

3 • What Happens When Chemicals Are Put Together?

PRACTICE TEST

0--LABORATORY AND DEMONSTRATIONS

1. What gas is formed when Zn metal is mixed with hydrochloric acid, HCl?
- a) CO₂ c) O₂
b) He d) H₂

4--MATTER

2. Which property is always conserved during a chemical reaction?
- a) mass c) pressure
b) volume d) solubility
3. A cylinder is weighed empty and with a liquid.

Cylinder with liquid	51.85 g
Cylinder, empty	40.11 g
Volume of liquid in cylinder	7.0 mL

What is the density of the liquid?

- a) 13 g/mL c) 5.7 g/mL
b) 7.4 g/mL d) 1.7 g/mL
- #### 7--CHEMICAL FORMULAS
4. Which one of the following is the correct formula for aluminum oxide?
- a) AlO c) Al₂O₃
b) Al₆O₆ d) Al₃O₂
5. What is the name of the compound CF₄?
- a) fluorocarbonate
b) carbon tetrafluoride
c) tricarbonyl fluoride
d) carbon difluoride
6. Sodium nitride has the formula Na₃N.
What is the formula for magnesium nitride?

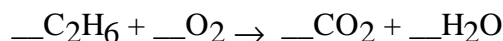
- a) Mg₂N c) Mg₃N₂
b) Mg₃N d) Mg₂N₃

8--THE MATH OF CHEMICAL FORMULAS

7. What is the mass of one mole of aluminum sulfate, Al₂(SO₄)₃?
- a) 630 g c) 273 g
b) 342 g d) 123 g

9--CHEMICAL EQUATIONS

8. Which set of coefficients balances the equation for the complete combustion of ethane, C₂H₆?

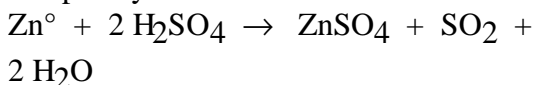


- a) 1,3,2,3 c) 2,6,4,5
b) 1,6,2,6 d) 2,7,4,6
9. When this expression is balanced, 2C₃H₆ + ___ O₂ → ___ CO₂ + 6H₂O what is the coefficient of oxygen, O₂?
- a) 6 c) 12
b) 9 d) 18
10. During a "titration lab," an acid was neutralized by the following reaction:
NaOH + HCl → NaCl + H₂O
This reaction would be classified as...
- a) synthesis
b) decomposition
c) double replacement
d) single replacement
11. Which reaction below would be classified as a decomposition reaction?
- a) NaHCO₃ → NaOH + CO₂
b) 2 H₂ + O₂ → 2 H₂O
c) 2 AgNO₃ + Cu⁰ → Cu(NO₃)₂ + 2 Ag⁰
d) Ba(OH)₂ + H₂SO₄ → BaSO₄ + 2 H₂O

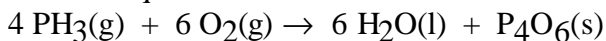
12. The complete combustion of ethane, C_2H_6 , produces
- a) C_2H_5OH c) CO_2 and H_2
 b) CH_3COOH d) CO_2 and H_2O

10--THE MATH OF CHEMICAL EQUATIONS

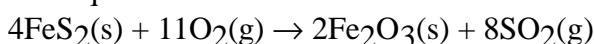
13. What quantity of sulfur dioxide, SO_2 (64.0 g/mole), is produced when 245 g of sulfuric acid, H_2SO_4 (98.0 g/mole) reacts completely with zinc metal?



- a) 64.0 g c) 128 g
 b) 80.0 g d) 160 g
14. At STP, how many liters of oxygen gas react with 4.00 moles of PH_3 according to this equation?



- a) 32.0 c) 134
 b) 89.6 d) 146
15. How many moles of FeS_2 are required to produce 64 grams of SO_2 according to the equation



- a) 0.40 c) 3.2
 b) 0.50 d) 4.5

16. Glass, SiO_2 , reacts with hydrofluoric acid, HF , according to this equation
- $$SiO_2 + 4 HF \rightarrow 2 H_2O + SiF_4$$

Which reagent is completely consumed when 2 moles of SiO_2 is added to 6 moles of HF ?

- a) SiF_4 c) HF
 b) H_2O d) SiO_2

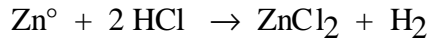
19--ACIDS, BASES, & SALTS

17. Which of the following is an acid?
- a) $NaOH$ c) HCl
 b) NH_3 d) H_2O

18. The acid, H_2S , is correctly named as:
- a) hydrosulfuric acid
 b) sulfuric acid
 c) dihydrogen sulfide
 d) hydrogen(I) sulfide

21--OXIDATION AND REDUCTION

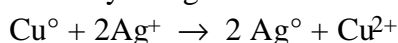
19. Hydrogen gas was produced according to the following equation:



Which chemical is oxidized?

- a) Zn° c) $ZnCl_2$
 b) HCl d) H_2

20. At Christmas time, we made a "Chemist's Tree" by using the reaction:



Cu° , is _____ electrons and being _____.

- a) gaining, oxidized
 b) gaining, reduced
 c) losing, oxidized
 d) losing, reduced

Answers:

1.		11.	
2.		12.	
3.		13.	
4.		14.	
5.		15.	

6.		16.	
7.		17.	
8.		18.	
9.		19.	
10.		20.	

1d 2a 3d 4c 5b
 6c 7b 8d 9b
 10c 11a 12d
 13b 14c 15b
 16c 17c 18a
 19a 20c