

Name: \_\_\_\_\_

Class: \_\_\_\_\_

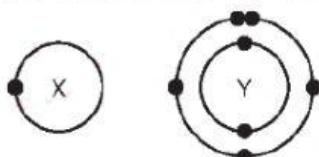
**Section A: Multiple Choice**

Instruction: please choose a correct answer for each question.

1. Metal P reacts with non-metal Q to form a compound. **Which process takes place and which type of compound is formed?**

	Process	Type of compound
A	Electrons are transferred from P to Q	Covalent
B	Electrons are transferred from P to Q	Ionic
C	Electrons are transferred from Q to P	Covalent
D	Electrons are transferred from Q to P	Ionic

2. The electronic structures of atoms X and Y are shown.



X and Y form a covalent compound.

**What is its formula?**

- A.  $XY_5$
- B.  $XY_3$
- C.  $XY$
- D.  $X_3Y$

3. Magnesium atoms react with oxygen molecule. **What is the formula of the product?**

- A.  $MgO$
- B.  $MgO_2$
- C.  $Mg_2O$
- D.  $Mg_2O_2$

4. The table shows the number of electrons in outer shell of four atoms. **Which two atoms combine to form a covalent compound?**

Atom	No. of electrons in outer shell
W	1
X	4
Y	7
Z	8

- A. W and X
- B. W and Y
- C. X and Y
- D. X and Z

5. Element X is in Group I of the Periodic Table. X reacts with element Y to form an ionic compound. Which equation shows the process that takes place when X forms ions?

- A.  $X + e^- \rightarrow X^-$
- B.  $X - e^- \rightarrow X^-$
- C.  $X + e^- \rightarrow X^+$
- D.  $X - e^- \rightarrow X^+$

6. Sodium chloride is an ionic solid.

**Which statement is not correct?**

- A. Ions are formed when atoms lose or gain electrons.
- B. Ions in sodium chloride are strongly held together.
- C. Ions with the same charge attract each other.
- D. Sodium chloride solution can conduct electricity.

7. Rubidium is in Group I of the Periodic Table and bromine is in Group VII.

Rubidium reacts with bromine to form an ionic compound.

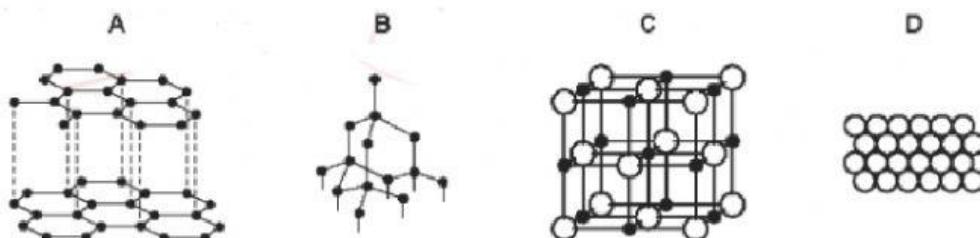
**Which row shows the electron change taking place for bromine and the correct formula for bromine ion?**

	Electron change	Formula of ion formed
A	Electron gained	$Br^+$
B	Electron gained	$Br^-$
C	Electron lost	$Br^+$
D	Electron lost	$Br^-$

8. From the combination of atoms below, **which one cannot form an ionic bond?**

- A. K and Cl
- B. Mg and Cl
- C. H and Cl
- D. Na and Cl

9. Graphite has a layered structure and can easily be split into thin sheets. **Which diagram shows a structure most likely that of graphite?**



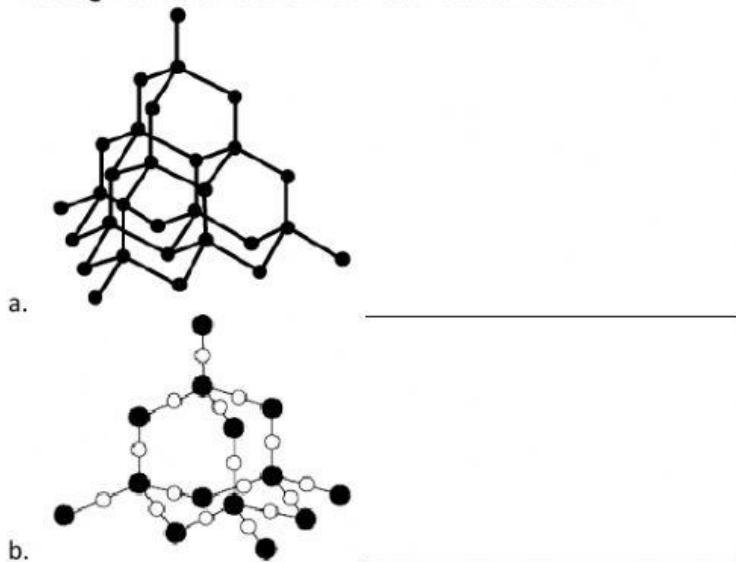
10. For which substance is the type of bonding not correct?

	substance	type of bonding		
		ionic	covalent	metallic
A	chlorine		✓	
B	potassium bromide	✓		
C	sodium			✓
D	sodium chloride		✓	

**Section B: Essay**

Instruction: please write your answer to each question below.

1. Please give the correct name of each structure below.



2. Please mention three differences between ionic and covalent bond.

Ionic	Covalent