

Name _____

Periodic Trends

I. Which of the following in each pair has the larger atomic radius?

- 1) Li or K ___K___
- 2) Ca or Ni ___Ca___
- 3) Ga or B ___Ga___
- 4) O or C ___C___
- 5) Be or Ba ___Ba___
- 6) Si or S ___Si___
- 7) Fe or Kr ___Fe___

II. Which of the following in each pair has the larger electronegativity?

- 8) Li or K ___Li___
- 9) Ca or Ni ___Ni___
- 10) Ga or B ___B___
- 11) O or C ___O___
- 12) Be or Ba ___Be___
- 13) Si or S ___S___
- 14) Fe or Kr ___Fe___

15) What do you notice about the answers in I vs. the answers in II? Why is this true?

Opposite- larger radius equals less attraction for e^-

III. Which of the following in each pair has the larger ionization energy?

- 16) Li or K ___Li___
- 17) Ca or Ni ___Ni___
- 18) Ga or B ___B___
- 19) O or C ___O___
- 20) Be or Ba ___Be___
- 21) Si or S ___S___
- 22) Fe or Kr ___Kr___

23) What do you notice about your answers in I vs. your answers in III? Why in this true?

Opposite- larger radii equals easier to remove e^-

IV. Which ion will have the smaller radius?

- 24) K^+ or O^{2-} ___ O^{2-} ___
- 25) Ba^{2+} or I^- ___ Ba^{2+} ___
- 26) Al^{3+} or Cl^- ___ Cl^- ___
- 27) K^+ or Ca^{+2} ___ Ca^{2+} ___
- 28) P^{-3} or S^{2-} ___ S^{2-} ___

29) Why is the last answer S^{2-} ? Explain

More protons pulling on $18e^-$ equals smaller atom

V. For each of the following give the charge that it will have in a noble gas configuration.

- 30) O ___ 2^- ___ 31) Rb ___ 1^+ ___ 32) I ___ 1^- ___ 33) B ___ 3^+ ___ 34) N ___ 3^- ___ 35) Si ___ 4^+ ___