Al2(SO3)3

D) Co2(CO3)2

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

10) Which of the following has the highest molar mass?

A) (NH4)3PO3

B) Ca3(PO4)2

C) Al2(SO3)3

D) Co2(CO3)2

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

11) Which of the following pairs does **not** share the same molecular mass when rounded to the nearest whole number?

A) CH3OH and oxygen gas

B) CO and nitrogen gas

C) C2H6O and C2H4O2

D) C4H10O and C3H6O2

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

12) The molar mass of a compound XClO3 is 106.5. The molar mass (rounded to the nearest whole number) of X is \_\_\_\_\_\_\_\_, which is \_\_\_\_\_\_\_\_.

A) 39; K

B) 23; Na

C) 7; Li

D) 1; H

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G2 Demonstrate the ability to think critically and employ critical thinking skills and G4 Demonstrate the quantitative skills needed to succeed in chemistry.

13) The molar mass of a compound X(HCO3)2 is 146. The atomic weight of X when rounded to the nearest whole number is \_\_\_\_\_\_\_\_, which is \_\_\_\_\_\_\_\_.

A) 24; Mg

B) 40; Ca

C) 51; V

D) 56; Fe

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G2 Demonstrate the ability to think critically and employ critical thinking skills and G4 Demonstrate the quantitative skills needed to succeed in chemistry.

14) The molecular mass of a compound X(NO3)3 is 213. The atomic mass of X is \_\_\_\_\_\_\_\_, which is \_\_\_\_\_\_\_\_.

A) 27; Al

B) 51; V

C) 56; Fe

D) 59; Co

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G2 Demonstrate the ability to think critically and employ critical thinking skills and G4 Demonstrate the quantitative skills needed to succeed in chemistry.

15) The molar mass of a compound Ca(MO3)2 is 160. The atomic mass of M is \_\_\_\_\_\_\_\_, which is \_\_\_\_\_\_\_\_.

A) 12; C

B) 14; N

C) 32; S

D) 35; Cl

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G2 Demonstrate the ability to think critically and employ critical thinking skills and G4 Demonstrate the quantitative skills needed to succeed in chemistry.

16) The molar mass of a compound Al2(XO4)3 is 342. The atomic mass of X is \_\_\_\_\_\_\_\_, which is \_\_\_\_\_\_\_\_.

A) 31; P

B) 32; S

C) 52; Cr

D) 55; Mn

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G2 Demonstrate the ability to think critically and employ critical thinking skills and G4 Demonstrate the quantitative skills needed to succeed in chemistry.

17) Alkanes have the general molecular formula CnH2n+2. Thus, when n = 1, the alkane is CH4, when n = 2, the alkane is C2H6 etc. If an alkane has a molar mass between 140 and 150, this alkane is \_\_\_\_\_\_\_\_.

A) C9H20

B) C12H26

C) C10H22

D) C11H24

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

18) Alkenes have the general molecular formula CnH2n. Thus, when n = 2, the alkene is C2H4. If an alkene has a molecular mass between 65 and 75, this alkene is \_\_\_\_\_\_\_\_.

A) C5H12

B) C5H10

C) C6H3

D) C6H12

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

19) Alkynes have the general molecular formula CnH2n-2. Thus, when n = 2, the alkyne is C2H2 etc. If an alkyne has a molecular mass between 75 and 85, this alkyne is \_\_\_\_\_\_\_\_.

A) C6H10

B) C6H12

C) C5H16

D) C7H12

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

20) Which of the following quantities does **not** share the same molar mass as the others when rounded to the nearest whole number?

A) Al2(SO4)3

B) C12H22O11

C) C24H38O

D) Pb3(PO4)4

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

21) Which of the following contains the least number of atoms?

A) 1.0 mole C6H14

B) 3.0 moles N2O5

C) 12.0 moles silver

D) 3.0 moles water

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

22) Which of the following contains the greatest number of atoms?

A) 1.0 mole C6H14

B) 3.0 moles N2O5

C) 12.0 moles silver

D) 3.0 moles water

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

23) 12 g of carbon is equal to \_\_\_\_\_\_\_\_.

A) the mass of one atom

B) the mass of one molecule

C) the mass of one mole

D) the mass of half a mole

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

24) 16 g of oxygen gas is equal to \_\_\_\_\_\_\_\_.

A) the mass of one atom

B) the mass of one molecule

C) the mass of one mole

D) the mass of half a mole

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

25) A sample of calcium that contains Avogadro's number of atoms has a mass of \_\_\_\_\_\_\_\_.

A) 20 g

B) 40 g

C) 80 g

D) 160 g

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

26) A sample of calcium that contains one-half Avogadro's number of atoms has a mass of \_\_\_\_\_\_\_\_.

A) 20 g

B) 40 g

C) 80 g

D) 160 g

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

27) A sample of calcium that contains four times Avogadro's number of atoms has a mass of \_\_\_\_\_\_\_\_.

A) 20 g

B) 40 g

C) 80 g

D) 160 g

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

28) A sample of calcium that contains twice Avogadro's number of atoms has a mass of \_\_\_\_\_\_\_\_.

A) 20 g

B) 40 g

C) 80 g

D) 160 g

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

29) A sample of oxygen gas that contains Avogadro's number of molecules has a mass of \_\_\_\_\_\_\_\_.

A) 8.0 g

B) 16.0 g

C) 32.0 g

D) 64.0 g

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

30) A sample of oxygen gas that contains Avogadro's number of atoms has a mass of \_\_\_\_\_\_\_\_.

A) 8.0 g

B) 16.0 g

C) 32.0 g

D) 64.0 g

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

31) A sample of oxygen gas that contains one-half of Avogadro's number of molecules has a mass of \_\_\_\_\_\_\_\_.

A) 8.0 g

B) 16.0 g

C) 32.0 g

D) 64.0 g

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

32) A sample of oxygen gas that contains twice Avogadro's number of molecules has a mass of \_\_\_\_\_\_\_\_.

A) 8.0 g

B) 16.0 g

C) 32.0 g

D) 64.0 g

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

33) A sample of methane gas that contains Avogadro's number of molecules has a mass of \_\_\_\_\_\_\_\_.

A) 8.0 g

B) 16.0 g

C) 32.0 g

D) 64.0 g

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

34) A sample of methane gas that contains Avogadro's number of atoms has a mass of \_\_\_\_\_\_\_\_.

A) 3.2 g

B) 6.4 g

C) 16.0 g

D) 80.0 g

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

35) Which of the following does **not** have the same number atoms as the other three choices?

A) three moles Na2SO3

B) six moles of water

C) nine moles NaCl

D) five moles CH4

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

36) What is the mass of 0.0500 moles aluminum sulfate?

A) 6.15 g

B) 10.95 g

C) 17.1 g

D) 19.8 g

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

37) What is the molar mass of a compound X if 0.0400 moles weigh 21.6 g?

A) 540

B) 185

C) 216

D) 864

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

38) 0.3 moles of a certain calcium compound weigh 93 g. This compound may be \_\_\_\_\_\_\_\_.

A) calcium nitrate

B) calcium chromate

C) calcium phosphate

D) calcium sulfate

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

39) 0.02 moles of a certain aluminum compound has a mass of 1.56 g. This compound may be \_\_\_\_\_\_\_\_.

A) aluminum hydroxide

B) aluminum nitrate

C) aluminum cyanide

D) aluminum permanganate

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

40) 0.05 moles of a certain compound has a mass of 17.1 g. This compound may be \_\_\_\_\_\_\_\_.

A) aluminum sulfate

B) lead (II) chloride

C) cobalt (III) oxide

D) magnesium carbonate

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

41) Which of the following will **not** have the same number atoms as the other three choices?

A) K2Cr2O7

B) (NH4)2S

C) Al(ClO2)3

D) Ba(HCO3)2

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

42) Which of the following has 14 atoms per formula unit?

A) (NH4)2SO3

B) Al(ClO4)3

C) Pb(CrO4)2

D) Mg3(PO4)2

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

43) The number of atoms in 2.4 g of magnesium metal is \_\_\_\_\_\_\_\_.

A) 6.0 × 1022

B) 3.7 × 1022

C) 2.5 × 1022

D) 1.7 × 1022

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

44) A certain food contains 60 mg of table salt. This is approximately equal to \_\_\_\_\_\_\_\_ formula units.

A) 6 × 1023

B) 6 × 1022

C) 6 × 1020

D) 6 × 1026

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

45) The number of oxygen **atoms** present in 32.4 g of N2O5 is \_\_\_\_\_\_\_\_.

A) 5.00

B) 9.03 × 1023

C) 4.51 × 1023

D) 1.81 × 1023

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

46) Which is the correct statement about one mole of ammonia, NH3?

A) It contains 14 g nitrogen and 3 g hydrogen.

B) It contains 6.02 × 1023 molecules.

C) It contains 1.8 × 1024 atoms of hydrogen.

D) all of the above

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

47) The number of phosphorus atoms in one molecule of H3PO4 is \_\_\_\_\_\_\_\_.

A) 1

B) 8

C) 6.02 × 1023

D) 4.8 × 1023

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

48) The total number of atoms in two moles SO3 is \_\_\_\_\_\_\_\_.

A) 4

B) 8

C) 1.2 × 1024

D) 4.8 × 1024

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

49) The mass of one formula unit of Al2(SO4)3 is \_\_\_\_\_\_\_\_ g.

A) 342

B) 0.0029

C) 5.7 × 10-22

D) 8.0 × 10-27

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

50) Which of the following does **not** contain 3.0 × 1024 atoms?

A) 60 g of carbon

B) one mole of methane

C) two moles of water

D) 160 g sulfur

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

51) Which contains more carbon?

A) 24 g methane

B) 140 g sodium carbonate

C) 40 g carbon monoxide

D) 15 g octane, C8H18

Answer: A

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

52) One molecule of water contains \_\_\_\_\_\_\_\_.

A) one mole of hydrogen

B) one mole of oxygen

C) one atom of oxygen

D) 16 g of oxygen

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

53) The ingredients to make 50 servings of fruit punch are:

∙ 2-1/2 cups white sugar

∙ 6 cups water

∙ 2 (3-ounce) packages strawberry flavored gelatin mix

∙ 1 (46-fluid-ounce) can pineapple juice

∙ 2/3 cup lemon juice

∙ 1 quart orange juice

∙ 2 (2-liter) bottles lemon-lime flavored carbonated beverage

How many servings of punch can you make using the above recipe, if you have 2 gallons of pineapple juice, 8 (2-liter) bottles of lemon-lime flavored soda and 2 gallons of orange juice? Assume you have plenty of all the other ingredients.

A) 125 servings

B) 200 servings

C) 278 servings

D) 375 servings

E) 400 servings

Answer: B

Section: Section 9.2

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry and G5 Demonstrate an understanding of the impact of science on society.

54) The mass of CaCl2 that contains 17.8 g of chlorine is \_\_\_\_\_\_\_\_.

A) 35.6 g

B) 53.4 g

C) 27.9 g

D) 20.5 g

Answer: C

Section: Section 9.2

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

55) The number of moles of chlorine atoms in 12.5 g of carbon tetrachloride is \_\_\_\_\_\_\_\_.

A) 0.081

B) 0.162

C) 0.325

D) 0.648

Answer: C

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

56) The mass of oxygen present in 11.7 g of Al2(CO3)3 is \_\_\_\_\_\_\_\_.

A) 7.20 g

B) 14.4 g

C) 8.10 g

D) 4.05 g

Answer: A

Section: Section 9.2

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

57) Which has more **ions**—2.0 moles of Al2(SO4)3 or 3.0 moles of Na3PO4?

A) 2.0 moles of Al2(SO4)3

B) 3.0 moles of Na3PO4

C) There are equal number of *ions* in both ionic compounds.

D) It cannot be determined based on the information given.

Answer: B

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

58) 0.011 moles of an element has a mass of 2.56 g. This element is \_\_\_\_\_\_\_\_.

A) Pb

B) V

C) Ac

D) Th

Answer: D

Section: Section 9.2

Learning Outcome: 9.1 Describe what a mole is and how it relates to formulas of substances, molar mass, and chemical equations.

Global Obj: G2 Demonstrate the ability to think critically and employ critical thinking skills and G4 Demonstrate the quantitative skills needed to succeed in chemistry.

59) What is the mass of hydrogen that will react with 0.203 g of Li to form LiH?

A) 0.015 g

B) 0.030 g

C) 0.060 g

D) 0.120 g

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

60) What is the mass of sulfur that will react with 0.527 g of copper metal to yield copper (I) sulfide?

A) 0.066 g

B) 0.132 g

C) 0.264 g

D) 0.198 g

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

61) 0.842 g chlorine will combine with \_\_\_\_\_\_\_\_ g of sulfur to produce SCl2.

A) 0.481

B) 1.870

C) 0.305

D) 0.379

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

62) Two moles of hydrogen react with excess nitrogen to produce \_\_\_\_\_\_\_\_ moles of ammonia..

N2 + 3 H2 → 2 NH3

A) 1.3

B) 2.0

C) 1.0

D) 6.0

Answer: A

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

63) If 4 moles of nitrogen produces 2 moles of nitrogen dioxide, then the percent yield is \_\_\_\_\_\_\_\_.

N2 + 2 O2 → 2 NO2

A) 100%

B) 50%

C) 25%

D) 12.5%

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

64) If 14 kg of nitrogen yields 23 kg of nitrogen dioxide, then the percent yield for the reaction is \_\_\_\_\_\_\_\_.

N2 + 2 O2 → 2 NO2

A) 100%

B) 50%

C) 25%

D) 12%

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

65) The maximum number of moles of water that can be produced from 0.5 moles of C3H8O is \_\_\_\_\_\_\_\_.

2 C3H8O + 9 O2 → 6 CO2 + 8 H2O

A) 0.5

B) 2

C) 4

D) 8

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

66) If 5.0 moles of ammonia is produced, then the number of hydrogen molecules consumed is \_\_\_\_\_\_\_\_.

N2 + 3 H2 → 2 NH3

A) 5.0

B) 7.5

C) 3.2

D) 1.0

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

67) What is the percent yield for a given process, if 4.0 kg of a product is recovered from a reaction whose theoretical yield is 5.6 kg?

A) 41%

B) 62%

C) 71%

D) 89%

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

68) The balanced equation involves the corresponding coefficients \_\_\_\_\_\_\_\_.

NaHCO3 → Na2CO3 + CO2 + H2O

A) 1: 1: 1: 1

B) 1: 2: 1: 1

C) 2: 1: 1: 1

D) 2: 1: 2: 1

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

69) The balanced equation involves the corresponding coefficients \_\_\_\_\_\_\_\_.

H2SO4 + Cu → SO2 + H2O + CuSO4

A) 2: 1: 1: 2: 1

B) 1: 1: 2: 2: 1

C) 2: 1: 2: 1: 1

D) 2: 1: 1: 2: 2

Answer: A

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

70) The balanced equation involves the corresponding coefficients \_\_\_\_\_\_\_\_.

NH3 + O2 → NO + H2O

A) 2: 3: 2: 3

B) 2: 5: 2: 3

C) 4: 5: 4: 6

D) 2: 2: 3: 3

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

71) The balanced equation involves the corresponding coefficients \_\_\_\_\_\_\_\_.

C2H6O + O2 → CO2 + H2O

A) 1: 2: 2: 3

B) 1: 3: 2: 3

C) 2: 7: 4: 6

D) 2: 9: 4: 6

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

72) The balanced equation involves the corresponding coefficients \_\_\_\_\_\_\_\_.

C6H14 + O2 → CO2 + H2O

A) 1: 9: 6: 7

B) 1: 10: 6: 7

C) 2: 19: 12:14

D) 2: 21: 6: 7

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

73) The balanced equation involves the corresponding coefficients \_\_\_\_\_\_\_\_.

NaN3 → Na + N2

A) 2: 2: 3

B) 1: 2: 3

C) 2: 1: 3

D) 3: 3: 2

Answer: A

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

74) The maximum number of moles of carbon dioxide that can be produced from four moles of C3H8O is \_\_\_\_\_\_\_\_.

2 C3H8O + 9 O2 → 6 CO2 + 8 H2O

A) 4

B) 6

C) 8

D) 12

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

75) Which reactant is present in excess if 10.0 g of CaO react with 3.0 mol of H2O?

CaO + H2O → Ca(OH)2

A) Ca(OH)2

B) CaO

C) H2O

D) None of the above, the amounts exactly balance.

Answer: C

Section: Section 9.3

Learning Outcome: 9.3 Identify a limiting reactant if present and calculate the theoretical and percent yield when a limiting reactant is present.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

76) Which of the following abides by the principle of mass conservation according to the balanced reaction?

4 K + O2 → 2 K2O

A) 39.0g K + 16.0g O2 → 94.0g K2O

B) 156.0 g K + 24.0g O2 → 188.0g K2O

C) 156.0g K + 32.0g O2 → 188.0g K2O

D) 78.0g K + 32.0g O2 → 110.0g K2O

Answer: C

Section: Section 9.3

Learning Outcome: 9.3 Identify a limiting reactant if present and calculate the theoretical and percent yield when a limiting reactant is present.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

77) The theoretical number of carbon dioxide moles produced from 3 moles of C2H6O is \_\_\_\_\_\_\_\_.

C2H6O + O2 → CO2 + H2O

A) 3

B) 4

C) 6

D) 9

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

78) The theoretical number of carbon dioxide moles produced from 6 moles of NaHCO3 is \_\_\_\_\_\_\_\_.'

NaHCO3 → Na2CO3 + CO2 + H2O

A) 1

B) 3

C) 6

D) 12

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

79) The theoretical number of moles of water produced from 8 moles of NaHCO3 is \_\_\_\_\_\_\_\_.

NaHCO3 → Na2CO3 + CO2 + H2O

A) 2

B) 4

C) 8

D) 16

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

80) What is the theoretical mass of carbon dioxide produced from 4.0 moles of NaHCO3?

NaHCO3 → Na2CO3 + CO2 + H2O

A) 1.0 g

B) 22 g

C) 44 g

D) 88 g

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

81) What is the theoretical mass of water produced from 10 moles of NaHCO3?

NaHCO3 → Na2CO3 + CO2 + H2O

A) 180 g

B) 90 g

C) 45 g

D) 18 g

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

82) Determine the percent yield of an experiment in which 1.00 mole of NaHCO3 was consumed and 22.0 g of carbon dioxide was isolated.

NaHCO3 → Na2CO3 + CO2 + H2O

A) 100.%

B) 50.0%

C) 37.5%

D) 25%

Answer: A

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

83) The theoretical number of moles of water produced from 2 moles of C2H6O is \_\_\_\_\_\_\_\_.

C2H6O + O2 → CO2 + H2O

A) 2

B) 3

C) 6

D) 9

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

84) What is the theoretical mass of carbon dioxide produced from one mole of C2H6O?

C2H6O + O2 → CO2 + H2O

A) 6 g

B) 44 g

C) 88 g

D) 176 g

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

85) Determine the percent yield of an experiment in which 1 mole of C2H6O was consumed and 22 g of carbon dioxide was isolated.

C2H6O + O2 → CO2 + H2O

A) 100%

B) 50%

C) 37.5%

D) 25%

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

86) The theoretical number of moles of carbon dioxide produced from 3.0 moles of C6H14 is \_\_\_\_\_\_\_\_.

C6H14 + O2 → CO2 + H2O

A) 3.0

B) 6.0

C) 9.0

D) 18

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

87) The theoretical number of water moles produced from two moles of C6H14 is \_\_\_\_\_\_\_\_.

C6H14 + O2 → CO2 + H2O

A) 1

B) 6

C) 7

D) 14

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

88) What is the theoretical mass of carbon dioxide produced from one mole of C6H14?

C6H14 + O2 → CO2 + H2O

A) 6 g

B) 44 g

C) 132 g

D) 264 g

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

89) The % yield of an experiment in which 1.0 mole of C6H14 was used and 22 g of carbon dioxide was isolated is \_\_\_\_\_\_\_\_.

C6H14 + O2 → CO2 + H2O

A) 100%

B) 50%

C) 17.5%

D) 8.3%

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

90) The theoretical number of moles of sodium produced from 4 moles of NaN3 is \_\_\_\_\_\_\_\_.

NaN3 → Na + N2

A) 1

B) 2

C) 4

D) 8

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

91) The theoretical number of moles of nitrogen produced from 6 moles of NaN3 is \_\_\_\_\_\_\_\_.

NaN3 → Na + N2

A) 2

B) 6

C) 9

D) 18

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

92) The theoretical mass of sodium produced from 2.0 moles of NaN3 is \_\_\_\_\_\_\_\_.

NaN3 → Na + N2

A) 11.5 g

B) 23 g

C) 34.5 g

D) 46 g

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

93) The percent yield of an experiment in which 2.0 moles of NaN3 was used and 21 g of nitrogen was isolated is \_\_\_\_\_\_\_\_.

NaN3 → Na + N2

A) 100%

B) 50%

C) 37.5%

D) 25%

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

94) The minimum number of moles of oxygen needed to completely consume 4 moles of C3H8O is \_\_\_\_\_\_\_\_.

2 C3H8O + 9 O2 → 6 CO2 + 8 H2O

A) 4

B) 9

C) 13.5

D) 18

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

95) The theoretical yield of water produced from of 2.0 moles of C3H8O is \_\_\_\_\_\_\_\_ g.

2 C3H8O + 9 O2 → 6 CO2 + 8 H2O

A) 8

B) 18

C) 36

D) 144

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

96) If 36 g of water are produced from two moles of C3H8O, the percent yield of the reaction is \_\_\_\_\_\_\_\_.

2 C3H8O + 9 O2 → 6 CO2 + 8 H2O

A) 100%

B) 50%

C) 25%

D) 10%

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

97) The theoretical number of moles of copper that will react with 4 moles of sulfuric acid is \_\_\_\_\_\_\_\_.

H2SO4 + Cu → SO2 + H2O + CuSO4

A) 2

B) 4

C) 6

D) 8

Answer: A

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

98) The theoretical number of moles of sulfur dioxide produced from 4 moles of sulfuric acid is \_\_\_\_\_\_\_\_.

H2SO4 + Cu → SO2 + H2O + CuSO4

A) 2

B) 4

C) 6

D) 8

Answer: A

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

99) The theoretical number of moles of water produced from 4 moles of sulfuric acid is \_\_\_\_\_\_\_\_.

H2SO4 + Cu → SO2 + H2O + CuSO4

A) 2

B) 4

C) 6

D) 8

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

100) The theoretical mass of sulfur dioxide produced from 2.0 moles of sulfuric acid is \_\_\_\_\_\_\_\_.

H2SO4 + Cu → SO2 + H2O + CuSO4

A) 8.0 g

B) 16.0 g

C) 32.0 g

D) 64.1 g

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

101) The percent yield of an experiment in which 2.0 moles of copper was used and 18 g of water was isolated is \_\_\_\_\_\_\_\_.

H2SO4 + Cu → SO2 + H2O + CuSO4

A) 100%

B) 50%

C) 37.5%

D) 25%

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

102) How many grams of oxygen will react with 20 g of ammonia?

NH3 + O2 → NO + H2O

A) 71 g

B) 94 g

C) 24 g

D) 47 g

Answer: D

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

103) How many grams of NO will form when 40 g of oxygen are used?

NH3 + O2 → NO + H2O

A) 30 g

B) 15 g

C) 45 g

D) 60 g

Answer: A

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

104) How many grams of ammonia are consumed if 45.0 g of NO are formed in a 100% yield?

NH3 + O2 → NO + H2O

A) 6.51 g

B) 13.0 g

C) 26.0 g

D) 39.0 g

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

105) What is the percent yield if 52 g of ammonia produce 45 g of NO?

NH3 + O2 → NO + H2O

A) 100%

B) 49%

C) 25%

D) 18%

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

106) What is the mass of NO expected if 104 g of ammonia are consumed in a 100% yield?

NH3 + O2 → NO + H2O

A) 45.7 g

B) 91.5 g

C) 183 g

D) 366 g

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

107) 14 g of nitrogen will react with \_\_\_\_\_\_\_\_ g of oxygen.

N2 + 2 O2 → 2 NO2

A) 8

B) 16

C) 32

D) 64

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

108) 14 g of nitrogen will yield \_\_\_\_\_\_\_\_ g of nitrogen dioxide.

N2 + 2 O2 → 2 NO2

A) 23

B) 46

C) 92

D) 194

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

109) 64 g of oxygen will yield \_\_\_\_\_\_\_\_ g of nitrogen dioxide.

N2 + 2 O2 → 2 NO2

A) 23

B) 46

C) 92

D) 184

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

110) The maximum amount of IF7 that can be obtained from 25.0 g is fluorine is \_\_\_\_\_\_\_\_.

I2 + F2 → IF7

A) 63 g

B) 48.9 g

C) 24.5 g

D) 12.3 g

Answer: B

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

111) How many moles of aluminum chloride can be obtained from 4.5 moles of aluminum and excess chlorine?

Al + Cl2 → AlCl3

A) 1.5

B) 3.0

C) 4.5

D) 6.0

Answer: C

Section: Section 9.3

Learning Outcome: 9.2 Balance chemical reactions and calculate the theoretical yield and percent yield for a reaction.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

112) Which reactant is the limiting reagent if 6 mol of H2 and 4 mol of O2 are used?

2H2 + O2 → 2H2O

A) O2

B) H2

C) neither H2 nor O2

D) both H2 and O2

Answer: B

Section: Section 9.4

Learning Outcome: 9.3 Identify a limiting reactant if present and calculate the theoretical and percent yield when a limiting reactant is present.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

113) Which reagent will be used up first if 78.1 g of O2 is reacted with 62.4 g of C4H10?

2 C4H10 + 13 O2 → 8 CO2 + 10 H2O

A) C4H10, butane

B) oxygen

C) water

D) carbon dioxide

Answer: B

Section: Section 9.4

Learning Outcome: 9.3 Identify a limiting reactant if present and calculate the theoretical and percent yield when a limiting reactant is present.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

114) How many grams of CO2 can be made from reacting 78.1 g of O2 and 62.4 g of C4H10?

2 C4H10 + 13 O2 → 8 CO2 + 10 H2O

A) 66.1 g CO2

B) 141 g CO2

C) 189 g CO2

D) 378 g CO2

E) 430 g CO2

Answer: A

Section: Section 9.4

Learning Outcome: 9.3 Identify a limiting reactant if present and calculate the theoretical and percent yield when a limiting reactant is present.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

115) The reaction was performed in the lab and 50.1 g of CO2 was collected from the reaction of 78.1 g of O2 with 62.4 g of C4H10. The percent yield of this reaction is \_\_\_\_\_\_\_\_.

2 C4H10 + 13 O2 → 8 CO2 + 10 H2O

A) 11.7 %

B) 13.3 %

C) 26.5 %

D) 35.7 %

E) 75.8 %

Answer: E

Section: Section 9.4

Learning Outcome: 9.3 Identify a limiting reactant if present and calculate the theoretical and percent yield when a limiting reactant is present.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

116) The reaction was performed in the lab and 50.1 g of CO2 was collected from the reaction of 78.1 g of O2 with 62.4 g of C4H10. How many grams of the ***excess reactant*** are left over.

2 C4H10 + 13 O2 → 8 CO2 + 10 H2O

A) 15.7 g

B) 21.8 g

C) 28.0 g

D) 40.6 g

E) 45.8 g

Answer: D

Section: Section 9.4

Learning Outcome: 9.3 Identify a limiting reactant if present and calculate the theoretical and percent yield when a limiting reactant is present.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

117) Which statement is true about the empirical formula?

A) The empirical formula is always different than the molecular formula.

B) The empirical formula is always the same as the molecular formula.

C) The empirical formula may be different than the molecular formula.

D) The empirical formula cannot be determined solely by the % composition.

Answer: C

Section: Section 9.5

Global Obj: G1 Demonstrate an understanding of the principles of scientific inquiry.

118) Which statement is true about the molecular formula?

A) The molecular formula is always different than the empirical formula.

B) The molecular formula is always the same as the empirical formula.

C) The empirical formula may be different than the molecular formula.

D) The empirical formula can be determined solely by the % composition.

Answer: C

Section: Section 9.5

Global Obj: G1 Demonstrate an understanding of the principles of scientific inquiry.

119) Which statement is true when comparing acetic acid C2H4O2 and formaldehyde CH2O?

A) Their empirical formulas are identical.

B) Their molecular formulas are identical.

C) Their molecular formulas are different.

D) both A and C

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

120) If the empirical formula of a compound is CH2O and the molecular weight is 180, the molecular formula is \_\_\_\_\_\_\_\_.

A) CH2O

B) C2H4O2

C) C3H6O3

D) C6H12O6

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

121) Which of the following has its empirical formula different than its molecular formula?

A) CH2S

B) C2H7N3

C) C3H6N3

D) C5H7O3

Answer: C

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

122) Which of the following pairs does **not** share the same empirical formula?

A) CH2O and C3H6O3

B) C6H6 and C2H2

C) C2H6O and CH3O

D) C3H4Br2 and C9H12O6

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

123) Which of the following does **not** share the same empirical formula as the other three?

A) CH2O

B) C6H12O6

C) C8H16O8

D) C12H22O11

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

124) What is the empirical formula of C8H6O3?

A) CHO

B) C4H3O

C) C4H3O2

D) C8H6O3

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

125) A certain compound has the following composition: C= 40.0% and H= 6.7%. The empirical formula is \_\_\_\_\_\_\_\_.

A) CH

B) CH2O

C) C6H6O

D) CHO

Answer: B

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

126) An independent experiment showed that the molecular weight of isopropyl alcohol is approximately 62. The molecular formula therefore is \_\_\_\_\_\_\_\_.

A) C2H6O2

B) C3H8O2

C) C3H8O

D) C3H10O2

Answer: C

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

127) 5.82 g isopropyl alcohol yield 7.001 g of water and 12.6 g of carbon dioxide upon combustion. The empirical formula is \_\_\_\_\_\_\_\_.

A) CH2O

B) C3H8O

C) C2H6O

D) C3H9O

Answer: B

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

128) Combustion of 6.51 mg of a compound produces 20.46 mg of carbon dioxide and 8.36 mg of water. The empirical formula is \_\_\_\_\_\_\_\_.

A) CH2O

B) C2H3

C) C2H3O

D) CH2

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

129) Combustion of 5.00 mg of a compound produces 15.2 mg of carbon dioxide and 7.80 mg of water. The empirical formula is \_\_\_\_\_\_\_\_.

A) CH2

B) C2H5

C) C3H7

D) C4H10

Answer: B

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

130) Combustion of 5.00 mg of a compound produces 9.60 mg of carbon dioxide and 5.90 mg of water. The empirical formula is \_\_\_\_\_\_\_\_.

A) CH2O

B) C2H5

C) C2H6O

D) C4H10O

Answer: C

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

131) What is the molecular formula of a compound that weighs 46 g/mol and analyzes to 52.2% C, 34.8% O, and 13% H?

A) C3H2O2

B) C2H6O

C) CH3O

D) C2H5O2

Answer: B

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

132) A compound is found to be 43.7% phosphorus and 56.3% oxygen. Given the molecular mass as 285 ± 10, calculate the empirical and molecular formulas.

A) PO2; P4O8

B) P2O5; P4O10

C) P2O3; P6O9

D) P4O10; P4O10

Answer: B

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

133) A sample is composed of 2.78 g of iron and 1.19 g of oxygen. The empirical formula is \_\_\_\_\_\_\_\_.

A) FeO2

B) Fe2O5

C) Fe2O3

D) FeO

Answer: C

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

134) Which compound has the percent composition of 15.8% Al, 28.1% S and 56.1% O?

A) Al2(SO4)3

B) Al2(SO3)3

C) Al2S3

D) Al2(S2O3)3

Answer: A

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

135) A chromium-silicon compound contains 73.52% chromium. The empirical formula is \_\_\_\_\_\_\_\_.

A) CrSi

B) CrSi2

C) Cr2Si

D) Cr3Si2

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

136) An iron oxide is 72.4% in iron. Its empirical formula is \_\_\_\_\_\_\_\_.

A) FeO

B) Fe2O

C) Fe2O3

D) Fe3O4

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

137) An iron oxide is 77.7% in iron. Its empirical formula is \_\_\_\_\_\_\_\_.

A) FeO

B) Fe2O

C) Fe2O3

D) Fe3O4

Answer: A

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

138) An iron oxide is 70.0% in iron. Its empirical formula is \_\_\_\_\_\_\_\_.

A) FeO

B) Fe2O

C) Fe2O3

D) Fe3O4

Answer: C

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

139) Which of the following compounds is expected to have oxygen?

A) compound W: %C= 40.2% ; H= 6.8%; N= 10.3%; S= 19.2%

B) compound X: %C= 52.3% ; H= 4.1%; Br= 30.4%; S= 13.2%

C) compound Y: %C= 25.6% ; H= 8.8%; I= 45.3%; N= 20.2%

D) compound Z: %C= 48.1% ; H= 8.6%; F= 28.2%; P= 15.0%

Answer: A

Section: Section 9.5

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

140) A certain compound is found to contain 1.45 g of Na, 2.05 g of S and 1.5 g of O. Its empirical formula is \_\_\_\_\_\_\_\_.

A) Na2SO

B) NaS2O

C) Na2S2O3

D) NaSO2

Answer: C

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

141) 0.540 g of bromine combine with 0.858 g of iodine to yield a compound X. The empirical formula of the compound described above is \_\_\_\_\_\_\_\_.

A) Br2I

B) BrI2

C) Br2I3

D) BrI

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

142) A compound has the following elemental composition: C = 58.8%, H= 13.8%, N = 27.4%. The empirical formula of this compound is \_\_\_\_\_\_\_\_.

A) C5H14N

B) C5H10N2

C) C5H14N2

D) C5H15N2

Answer: C

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

143) The empirical formula for a compound that is 48.7% C, 13.6% H and 37.8% N is \_\_\_\_\_\_\_\_.

A) C4H9N2

B) C3H8N

C) C3H10N2

D) C4H10N

Answer: C

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

144) If the empirical formula is CH2, and the molecular weight is equal to 180 **±**10, then the molecular formula is \_\_\_\_\_\_\_\_.

A) C6H12O6

B) C14H21

C) C8H12O4

D) C13H26

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

145) Hydrazine contains 87.5% nitrogen and 12.5% hydrogen. If the molecular mass is 32 **±** 6, the molecular formula is \_\_\_\_\_\_\_\_.

A) N2H

B) N2H2

C) N2H3

D) N2H4

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

146) A 4.000 g sample of a certain cobalt oxide contains 2.937 g of cobalt. The empirical formula is \_\_\_\_\_\_\_\_.

A) CoO

B) CoO2

C) Co2O

D) Co3O4

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

147) A selenium-chlorine compound is 35.7% in selenium. Its empirical formula is \_\_\_\_\_\_\_\_.

A) SeCl

B) SeCl2

C) SeCl3

D) SeCl4

Answer: D

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

148) 0.68 g of sulfur combine with 1.51 g of chlorine. The empirical formula of this compound is \_\_\_\_\_\_\_\_.

A) SCl

B) SCl2

C) SCl4

D) SCl6

Answer: B

Section: Section 9.5

Learning Outcome: 9.4 Calculate a compound's empirical and actual formula from % by mass elemental compositions.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

149) The element in C7H5NO3 whose % composition is 31.8% is \_\_\_\_\_\_\_\_.

A) carbon

B) hydrogen

C) nitrogen

D) oxygen

Answer: D

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

150) What is the percentage by mass of iron (Fe) in the mineral hematite (Fe2O3)?

A) 40%

B) 60%

C) 70%

D) 30%

Answer: C

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

151) What is the percentage by mass of hydrogen in ordinary water (H2O)?

A) 20%

B) 11%

C) 60%

D) 40%

Answer: B

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

152) Methanol (CH4O) weighs 32 g/mol. What is the mass percentage of carbon in methanol?

A) 63%

B) 50%

C) 20%

D) 38%

Answer: D

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

153) Ilmenite (FeTiO3) is the primary ore from which the element titanium (Ti) is isolated. What is the percentage of titanium by mass in this mineral?

A) 20%

B) 32%

C) 80%

D) 68%

Answer: B

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

154) Which contains the highest percentage of oxygen?

A) H2O2

B) Na2O2

C) HgO

D) CO2

Answer: A

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

155) Which contains the least percentage of oxygen?

A) H2O2

B) Na2O2

C) HgO

D) CO2

Answer: C

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

156) Which contains the highest percentage of hydrogen?

A) HCl

B) H2SO4

C) H3PO4

D) H2O

Answer: D

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

157) Which contains the lowest percentage of hydrogen?

A) HCl

B) H2SO4

C) H3PO4

D) H2O

Answer: B

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

158) Which of the following compounds has its carbon composition equal to 52.1%?

A) C2H6O

B) CH3Cl

C) C4H8O2N2S

D) C10H20O4N2S

Answer: A

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

159) Which of the following compounds has its hydrogen composition equal to 2.4%?

A) C4H7Cl

B) CH2Cl2

C) C2H3NO2

D) C10H20ONS

Answer: B

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

160) Which of the following compounds has its oxygen composition equal to 50.0%?

A) (NH4)2CO3

B) CH2O2

C) C2H3NO2

D) C10H20ONS

Answer: A

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

161) Which of the following compounds has its nitrogen composition equal to 29.2%?

A) C2H3NO2

B) C10H20ONS

C) (NH4)2CO3

D) N2H4

Answer: C

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

162) Which of the following compounds has its chlorine composition equal to 83.5%?

A) C2H3ClO2

B) C10H17ClS

C) CCl4

D) CH2Cl2

Answer: D

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

163) Which of the following compounds has its sulfur composition equal to 18.6%?

A) C6H8SO2N2

B) C7H14S

C) CH2SO2

D) COS

Answer: A

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

164) Which of the following compounds has its combined carbon and hydrogen composition equal to 37.0%?

A) C4H7Cl

B) CH2O2

C) C2H3NO2

D) C10H20ONS

Answer: C

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

165) Which of the following compounds has its combined carbon and oxygen composition equal to 76.7%?

A) C4H7Cl

B) CH2O2

C) C2H3NO2

D) C10H20ONS

Answer: C

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

166) Which of the following has the highest percent of oxygen?

A) N2O

B) Al2O3

C) K2CO3

D) KMnO4

Answer: B

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

167) Which of the following has the lowest percent of oxygen?

A) N2O

B) Al2O3

C) K2CO3

D) KMnO4

Answer: C

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

168) Which of the following percent compositions does **not** correspond to one of the elements of NaNO3?

A) 56.4%

B) 19.4%

C) 16.5 %

D) 27.1%

Answer: B

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

169) Which of the following percentage compositions does **not** correspond to one of the elements of C6H12O6?

A) 43.4%

B) 40.0%

C) 6.7%

D) 53.3%

Answer: A

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

170) Which of the following percentage compositions does **not** correspond to one of the elements of C9H8O4?

A) 4%

B) 26%

C) 36%

D) 60%

Answer: B

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

171) 0.540 g of bromine combine with 0.858 g of iodine to yield a compound X. Its percent composition is \_\_\_\_\_\_\_\_.

A) Br = 38.6%, I = 61.4%

B) Br = 61.3%, I = 38.6%

C) Br = 32.8%, I = 67.2%

D) Br = 67.2%, I = 32.8%

Answer: A

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.

172) What is the mass percent of Sn in tin (IV) oxide?

A) 26.96%

B) 64.97%

C) 78.77%

D) 93.69%

E) 96.73%

Answer: C

Section: Section 9.6

Learning Outcome: 9.5 Calculate % by mass elemental compositions from a molecular formula.

Global Obj: G4 Demonstrate the quantitative skills needed to succeed in chemistry.