



## CHAPTER 5 REVIEW

### Learning Objectives:

- Differentiate between acids, bases, and salts.
- Explain what indicators are used for and how they help determine if a substance is acidic or basic.
- Explain the significance of the pH scale.
- Recognize the names and formulas of common acids (e.g. HCl, H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>)
- Explain what type of solution is produced (acidic or basic) when metal and non-metal oxides are mixed with water.
- Write names and formulas of acids, bases and simple organic compounds
- Describe organic compounds



### Visual Dictionary:

- ❖ 5.1: Acid, base, concentration, pH indicator, neutral, pH scale, aqueous,
- ❖ 5.2: metal oxide, neutralization (acid-base), non-metal oxide, oxide, salt
- ❖ 5.3: alcohol, hydrocarbon, inorganic, organic, organic chemistry, solvent

### Practice Questions:

1. State the pH value or pH range of the following:

a) a neutral solution: \_\_\_\_\_

b) an acidic solution: \_\_\_\_\_

c) a basic solution: \_\_\_\_\_

2. Describe how you would use litmus paper to determine whether a solution is acidic, basic, or neutral.

3. a)

How can you identify an acid by looking at its chemical formula? \_\_\_\_\_

Summarize the rules for naming an acid:

b)

How can you identify a base by looking at its chemical formula? \_\_\_\_\_

Summarize the rules for naming a base:

4. State whether each of the following describes an acid, base or both.

PROPERTY	ACID, BASE OR BOTH
Taste sour	
Taste bitter	
Feel slippery	
Conduct electricity	
Have a pH greater than 7	
Produce hydrogen ( $H^+$ ) ions in solution	

5. Identify the following compounds as acids, bases, or salts, then write their full names.

a) HF \_\_\_\_\_

c)  $Ca(OH)_2$  \_\_\_\_\_

d)  $CH_3COOH$  \_\_\_\_\_

e)  $H_2SO_4$  \_\_\_\_\_

f)  $HNO_2$  \_\_\_\_\_

6. What is meant by the term acid-base neutralization?

\_\_\_\_\_

7. Define: a) organic compound: \_\_\_\_\_

b) inorganic compound: \_\_\_\_\_

8. What two elements are present in all hydrocarbon compounds?

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9. What three elements are present in all alcohols?

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10. If  $\text{Na}_2\text{O}$  is dissolved in water, and bromothymol blue indicator is added, what colour will it be?

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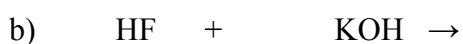
11. If  $\text{CO}_2$  is dissolved in water, and phenolphthalein indicator is added, what colour will it be?

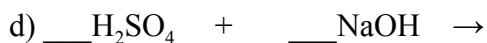
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12. What is the colour of the indicator after it is added to each of the following solutions? (Use the pH scale and the indicator chart from your notes to answer)

Solution	Indicator Colour
Lemon juice in the presence of indigo carmine indicator	
Milk in methyl red indicator	
Bleach in phenolphthalein	
Tap water in phenolphthalein	
Egg white in litmus	

10. Complete and balance the following neutralization reactions.





11. State whether the following is an acid, a base, a salt, or none of these.

- a)  $\text{HCl (aq)}$ : \_\_\_\_\_ b)  $\text{MgCl}_2$ : \_\_\_\_\_  
c)  $\text{KOH}$ : \_\_\_\_\_ d)  $\text{K}_3\text{PO}_4$ : \_\_\_\_\_  
e)  $\text{Sr(OH)}_2$ : \_\_\_\_\_ f)  $\text{H}_2\text{SO}_4 \text{ (aq)}$ : \_\_\_\_\_

12. Classify each of the following compounds as organic or inorganic by examining their formulas.

- a)  $\text{CH}_3\text{OH}$ : \_\_\_\_\_ b)  $\text{Mg(HC}_2\text{O}_4)_2$ : \_\_\_\_\_  
c)  $\text{SiC}$ : \_\_\_\_\_ d)  $\text{Na}_2\text{CO}_3$ : \_\_\_\_\_  
e)  $\text{FeBr}_3$ : \_\_\_\_\_ f)  $\text{CH}_4$ : \_\_\_\_\_  
g)  $\text{NH}_3$ : \_\_\_\_\_ h)  $\text{CO}$ : \_\_\_\_\_

13. Draw the structural diagrams for these organic compounds and name them.

- a)  $\text{CH}_4$ : \_\_\_\_\_ b)  $\text{CH}_3\text{CH}_2\text{CH}_3$ : \_\_\_\_\_

Drawing:

Drawing:

14. Acid rain is a problem for the environment, provide the chemistry behind what is happening when acid rain enters an ecosystem. What is affected? Why is it affected?

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## **More Practice:**

### *Workbook Pages*

#### **Section 5.1: Acids and Bases**

- Pages 84, 85, 86, 87
- Practice Quiz: Page 88

#### **Section 5.2: Salts**

- Pages 91, 92, 93
- Practice Quiz: Page 94

#### **Section 5.3: Organic Compounds**

- Pages 98, 99, 100
- Practice Quiz: Page 101

### *Textbook Pages*

#### **Section 5.1: Acids and bases**

- Page 233

#### **Section 5.2: Salts**

- Page 243

#### **Section 5.3: Organic Compounds**

- Page 251

*Chapter Review: Page 252-253*