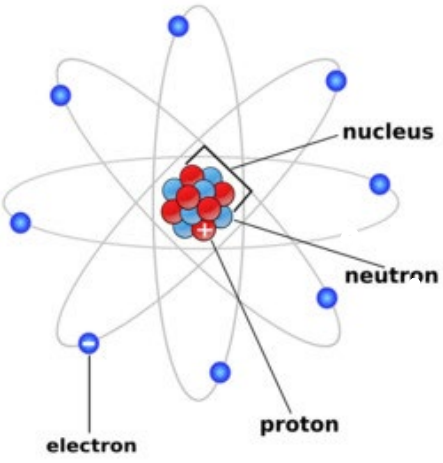
Unit 1: Chemistry

REVIEW

"Practice Test"

Science 10



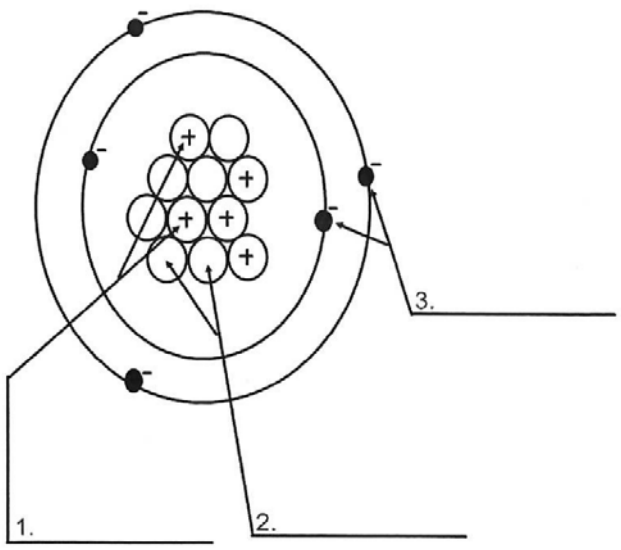
Name: _____ **Date:** _____

PART 1: Atomic Structure & Bonding

Vocabulary: Referring to your notes, define each of the following vocabulary terms in a complete sentence.

1. **atom**	
2. **atomic number**	
3. **Bohr model**	
4. **electron**	
5. **mass number**	
6. **neutron**	
7. **proton**	
8. **standard atomic notation**	
9. **valence shell**	

Label the parts of an atom on the diagram below.



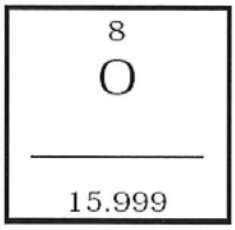
4. What type of charge does a proton have?

5. What type of charge does a neutron have?

6. What type of charge does an electron have?

7. Which two subatomic particles are located in the nucleus of an atom?

10. **Answer the questions for the elements shown below. Complete the Periodic Table box by filling in the element name or symbol.**



Atomic # = _____

Atomic Mass = _____

# of Protons = _____

# of Neutrons = _____

# of Electrons = _____

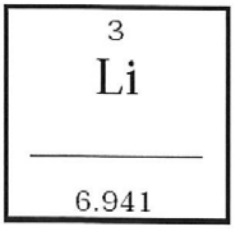
Atomic # = _____

Atomic Mass = _____

# of Protons = _____

# of Neutrons = _____

# of Electrons = _____



Atomic # = _____

Atomic Mass = _____

# of Protons = _____

# of Neutrons = _____

# of Electrons = _____

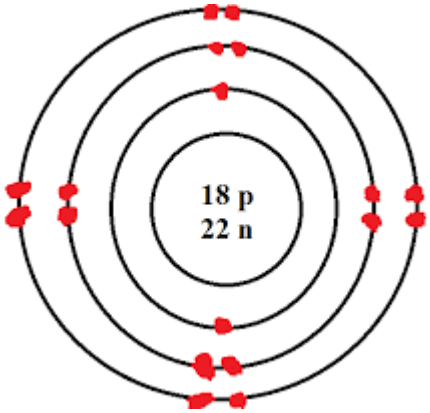
Complete the following table.

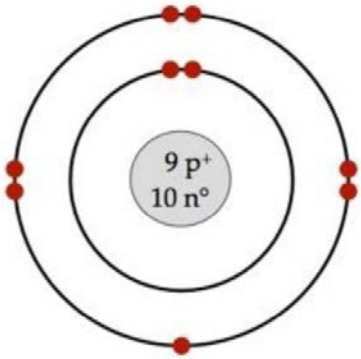
Element Name	Element Symbol	Number of Electrons	Atomic Number	Group #	Number of Protons	Average Atomic Mass	Period #
					15		
	Zn						
			56				
	Sr						
			17				
					22		

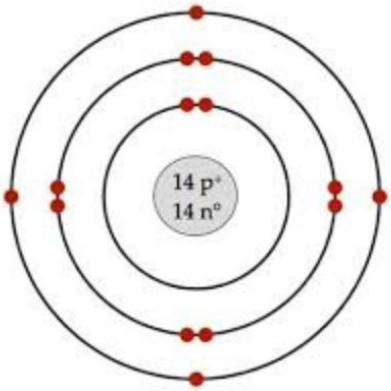
14. **Draw a Bohr model diagram of a**
***a) <u>magnesium</u>* atom.**

b) *<u>beryllium</u> atom*

16. **Write the name of the Atom shown in each Bohr Diagram in the box below:**







17. **Identify the number of electrons in the valence shell of the following atoms.**

potassium _____ aluminum _____

hydrogen _____ oxygen _____

argon _____ chlorine _____

boron _____ beryllium _____

18. **Which family of elements has atoms with filled valence shells? What does this mean for their reactivity?**

PART 2: Names of Formulas + Compounds + Chemical Reactions

11.

	Reactants	Name	Formula
(a)	sodium and nitrogen		
(b)	magnesium and oxygen		
(c)	aluminum and sulphur		
(d)	gallium and fluorine		
(e)	silver and selenium		
(f)	zinc and chlorine		

18.

	Formula	Ionic or Covalent?	Name of Compound
(a)	$CaCl_2$		
(b)	$CuCl_2$		
(c)	SCl_2		
(d)	CoS		

7. **Explain the difference between physical and chemical changes.**

8. **Classify each of the following as either a physical or a chemical change.**

Chopping wood with an axe. _____

Burning wood in a campfire. _____

Baking bread in an oven. _____

Chocolate bar melting in the sun. _____

Exploding dynamite. _____

Apple rotting on the ground. _____

CHAPTER 4 Chapter 4 Quiz

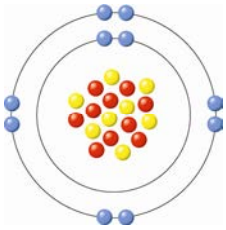
Goal • Check your understanding of Chapter 4.

What to Do

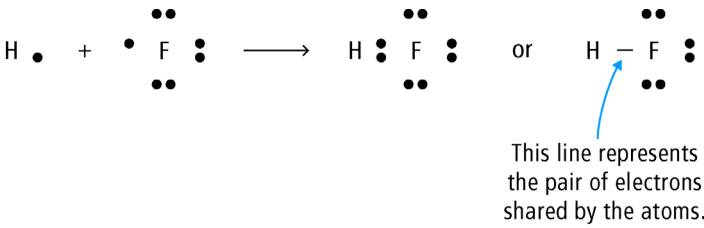
Circle the letter of the best answer.

1. Which subatomic particle(s) make up most of the mass of an atom?
   A. electrons
   B. neutrons
   C. electrons and protons
   D. neutrons and protons

2. Which statement best describes the diagram to the right?
   A. This is a Bohr diagram that shows eight neutrons.
   B. This is a Lewis diagram that shows eight neutrons.
   C. This is a Bohr diagram that shows ten neutrons.
   D. This is a Lewis diagram that shows ten neutrons.



3. Which statement best describes the following diagram?



   A. The pure substance is an element, and the line refers to a charge of 1–.
   B. The pure substance is a compound, and the line refers to a charge of 1–.
   C. The pure substance is an element, and the line refers to a pair of bonding electrons.
   D. The pure substance is a compound, and the line refers to a pair of bonding electrons.

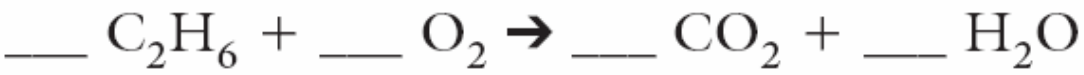
4. What is the name of PbO_2?
   A. lead(II) dioxide
   B. lead(IV) oxide
   C. lead dioxide
   D. phosphorus boron oxide

5. What is the correct formula for aluminum hydroxide?
   A. Al_3OH
   B. $AlOH_3$
   C. $Al(OH)_3$
   D. $Al(OH_3)$

6. Which statement best describes $(NH_4)_2Cr_2O_7$?
   A. It is an ionic compound with 16 atoms in total.
   B. It is an ionic compound with 19 atoms in total.
   C. It is a covalent compound with 16 atoms in total.
   D. It is a covalent compound with 19 atoms in total.

7. What is the charge on the plutonium atom (Pu) in the compound Pu_2O_5?
   A. 3+
   B. 4+
   C. 5+
   D. 6+

8. What are the coefficients, from left to right, that correctly balance the following equation?

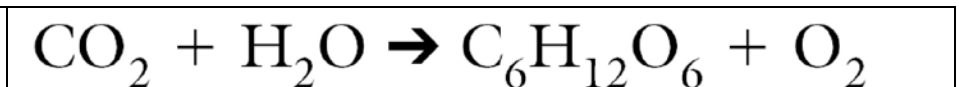
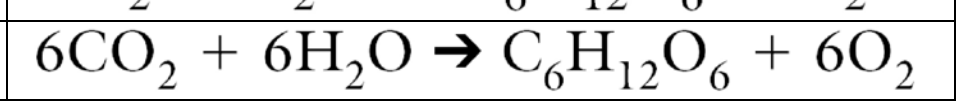


   A. 1, 3, 2, 3
   B. 1, 7, 2, 3
   C. 2, 7, 4, 6
   D. 2, 3, 4, 6

9. What are the coefficients, from left to right, that correctly balance the following equation?

   A. 3, 4, 12, 1
   B. 3, 3, 6, 1
   C. 6, 3, 4, 2
   D. 6, 4, 2, 12

10. Which statement best describes the following equations?

I.	
II.	

   A. I is a word equation, and II is a skeleton equation.
   B. I is a skeleton equation, and II is a balanced equation.
   C. I is a balanced equation, and II is a word equation.
   D. I is a skeleton equation, and II is a word equation.

Match the Term on the left with the best Descriptor on the right. Each Descriptor may be used only once.	
Term	**Descriptor**
_____ 11. binary covalent compound _____ 12. polyatomic ion _____ 13. ionic compound _____ 14. element _____ 15. atomic number _____ 16. reactant	A. PO_4^{3-} B. Br_2 C. substance made during a reaction D. equal to the number of protons in an atom E. CH_4 F. substance consumed during a reaction G. $MgCl_2$ H. equal to the number of neutrons in an atom

Short Answer Questions

17. (a) Draw a Lewis diagram representing ammonia (NH_3).

(b) Draw a Bohr diagram representing MgO.

18. Write the formula or name of the following compounds.

(a) iron(III) chloride _____

(b) ammonium phosphate _____

(c) dinitrogen trisulphide _____

(d) P_4O_{10} _____

(e) Na_2SO_4 _____

19. Balance the following equations.

(a) $KI + AlCl_3 \rightarrow KCl + AlI_3$

(b) $C_3H_8 + O_2 \rightarrow CO_2 + H_2O$