Name _____ Date _____ Class _____

CHAPTER 1 REVIEW

Matter and Change

SECTION 1

SHORT ANSWER **Answer the following questions in the space provided.**

1. _____ Technological development of a chemical product often

(a) lags behind basic research on the same substance.
(b) does not involve chance discoveries.
(c) is driven by curiosity.
(d) is done for the sake of learning something new.

2. _____ The primary motivation behind basic research is to

(a) develop new products.
(b) make money.
(c) understand an environmental problem.
(d) gain knowledge.

3. _____ Applied research is designed to

(a) solve a particular problem.
(b) satisfy curiosity.
(c) gain knowledge.
(d) learn for the sake of learning.

4. _____ Chemistry is usually classified as

(a) a biological science.
(b) a physical science.
(c) a social science.
(d) a computer science.

5. Define the six major branches of chemistry.

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SECTION 1 continued

6. For each of the following types of chemical investigations, determine whether the investigation is *basic research, applied research,* or *technological development.* More than one choice may apply.

_____ **a.** A laboratory in a major university surveys all the reactions involving bromine.

_____ **b.** A pharmaceutical company explores a disease in order to produce a better medicine.

_____ **c.** A scientist investigates the cause of the ozone hole to find a way to stop the loss of the ozone layer.

_____ **d.** A pharmaceutical company discovers a more efficient method of producing a drug.

_____ **e.** A chemical company develops a new biodegradable plastic.

_____ **f.** A laboratory explores the use of ozone to inactivate bacteria in a drinking-water system.

7. Give examples of two different instruments routinely used in chemistry.

_____

_____

8. What are microstructures?

_____

_____

9. What is a chemical?

_____

_____

10. What is chemistry?

_____

_____

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Assessment

Matter and Change

Section Quiz: Chemistry Is a Physical Science

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ **1.** The study of the composition, structure, and properties of matter; the processes that matter undergoes; and the energy changes that accompany those processes best describes the science of
a. biology.
b. physics.
c. astronomy.
d. chemistry.

_____ **2.** The branch of chemistry that involves the study of substances and processes occurring in living things is called
a. biochemistry.
b. organic chemistry.
c. physical chemistry.
d. theoretical chemistry.

_____ **3.** The branch of chemistry that deals with substances containing carbon is called
a. biochemistry.
b. organic chemistry.
c. physical chemistry.
d. analytical chemistry.

_____ **4.** Using mathematical models and computer models to understand a chemical principle is an example of
a. biochemistry.
b. physical chemistry.
c. analytical chemistry.
d. theoretical chemistry.

_____ **5.** A team of scientists is working with living cells to determine how a certain enzyme functions within the cells. They are most likely working in the field of
a. biochemistry.
b. physical chemistry.
c. inorganic chemistry.
d. theoretical chemistry.

Section Quiz *continued*

_____ **6.** Two chemistry students are investigating the properties of quartz crystals. They are most likely studying in the field of
- **a.** biochemistry.
- **b.** physical chemistry.
- **c.** organic chemistry.
- **d.** inorganic chemistry.

_____ **7.** The definition of a chemical is
- **a.** *a toxic substance made in a laboratory.*
- **b.** *an unnatural material added to foods.*
- **c.** *any substance that has a definite composition.*
- **d.** *anything that has mass and takes up space.*

_____ **8.** The goal of basic research is to
- **a.** find a solution to a particular problem.
- **b.** produce new chemicals.
- **c.** increase knowledge.
- **d.** discover new technologies.

_____ **9.** A scientist is working on developing refrigerants that do not release chemicals that destroy the ozone layer. This is best described as an example of
- **a.** basic research.
- **b.** applied research.
- **c.** technological development.
- **d.** biochemistry.

_____ **10.** Technological applications often
- **a.** occur by accident.
- **b.** degrade our quality of life.
- **c.** lag far behind basic and applied research.
- **d.** have little effect on our lives.