

Chemistry Chapter 1 Test Review

Multiple Choice

Identify the choice that best completes the statement or answers the question. Put the LETTER of the correct answer in the blank.

- ___ 1. Inorganic chemistry is the study of
- non-carbon related compounds.
 - the chemistry of living things.
 - mathematical modeling.
 - the identification of the composition of materials.
- ___ 2. Biochemistry is the study of
- properties, changes, and relationships between energy and matter.
 - the chemistry of living things.
 - crystals and minerals.
 - carbon-containing compounds.
- ___ 3. Basic research is usually performed
- to develop new products.
 - to understand an environmental problem.
 - to gain knowledge.
 - to solve a particular problem.
- ___ 4. Which of the following is an extensive property of matter?
- | | |
|------------------|------------|
| a. melting point | c. volume |
| b. boiling point | d. density |
- ___ 5. The two most important properties of all matter are
- the ability to carry an electric current well and to hold electric charge.
 - taking up space and having mass.
 - being brittle and hard.
 - being malleable and ductile.
- ___ 6. A compound is
- a pure substance that cannot be broken down into simpler, stable substances.
 - a substance, made of two or more atoms that are chemically bonded, that can be broken down into simpler, stable substances.
 - the smallest unit of matter that maintains its chemical identity.
 - any substance, whether it is chemically bonded or not.
- ___ 7. A measure of the quantity of matter is
- | | |
|-------------|------------|
| a. density. | c. volume. |
| b. weight. | d. mass. |
- ___ 8. Matter includes all of the following *except*
- | | |
|-----------|-----------------|
| a. air. | c. smoke. |
| b. light. | d. water vapor. |
- ___ 9. A true statement about mass is that
- mass is often measured with a spring scale.
 - mass is expressed in pounds.

- c. as the force of Earth's gravity on an object increases, the object's mass increases.
- d. mass is determined by comparing the mass of an object with a set of standard masses that are part of a balance.

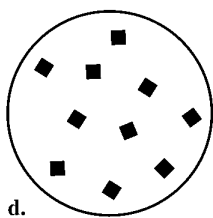
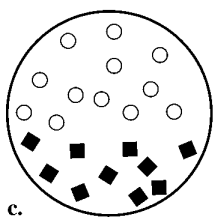
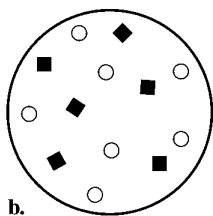
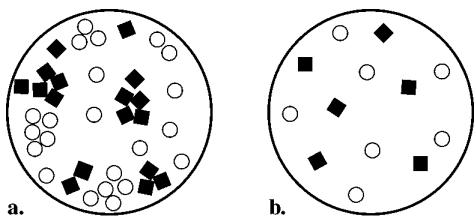
- ___ 10. A student recorded the following while completing an experiment.
Color of substance: yellow, shiny powder
Effect of magnet: yellow, shiny powder was attracted
The student should classify the substance as a(n)
- a. element.
 - b. compound.
 - c. mixture.
 - d. plasma.
- ___ 11. Which of the following is *not* a physical change?
- a. grinding
 - b. cutting
 - c. boiling
 - d. burning
- ___ 12. Which of the following is *not* a chemical change?
- a. rusting
 - b. igniting
 - c. melting
 - d. burning
- ___ 13. A physical change occurs when a
- a. peach spoils.
 - b. silver bowl tarnishes.
 - c. bracelet turns your wrist green.
 - d. glue gun melts a glue stick.
- ___ 14. Nitrogen monoxide and oxygen, both colorless gases, form a red-brown gas when mixed. Nitrogen monoxide and oxygen are called the
- a. products.
 - b. equilibria.
 - c. synthetics.
 - d. reactants.
- ___ 15. A state of matter in which a material has no definite shape but has a definite volume is the ___ state.
- a. gas
 - b. liquid
 - c. plasma
 - d. solid
- ___ 16. Under ordinary conditions of temperature and pressure, the particles in a gas are
- a. closely packed.
 - b. very far from one another.
 - c. held in fixed positions.
 - d. unevenly distributed.
- ___ 17. The liquid state of matter can be described as
- a. having definite shape and definite volume.
 - b. having neither a definite shape nor a definite volume.
 - c. having lost electrons owing to energy content.
 - d. having a definite volume but not a definite shape.
- ___ 18. A solid substance is
- a. always frozen regardless of its container.
 - b. always a crystal regardless of its container.
 - c. always the same shape regardless of its container.
 - d. always losing particles regardless of its container.
- ___ 19. Plasma is the fourth state of matter. In the plasma state

- a. atoms gain electrons.
- b. atoms lose electrons.
- c. atoms form molecules.
- d. atomic nuclei break down.

___ 20. What happens to the energy in a substance when it changes state?

- a. It is destroyed.
- b. It is changed into matter.
- c. It changes form, but is neither destroyed nor increased.
- d. The energy remains unchanged.

___ 21. Which part of the illustration below shows the particles in a heterogeneous mixture?



- a. a
- b. b

- c. c
- d. d

___ 22. The only pure substance listed below is

- a. bread dough.
- b. vinegar (5% acetic acid).
- c. vitamin C (ascorbic acid).
- d. seawater.

___ 23. A mixture is

- a. a combination of pure substances bonded chemically.
- b. any substance with a uniform composition.
- c. a blend of any two or more kinds of matter, as long as each maintains its own unique properties.
- d. any group of elements that are chemically bonded to one another.

___ 24. A homogeneous mixture is also called

- a. chemically bonded.
- b. a compound.
- c. a solution.
- d. a solute.

___ 25. If a mixture is not uniform throughout, it is called

- a. homogeneous.
- b. heterogeneous.
- c. chemically bonded.
- d. a solution.

___ 26. Which of the following is an example of a homogeneous mixture?

- a. air
- b. orange juice
- c. raw milk
- d. marble

- ___ 27. All known chemical elements are organized into groups based on similar chemical properties in the
- chemical chart.
 - periodic table
 - element table.
 - None of the above
- ___ 28. The vertical columns on the periodic table are called
- periods.
 - rows.
 - groups.
 - elements.
- ___ 29. It is easy to determine whether a substance is a metal if the substance is
- easy to break down into its components.
 - very hard.
 - very brittle.
 - a good electrical and heat conductor.
- ___ 30. Metalloids are often
- unreactive.
 - semiconductors.
 - lanthanides.
 - from outer space.
- ___ 31. A chemical can be defined as
- a toxic substance.
 - an unnatural additive placed in food.
 - any substance that has a definite composition.
 - any substance that is not alive.

Completion

Complete each statement.

32. A scientist is working to develop better dating methods for substances that contain carbon. He is working in the field of _____ chemistry.
33. A team of scientists is working to discover how an enzyme affects blood cells in sheep. They are working in the field of _____ chemistry.
34. Basic research is performed to increase _____.
35. When examining a mineral, hardness and color are two of the properties used for identification. Hardness and color are examples of _____ properties.
36. The oxygen in air causes iron to rust. Iron and oxygen are _____ in this process, and rust is the product.
37. Some iron and sulfur are mixed together, then heated. When the result is cooled, the iron can no longer be separated from the sulfur with a magnet. The result of heating the mixture was the formation of a(n) _____.
38. An alloy such as a gold ring is an example of a(n) _____ mixture.
39. Gravel is an example of a(n) _____ mixture.
40. In which period can you find the lanthanide series? _____

41. In which group can you find the element neon? _____

Short Answer

42. Explain why it is incorrect to assume that all chemicals are potentially dangerous or hazardous. Give two examples of chemicals that are necessary for human life.

43. Explain why flammability and combustibility are chemical properties.

44. When water boils, steam forms. When vinegar and baking soda combine, carbon dioxide gas is released. Which change is physical, and which is chemical? How do you know?

45. Why can a gas fill the entire volume of its container?

46. Explain the difference between a pure substance and a homogeneous mixture. Use an example in your answer.

47. Name three ways that mixtures might be separated.

48. Identify as metal, nonmetal, or metalloid and give two physical properties for the element **F**.

Essay

49. Compare and contrast solids, liquids, gases, and plasma by explaining the behavior of their particles. Draw models to illustrate your answer.

50. Use examples to show how the properties and classifications of elements change as you move across a period of the periodic table.

Chemistry Chapter 1 Test Review Answer Section

MULTIPLE CHOICE

1. A
2. B
3. C
4. C
5. B
6. B
7. D
8. B
9. D
10. C
11. D
12. C
13. D
14. D
15. A
16. B
17. D
18. C
19. B
20. C
21. A
22. C
23. C
24. C
25. B
26. A
27. B
28. C
29. D
30. B
31. C

COMPLETION

32. organic
33. biochemistry
34. knowledge
35. physical
36. reactants
37. compound
38. homogeneous

39. heterogeneous
40. 6
41. 18

SHORT ANSWER

42. A chemical is any substance that has a definite composition. Some substances that have a definite composition might be hazardous, but most are not. Examples of necessary chemicals might include carbon dioxide, water, and oxygen.
43. Because to observe either, a chemical change, burning, must occur.
44. In both changes, a gas is produced. Water boiling, however, is a physical change because the water vapor has the same chemical properties as the water. In the chemical change, a new substance, carbon dioxide, is formed.
45. Gas particles do not attract one another, and can easily and quickly move from one place to another.
46. A homogeneous mixture can be separated by physical means, while a pure substance cannot. For example, salt can be removed from a saltwater mixture by evaporating the water, but to separate water into hydrogen and oxygen requires electrolysis, a chemical means.
47. Answers might include filtration, distillation, decanting, magnetism, or any other physical means of separation.
48. nonmetal; brittle, poor conductor of heat and electricity.

ESSAY

49. The arrangement of the particles in the three states accounts for their different properties. Particles in a solid move very little; particles in a liquid move more; and gas particles and plasma particles move the most. In drawn models, particles in solids should be closely packed and structured; particles in liquids should appear able to flow randomly past one another; and particles in gases should appear sparsely and randomly spaced. Plasma particles should have lost some of their electrons.
50. The closer two elements are within a period, the more similar their properties are. Moving across a period, elements progress from metals to metalloids, to nonmetals, to noble gases.