Name: _____

Class: _____

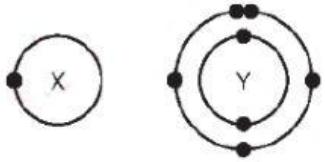
Section A: Multiple Choice

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 from 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

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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. $X - e^- \rightarrow X^-$

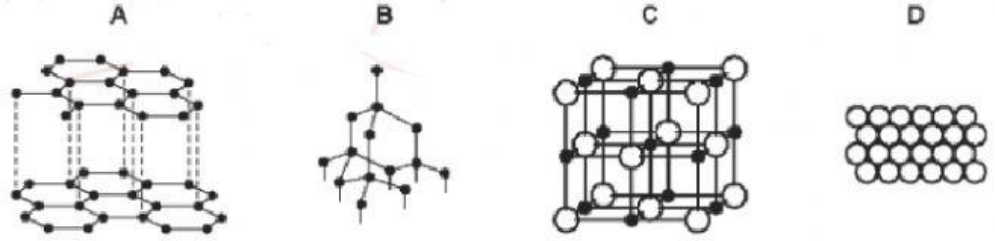
6. Sodium chloride is an ionic solid.
   Which statement is not correct?
   A. Ions are formed when atoms lose or gain electrons.
   B. Ions in sodium chloride are strongly held together.
   C. Ions with the same charge attract each other.
   D. Sodium chloride solution can conduct electricity.

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		✓	

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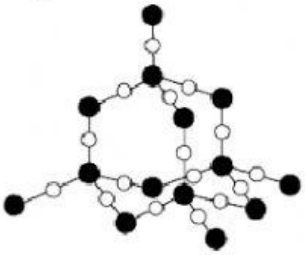
Section B: Essay

Instruction: please write your answer to each question below.

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

a. _____

b.  _____

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

Ionic	Covalent

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