Chemistry Ch. 1 & 2 Prep Test

Multiple Choice
*Identify the letter of the choice that best completes the statement or answers the question.*

1. The study of matter and changes in matter best describes the science of
   a. biology. c. microbiology.
   b. physics. d. chemistry.
2. Chemistry may be least useful in studying
   a. matter. c. falling bodies.
   b. synthetic fibers. d. medicine.
3. Chemistry is defined as the study of the composition and structure of materials and
   a. the categories of matter. c. the electrical currents in matter.
   b. the changes in matter. d. molecules in living things.
4. Chemistry is the study of all of the following EXCEPT
   a. matter. c. energy associated with changes in matter.
   b. changes in matter. d. projectile motion.
5. Chemistry may be most useful in studying
   a. the movement of asteroids. c. eating habits of ducks.
   b. why materials corrode. d. streamlining of race cars.
6. The state of matter in which particles are rigidly held in fixed positions is the
   a. gaseous state. c. vaporous state.
   b. liquid state. d. solid state.
7. Under ordinary conditions of temperature and pressure, the particles in a gas are
   a. closely packed. c. held in fixed positions.
   b. very far from each other. d. able to slide past each other.
8. Which of the following is not a mixture.
   a. cookie dough. c. distilled water
   b. blood d. air
9. The homogeneous mixture in the illustration above is in container
   a. a. c. c.
   b. b. d. d.

10. Which of the following would a chemist be most likely to study?
    a. a leaf floating on water    c. a leaf being blown by the wind
    b. a leaf changing color in autumn d. a leaf being eaten by insects

11. A vapor is which state of matter?
    a. solid c. gas
    b. liquid d. all of the above

12. Which state of matter has a definite volume and takes the shape of its container?
    a. solid c. gas
    b. liquid d. both b and c

13. Which state of matter takes both the shape and volume of its container?
    a. solid c. gas
    b. liquid d. both b and c

14. Which state of matter is characterized by having an indefinite shape, but a definite volume?
    a. gas c. solid
    b. liquid d. none of the above

15. Which state of matter is characterized by having a definite shape and a definite volume?
    a. gas c. solid
    b. liquid d. all of the above

16. Which state of matter expands when heated and is easy to compress?
    a. gas c. solid
    b. liquid d. all of the above

17. All of the following are physical properties of a substance in the liquid state EXCEPT ____.
    a. indefinite volume c. not easily compressed
    b. definite mass d. indefinite shape
18. Which of the following is only a physical change?
   a. corrosion  
   b. explosion  
   c. evaporation  
   d. rotting of food

19. What is one difference between a mixture and a compound?
   a. A compound consists of more than one phase. 
   b. A compound can only be separated into its components by chemical means. 
   c. A mixture can only be separated into its components by chemical means. 
   d. A mixture must be uniform in composition.

20. Which of the following is a heterogeneous mixture?
   a. air  
   b. salt water  
   c. steel  
   d. soil

21. Which of the following is a heterogeneous mixture?
   a. vinegar in water  
   b. milk  
   c. oil and vinegar  
   d. air

22. Which of the following is true about homogeneous mixtures?
   a. They are known as solutions. 
   b. They consist of two or more phases. 
   c. They have compositions that never vary. 
   d. They are always liquids.

23. Which of the following is true about compounds?
   a. They can be physically separated into their component elements. 
   b. They have compositions that vary. 
   c. They are substances. 
   d. They have properties similar to those of their component elements.

24. An example of a homogeneous mixture is ____. 
   a. distilled water  
   b. stainless steel  
   c. noodle soup  
   d. oxygen

25. Which of the following is a chemical property?
   a. color  
   b. hardness  
   c. freezing point  
   d. ability to react with oxygen

26. What must occur for a change to be a chemical reaction?
   a. There must be a change in chemical properties. 
   b. There must be a change in physical properties. 
   c. The change must involve a change in mass. 
   d. The change must involve a change in volume.

27. Which of the following does NOT involve just a physical change?
   a. mixing  
   b. melting  
   c. grinding  
   d. decomposing

28. Which of the following processes does NOT involve a change in chemical properties?
   a. rusting  
   b. fermenting  
   c. boiling  
   d. burning

29. What must be done to be certain that a chemical change has taken place?
   a. Check for the production of bubbles before and after the change. 
   b. Demonstrate that a release of energy occurred after the change. 
   c. Check the composition of the sample before and after the change. 
   d. Demonstrate that energy was absorbed by the reactants after the change.
30. Which of the following indicates that a chemical change has happened during cooking?
   a. The food changes color.
   b. Bubbles form in boiling water.
   c. Butter melts.
   d. Energy is transferred from the stove to a pan.

31. Which action changes the identity of the substance referenced?
   a. melting gold
   b. running an electric current through copper
   c. corroding iron
   d. breaking an ice cube

32. What happens to matter during a chemical reaction?
   a. Matter is neither destroyed or created.
   b. Some matter is destroyed.
   c. Some matter is created.
   d. Some matter is destroyed and some is created.

33. Which of the following is the independent variable in this graph?
   a. Mass (g)
   b. Volume (cm³)
   c. Copper Samples
   d. None of these
34. What is the change in temperature (ΔT) of the solution in trial 3?
   a. 23.5 °C  c. 2.9 °C
   b. 20.3 °C  d. -3.1 °C
35. Which of the following is NOT a controlled variable?
   a. Initial Temperature  c. Number of Alka-seltzer tablets
   b. Volume  d. Room pressure
36. Which of the following variables is the DEPENDENT variable?
   a. Volume of vinegar  c. Final Temperature
   b. Number of Alka-seltzer tablets  d. Room Pressure

Matching

Match each item with the correct statement below.

a. mixture  d. reactant
b. product  e. heterogeneous mixture
c. phase  f. vapor

37. gaseous state of substance that is a liquid or solid at room temperature
38. a physical blend of two or more components
39. part of a sample having uniform composition and properties
40. not uniform in composition
41. a substance formed in a chemical reaction
42. starting substance in a chemical reaction