

# Chapter Test C Understanding the Atom

**CHAPTER 4****Part A. Multiple Choice**

**Directions:** *In the space at the left, write the letter of the term, phrase, or sentence that best answers each question.*

- \_\_\_\_\_ 1. Which statement describes a proton?
- A. less mass than a neutron
  - B. less mass than an electron
  - C. about the same mass as a neutron
  - D. about the same mass as an electron
- \_\_\_\_\_ 2. In Rutherford's gold foil experiment, why was it significant that some particles bounced straight back?
- A. It proved that the atom had a neutral charge.
  - B. It showed that there was empty space in the atom.
  - C. It was the first confirmation of Thomson's finding.
  - D. It indicated that part of the atom had a greater mass and a positive charge.
- \_\_\_\_\_ 3. Oxygen has an atomic number of eight. Which statement is true?
- A. Oxygen has an atomic mass of eight.
  - B. Oxygen has eight protons in the nucleus.
  - C. Oxygen has eight neutrons in the nucleus.
  - D. Oxygen has six electrons orbiting the nucleus.
- \_\_\_\_\_ 4. The most stable isotope of an atom with 12 protons probably has how many neutrons?
- A. 6
  - B. 12
  - C. 18
  - D. 24
- \_\_\_\_\_ 5. How are elements arranged horizontally on a periodic table?
- A. alphabetically
  - B. by atomic mass
  - C. by atomic number
  - D. by chemical property
- \_\_\_\_\_ 6. Which is not an isotope of hydrogen?
- A. tritium
  - B. protium
  - C. deuterium
  - D. titanium

# Chapter Test C CONTINUED

## Part B. Completion

**Directions:** Write the term or phrase that best completes each statement about the history of atomic theory.

- Dalton developed an atomic model that consisted of \_\_\_\_\_ and \_\_\_\_\_ to help scientists understand each other.
- Thompson used a cathode ray to show that particles have \_\_\_\_\_.
- Rutherford discovered that most of the volume of an atom is \_\_\_\_\_ space.
- Bohr studied electrons. He theorized that electrons travel in \_\_\_\_\_.
- Scientists now believe that electrons are found in an \_\_\_\_\_.

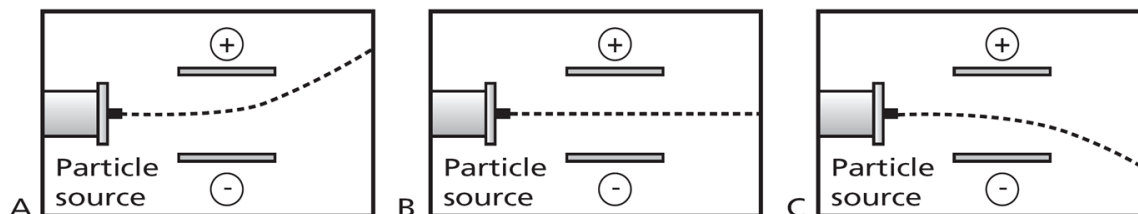
## Part C. Completing a Table

**Directions:** Complete the table by writing your answers in the spaces below.

Element	Number of Protons	Number of Neutrons	Number of Electrons	Atomic Number	Mass Number
1. A	3	4	3		7
2. B	2		2	2	4
3. C	11	12		11	
4. D		6	6		12
5. E		18			35

## Part D. Short Answer

**Directions:** Based on the diagram below, write your response to each statement on the next page in the space provided.



## Chapter Test **C** CONTINUED

1. The diagram on the previous page illustrates Thomson's cathode-ray experiment. The diagram shows the path followed by a stream of particles moving between two electrically charged plates. **Indicate** which particles are illustrated in each diagram. Explain why.

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2. Suppose a new element with atomic number 120 is discovered. Some isotopes of this element have 122 neutrons and some have 124 neutrons. **Infer** what you can about the atomic mass of the element. Explain your answer.

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3. **Critique** Bohr's atomic model's effectiveness for describing the movement of electrons.

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### Part E. Concept Application

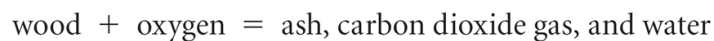
**Directions:** Respond to each statement in the space provided.

1. Joaquin's class is debating the effects of radioactive particles. **Support** an argument for the benefits of radioactive particles using what you have learned about isotopes.

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2. Digna wrote the notation below. **Conclude** what principle Digna was describing. Explain how you knew.



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3. **Construct** a formula to model the formation of table salt (NaCl). Explain the formation.

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