

## 25.4

## RADIATION IN YOUR LIFE

## Section Review

## Objectives

- Describe three devices that are used to detect radiation
- List examples of how radioisotopes are used in medicine

## Vocabulary

- ionizing radiation
- Geiger counter
- scintillation counter
- film badge
- neutron activation analysis

## Part A Completion

Use this completion exercise to check your understanding of the concepts and terms that are introduced in this section. Each blank can be completed with a term, short phrase, or number.

The radiation emitted by radioisotopes is known as 1 **1.** \_\_\_\_\_  
 radiation because of its ability to strip 2 from atoms of a **2.** \_\_\_\_\_  
 bombarded substance. It is not possible to detect ionizing radiation **3.** \_\_\_\_\_  
 with your 3. **4.** \_\_\_\_\_

A 4 counter uses a 5-filled tube to detect ionizing **5.** \_\_\_\_\_  
 radiation. A 6 counter uses a phosphor-coated surface to **6.** \_\_\_\_\_  
 detect 7 types of ionizing radiation. **7.** \_\_\_\_\_

Radioisotopes have many practical uses. For example, 8 **8.** \_\_\_\_\_  
 is used to detect thyroid problems, while 9 is used to detect **9.** \_\_\_\_\_  
 skin cancers. 10 analysis is a procedure used to detect trace **10.** \_\_\_\_\_  
 amounts of elements in samples.

## Part B True-False

Classify each of these statements as always true, AT; sometimes true, ST; or never true, NT.

\_\_\_\_\_ **11.** The film badge is a personal radiation monitor.

\_\_\_\_\_ **12.** A Geiger counter is the best alpha particle detector.

\_\_\_\_\_ 13. A scintillation counter is used to detect gamma radiation.

\_\_\_\_\_ 14. Iodine-131 can detect thyroid problems.

### Part C Matching

Match each description in Column B to the correct term in Column A.

#### Column A

\_\_\_\_\_ 15. ionizing radiation

\_\_\_\_\_ 16. Geiger counter

\_\_\_\_\_ 17. scintillation counter

\_\_\_\_\_ 18. film badge

\_\_\_\_\_ 19. neutron activation analysis

#### Column B

a. radiation detector consisting of several layers of photographic film

b. radiation with enough energy to knock electrons off some of the atoms it strikes

c. device that uses a coated surface called a phosphor to detect ionizing radiation

d. procedure used to detect trace amounts of elements in samples

e. gas-filled tube used to detect radiation

### Part D Questions

Answer the following in the space provided.

20. Which of the following is the best means of monitoring radiation for individuals who work with radioactive material? Circle the letter of the correct answer.

- a. Geiger counter
- b. film badge
- c. scintillation counter

21. List applications of radioisotopes in research and medicine.

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