

PERIODIC TRENDS PRACTICE QUESTIONS: Name _____

1) B Al Ga In

- a) Most metallic?
 - b) Least metallic?
 - c) Lowest electronegativity?
 - d) Highest ionization energy?
 - e) Largest atomic radius?
 - f) Which are non-metals?
 - g) Which are conductors?
 - ~~h) Highest shielding effect?~~
 - ~~i) List them in order from small to large.~~
 - j) Would they gain or lose electrons to form ions?
 - k) What charge would the ion have?
 - l) Would these be considered cations or anions?
 - m) Would the ion be larger or smaller than the atom?
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2) Sn Sb Te I

- a) Highest metallic character?
 - b) Lowest I.E.?
 - c) Smallest atom?
 - d) Which are metalloids?
 - e) List in order of increasing size (from small to large)
 - f) When Iodine becomes an ion, is the ion larger or smaller than the atom?
 - g) When Tin (Sn) becomes an ion, is the ion larger or smaller than the atom?
 - ~~h) Highest shielding effect?~~
 - i) Which one is a halogen?
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3) Mg Ca Sr Ba

- a) Most metallic?
 - b) Least metallic?
 - c) Lowest electronegativity?
 - d) Highest ionization energy?
 - e) Largest atomic radius?
 - f) Which are non-metals?
 - g) Which are conductors?
 - h) List them in order from small to large.
 - i) Would they gain or lose electrons to form ions? ~~Charge would the ion have?~~
 - j) Would the ion be larger or smaller than the atom?
 - k) Lowest shielding effect?
 - l) Would the ions be cations or anions?
 - m) What is the special name given to the group in which these elements belong?
 - n) What are some characteristics of this group?
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4) Al Si P S

- a) Highest metallic character?
- b) Lowest I.E.?
- c) Smallest?
- d) Which are metalloids?
- e) List in order of increasing size (from small to large)
- f) Which are non-metals?
- g) Lowest electronegativity?
- h) Which would rather gain electrons?
- i) Which would rather lose electrons?
- j) Which ones would form cations?
- k) Would these be larger or smaller than the neutral atom?
- l) Which ones would form anions?
- o) Would these be larger or smaller than the neutral atom?
- ~~m) Lowest shielding effect?~~

5) In each set, tell which is larger AND explain why.

- a) Ca v. K _____
 - b) As v. Se _____
 - c) S v. O _____
 - d) Rb v. Li _____
 - e) O v. O^{-2} _____
 - f) Ca v. Ca^{+2} _____
 - g) O^{-2} v. F^{-1} _____
 - h) S^{-2} v. Se^{-2} _____
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6) Arrange the following elements in order of decreasing atomic size:

- a) S, Cl, Al, Na
- b) C, Ge, Pb, Si
- c) Cs, Pb, B, Ba

7) Arrange the following elements in order of increasing ionization energy:

- a) Be, Mg, Sr
- b) Bi, Cs, Ba
- c) Na, Al, S

8) In each of the following pairs, which element is the most electronegative?

- a) chlorine, fluorine
- b) carbon, nitrogen
- c) magnesium, neon
- d) arsenic, calcium

9) Give the name the element found at each of the following locations on the periodic table:

- a) Group 1, period 4.
- b) Group 13, period 3.
- c) Group 16, period 3
- d) Group 2, period 6

10) Write the symbols for the members of the following groups:

- a) alkali metals
- b) halogens
- c) alkaline earth metals
- d) noble gases

11) What is the general term applied to the elements:

- a) in Groups 3 - 12?
- ~~b) in the "d block"?~~
- c) in Group 18?
- a) d along the zig-zag line?
- d) to the right of the zig-zag line?

13) In general do metals or non-metals have:

- a) higher ionization energies?
- b) higher electronegativities?
- c) higher malleability?
- d) higher conductivity?
- e) larger ion size compared to the size of the neutral atom?

14) Explain the following trends:

- a) atomic radius decreases as you go across a period
- b) ionization energy increases as you go across a period
- c) ionization energy decreases as you go down a group
- d) negative ions are larger than their neutral atoms