CHAPTER 9 PRACTICE QUESTIONS

Directions: Review what you just learned in this chapter and test your comprehension with these practice questions. Answers can be found directly after the questions.

Le Châtelier's Principle

1. Use the following balanced equation to determine how the following conditions will shift the equilibrium of the reaction (if at all).

$2\,SO_3(g) \rightarrow 2\,SO_2(g) + O_2(g)\ \Delta H = +197.78\ kJ$

a. Increasing the temperature of the reaction.

b. Increasing the pressure of the reaction.

c. Adding more O_2 when the reaction is at equilibrium.

Organic nomenclature

2. The hydrocarbon $CH_3–CH_2–CH_2–CH=CH_2$ is a(n):

A) alkane

B) alkene

C) alkyne

D) aldehyde

3. Name the hydrocarbon above in problem 2.

4. An alkane contains three carbon atoms.

a. What is the general name for this alkane?

b. How many hydrogen atoms would be contained in this alkane?

Functional groups

5. Which of the following organic compounds does NOT contain a carbon-oxygen double bond?

A) Aldehydes

B) Ethers

C) Esters

D) Ketones

6. The functional group of organic acids is the:

A) amine group

B) carbonyl group

C) carboxyl group

D) hydroxyl group

Types of radioactive decay

7. Which of the following describes the process of when an electron is ejected from a nucleus during radioactive decay?

A) Alpha decay

B) Beta decay

C) Gamma decay

D) Nuclear fusion

8. Isotope X has a half-life of 30 seconds, and isotope Y has a half-life of 30 million years. Which isotope is more radioactive?

A) Isotope X

B) Isotope Y

C) The half-lives of isotope X and Y are the same as long as they are the same element.

D) Unable to be determined from the information given.

Nuclear fission vs. nuclear fusion

9. What is the source of the Sun's energy output?

A) Nuclear fusion

B) Nuclear fission

C) Combustion

D) Radioactive decay