

Name: _____ Periodic Table Review Questions

1. An abbreviated Periodic Table of Elements is shown below. All elements are chemically reactive, and A-H will be the symbols this question will use for some elements.

Groups

	A		E	G
		C		
		D		
Periods	B			H
			F	

- a. Which element has the highest electronegativity? _____
- b. Which element is most metallic? _____
- c. Which element has the greatest atomic mass? _____
- d. Which element is most chemically similar to A? _____
- e. Which element has the smallest atomic radius? _____
- f. Explain how you know that none of the elements shown are a noble gas? _____

2. The properties of five elements V, W, X, Y, & Z are listed below:

V – a gas, does not react chemically with any elements

W – a solid, high density, good conductor of electricity

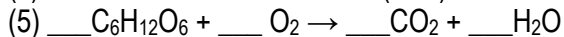
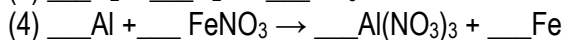
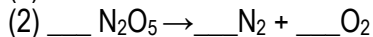
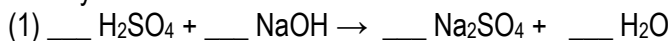
X – brittle solid, high electronegativity, poor conductor of heat & electricity

Y – brittle solid, metallic luster, conducts electricity somewhat

Z – a gas, reacts with sodium to form Na_2Z

- a) Which is a metal? _____
- b) Which is a non-metal? _____
- c. Which is a metalloid? _____
- d. Which is a noble gas? _____
3. A compound has a formula of XCl_2 .
- a) What group on the Periodic Table of Elements is X in? Why?
- b) How many valence electrons does X have?
- c) Does X gain or lose electrons? How many? Why?
- d) Which element in its group could X be if it had the greatest ionization energy?
- e) Name another element besides Cl that would have the same subscripts in a compound with X.
4. If the strength of attraction of an atom for its outermost electrons determines the size of an atom.
- a) Explain why, as the atom number increases in a *Period* on the Periodic Table of the Elements, the size of atoms *decreases*.
- b) Explain why, as the atomic number increases in a *Group* on the Periodic Table of Elements, the size of the atom *increases*

5. Identify & balance the five reactions:



a) decomposition

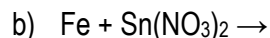
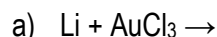
b) synthesis

c) combustion

d) single replacement

e) double replacement

6. Use table J to tell if the reaction will occur? If so, predict the products:



7. Name/write formula:

a) NF_3 _____

b) NO _____

c) Sulfur trioxide _____

d) Silicon tetrafluoride _____

e. ammonium sulfate _____

f. lead (II) fluoride _____

g. LiBr _____

h. $\text{Mg}_3(\text{PO}_4)_2$ _____

8. _____ Which element has the greatest density at STP?

a) barium

c) magnesium

b) beryllium

d) radium

9. _____ Which element is a metalloid?

a) Al

b) Ar

c) As

d) Au

10. _____ Which ion has the same number of valence electrons as Ar?

a) Cl^{-1}

b) Ca^{+2}

c) S^{-2}

d) F^{-1}

11. _____ An atom of an element has a total of 12 electrons. An ion of the same element has a total of 10 electrons. Which statement describes the charge and radius of the ion?

a) The ion is positively charged & radius is smaller than the radius of the atom

b) The ion is positively charged & radius is larger than the radius of the atom

c) The ion is negatively charged & radius is smaller than the radius of the atom

d) The ion is negatively charged & radius is larger than the radius of the atom

13. _____ Magnesium and calcium have similar chemical properties because a magnesium atom and a calcium atom have the same

a) atomic number

b) mass number

c) total number of electron shells

d) total number of valence electrons

14. _____ Which general trend is demonstrated by the Group 17 elements as they are considered in order from top to bottom on the Periodic Table?

a) a decrease in atomic radius

b) a decrease in electronegativity

c) an increase in first ionization energy

d) an increase in nonmetallic behavior

15. _____ Which element has an atom in the ground state with a total of three valence electrons?

a) aluminum c) phosphorus

b) lithium d) scandium

16. _____ As atomic number increases within Group 15 on the Periodic Table, atomic radius

a) decreases, only

b) increases, only

c) decreases, then increases

d) increases, then decreases

12. _____ A sample of an element is malleable and can conduct electricity. This element could be

a) H

b) He

c) S

d) Sn

