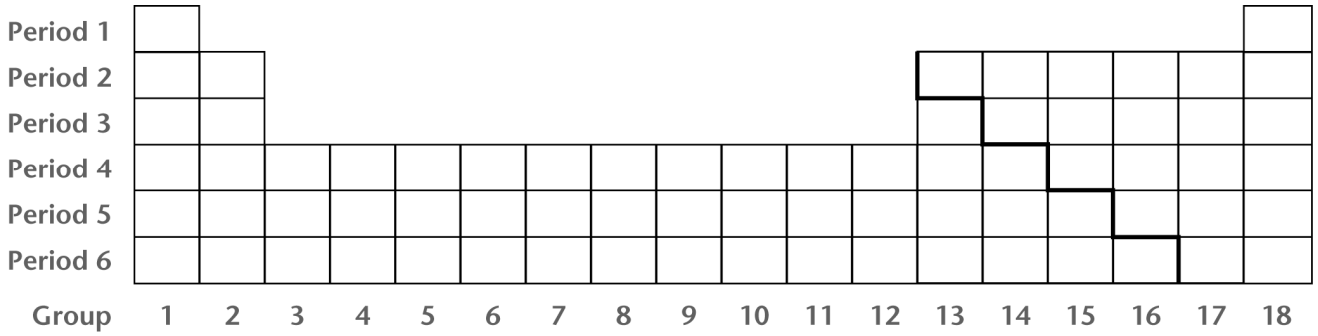
Big Chemistry Quiz/Review Name: _____

1.Indicate if each statement is true or false. (10 marks)

T for True or F for False	Statement
_____	Each element in a **group** on the periodic table has the same number of electrons in its outer shell.
_____	The **period** an element is in on the periodic table tells how many shells of electrons the element has.
_____	An atom in group thirteen will have three valence electrons.
_____	Metals are found on the left hand side of the periodic table.
_____	In a decomposition reaction, one reactant becomes two products.
_____	$Na + Cl_2 \rightarrow 2NaCl$ is a balanced chemical equation.
_____	Metal ions are positively charged and sometimes negatively charged.
_____	Reactive elements can become more unstable when they form compounds.
_____	Ionic compounds are named with the non-metal ion first, then the metal ion ending in 'ide'.
_____	Covalent compounds are named using roman numerals.

2. Answer the following questions by filling in the diagram. (4 marks)



a) Label the alkaline earth metal group.

b) Shade the column whose atoms like to gain one electrons.

c) Identify the column that has 2 outer valence electrons.

d) Using a hatch pattern identify the metalloids in the periodic table. E.g. 

3. For **$\underline{3(NH_4)_3(PO_4)}$** How many of each element are present? N: _____ H: _____ P: _____ O:_____ (4 marks)

4.<u>Underline</u> the ionic compounds. Circle the covalent compounds. (4 marks)

a) CO_2 **b)** $C_{25}H_{52}$ **c)** $AlBr_3$ **d)** NaCl

5.Write the name or the chemical formula for each compound. (8 marks)

a) CaO _____ **e)** P_2S_5 _____

b) Mg_3P_2 _____ **f)** CF_4 _____

c) sodium sulfate _____ **g)** sulfur hexachloride _____

d) Copper (II) Bromide _____ **h)** dinitrogen monoxide _____

6.Match each reaction with the type of reaction. (3 marks)

A. $BaCl_2 + 2\ AgNO_3 \rightarrow Ba(NO_3)_2 + 2\ AgCl$	____ synthesis
B. $2\ Al_2O_3 \rightarrow 4\ Al + 3\ O_2$	____ decomposition
C. $NaOH + HCl \rightarrow H_2O + NaCl$	____ single displacement
D. $2\ Na + CaCl_2 \rightarrow 2\ NaCl + Ca$	____ combustion
E. $CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$	___neutralization
F. $N_2 + 2\ O_2 \rightarrow 2\ NO_2$	____ double displacement

7.Write the word equation for each reaction; Identify the type of reaction; Balance if necessary (4 marks)

a) $Li + MgBr_2 \rightarrow Mg + LiBr$

_____ + _____ → _____ + _____

b) $BaCl_2 + AgNO_3 \rightarrow Ba(NO_3)_2 + AgCl$

_____ + _____ → _____ + _____

c) $NaHCO_{3(s)} \rightarrow CO_{2\,(g)} + H_2O_{(g)} + Na_2CO_{3(s)}$

_____ → _____ + _____ + _____

d) $KI + Pb(NO_3)_2 \rightarrow KNO_3 + PbI_2$

_____ + _____ → _____ + _____

e) $C_4H_8 + O_2 \rightarrow CO_2 + H_2O$

Butene(Hydrocarbon) + _____ → _____ + _____

8. Write a <u>skeleton</u> chemical equation for each word equation and identify the type of reaction. 6 marks

a) Potassium iodide and copper (II) nitrate react to produce potassium nitrate and copper (II) iodide

_____

b). Sodium and water react to produce sodium hydroxide and hydrogen gas.

_____

c) Nitrogen monoxide and oxygen gas react to produce nitrogen dioxide.

_____

9. Balance each chemical equation. (9 marks)

a) ___ Zn + ___ $HCl \rightarrow$ ___ $ZnCl_2$ + ___ H_2

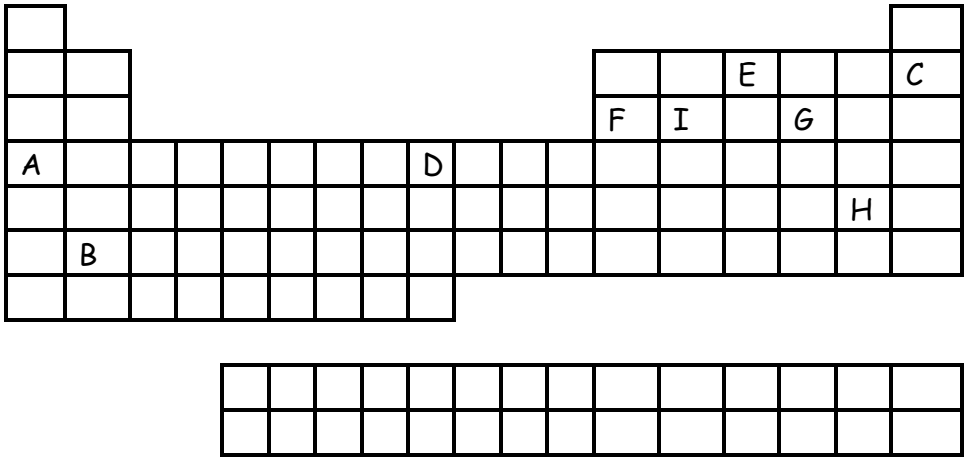
b) __ NH_4OH + ___ $FeCl_3 \rightarrow$ ___ NH_4Cl + ___ $Fe(OH)_3$

c) ___ $AlCl_3$ + ___ $H_2SO_4 \rightarrow$ ___ $Al_2(SO_4)_3$ + ___ HCl

d) ___$KClO_3 \rightarrow$ ___KCl + ___O_2

e) ___Sr + ___$Mg(NO_3)_2 \rightarrow$ ___$Sr(NO_3)_2$ + ___Mg

f) ___AlI_3 + ___ $Na_3PO_4 \rightarrow$ ___ $AlPO_4$ + ___ NaI



2a. List all element letters (A-H) that are classified as metals _____
2b. List all element letters (A-H) that are classified as non-metals _____
2c. List all elements that would form differently charged cations_____
2d. List all element letters (A-H) that are classified as metaloids _____
2e. List all element letters (A-H) that have 2 valence electrons _____

11. Which is more reactive, an alkali metal or noble gas? Explain why. (2 marks)

12. a) Draw a Lewis model showing how Sodium and Oxygen combine. (2 marks)

b) Draw a lewis model showing the structure of NH_3. (2 marks)

13. Complete the table. Choose from the following answers:

metal elements ***nonmetal elements*** **High** **Low**

yes ***no*** **Hard** **Soft** ***solid*** ***liquid*** ***gas***

Each answer may be used more than once, and each box in the table may contain more than one answer from the set above. (7 marks)

Properties of Ionic and Molecular Compounds

Compound	Formed from	Melting Points	Conducts electricity when dissolved in water?	Forms ions in solution?	Hardness	State at room temperature (usually)
ionic						
molecular						

14. Identify the term that best matches the description or definition given. (7 marks)

a. acid

____tastes sour

____potassium hydroxide is an example

____Vinegar is an example of this.

____feels slippery

___H_2SO_4 is an example of this

_____reacts with metals to produce hydrogen gas

b. base

____ LiOH is an example of this

____ Turns litmus paper red

____ Reacts with carbonates and metals

____ Soaps are examples of this

____ It neutralizes acids

Polyatomics

NAME	FORMULA	NAME	FORMULA
ammonium	**NH_4^+**	**hydrogen sulfate**	**HSO_4^-**
hydroxide	**OH^-**	**hydrogen carbonate**	**HCO_3^-**
nitrate	**NO_3^-**	**phosphate**	**PO_4^{3-}**
carbonate	**CO_3^{2-}**	**sulfate**	**SO_4^{2-}**

CHEMISTRY REVIEW TOPICS

Using the periodic table

- Rows, periods
- Numbers
- Locations
- Metal vs nonmetal

Identifying the parts of an atom

Identify the characteristics of an element

Describe the atom in terms of a Bohr Rutherford model and a Lewis diagram

Using a Lewis model show bonding that occurs

Describe the differences between ionic and molecular compounds

Describing the number of atoms in a compound

Identify the formula or the name of an ionic compound

Identify the formula or the name of an ionic compound with transition metals or with polyatomic ions

Identify the formula or name of a molecular compound

Being able to write a chemical equation Identify the differences between reactants and products

Describe the law of conservation of mass

Describe the clues that a chemical reaction has occurred

Be able to balance simple equations

Recognise the pattern and describe the type of reaction or equation

- For example synthesis, decomposition, combustion, single displacement, double displacement

Describe the differences between acids and bases

- Properties
- Reactions
- Formulas

Describe and understand the pH scale

Describe the uses of acids and bases

Describe what an indicator is how it's used