Name: _____ Class: _____ Date: _____ ID: A

Ch.14 Study Guide

Short Answer

1. Use each of the following terms in a separate sentence: *ionic compound, covalent compound,* and *chemical bond*.

2. List two physical properties of covalent compounds.

3. In your own words, write a definition for each of the following terms: *acid*, *base*, and *indicator*.

4. What happens to red litmus paper when it touches a base?

5. Use the following terms in the same sentence: *neutralization reaction* and *salt.*

6. Explain the difference between a strong acid and a weak acid.

7. Use the following terms in the same sentence: *organic compound, hydrocarbon,* and *biochemical*.

8. In your own words, write a definition for each of the following terms: *carbohydrate, lipid, protein*, and *nucleic acid*.

9. List two functions of proteins.

10. What is an aromatic hydrocarbon?

11. Explain how the meanings of the terms differ: *ionic compound* and *covalent compound*

12. Explain how the meanings of the terms differ: *acid* and *base*

13. Explain how the meanings of the terms differ: *pH* and *indicator*

14. Explain how the meanings of the terms differ: *hydrocarbon* and *organic compound*

15. Explain how the meanings of the terms differ: *carbohydrate* and *lipid*

16. Explain how the meanings of the terms differ: *protein* and *nucleic acid*

17. What type of compound would you use to neutralize a solution of potassium hydroxide?

18. Explain why the reaction of an acid with a base is called *neutralization*.

19. What characteristic of carbon atoms helps to explain the wide variety of organic compounds?

20. What kind of ions are produced when an acid is dissolved in water and when a base is dissolved in water?

Essay

21. Solid crystals of ionic compounds do not conduct an electric current. But when the crystals dissolve in water, the solution conducts an electric current. Explain.

22. Peter stirred olive oil, which contains covalent compounds, into a cup of water. Was the result a chemical or physical change? Explain.

23. Is NaOH in the reaction $NaOH \rightarrow Na^+ + OH^-$ an acid or a base? How do you know?

24. Why would it be useful for a gardener or a vegetable farmer to use litmus paper to test soil samples?

25. Suppose that your teacher gives you a solution of an unknown chemical. The chemical is either an acid or a base. You know that touching or tasting acids and bases is not safe. What two tests could you perform on the chemical to determine whether it is an acid or a base? What results would help you decide if the chemical was an acid or a base?

26. Predict what will happen to the hydrogen ion concentration and the pH of water if hydrochloric acid is added to the water.

27. Would fish be healthy in a lake that has a low pH? Explain.

28. Soap is made from a strong base and oil. Would you expect the pH of soap to be 4 or 9? Explain.

29. Hemoglobin is a protein that is in blood and that transports oxygen to the tissues of the body. Information stored in nucleic acids tells a cell how to make proteins. What might happen if there is a mistake in the information needed to make hemoglobin?

30. Compare saturated hydrocarbons with unsaturated hydrocarbons.

31. Fish give off the base, ammonia, NH_3, as waste. How does the release of ammonia affect the pH of the water in the aquarium? What can be done to correct the pH of the water?

32. Many insects, such as fire ants, inject formic acid, a weak acid, when they bite or sting. Describe the type of compound that should be used to treat the bite.

33. Organic compounds are also covalent compounds. What properties would you expect organic compounds to have as a result?

34. Farmers have been known to taste their soil to determine whether the soil has the correct acidity for their plants. How would taste help the farmer determine the acidity of the soil?

35. A diet that includes a high level of lipids is unhealthy. Why is a diet containing no lipids also unhealthy?