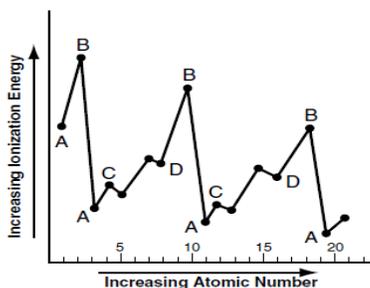




**Part 2:** Answer the questions below.

13. How many electrons does  $\text{Mg}^{2+}$  have? \_\_\_\_\_
14. How many protons does  $\text{N}^{3-}$  have? \_\_\_\_\_
15. What will be the ion symbol (formula), if the ion has 19 protons and 18 electrons? \_\_\_\_\_
16. How many electrons does an ion have if it has 16 protons and a -2 charge? \_\_\_\_\_
17. If an ion has 53 protons and 54 electrons, what will be its charge? \_\_\_\_\_
18. Given the formula  $\text{X}(\text{NO}_3)_3$ , what is the charge on ion X? Be sure to include the sign (+ or -). \_\_\_\_\_
19. How many electrons does the Copper ion have in the ionic compound  $\text{Cu}_2\text{SO}_4$ ? \_\_\_\_\_
20. Circle the atom *in each pair* that has the largest atomic radius.  
a) Al or B                      b) Br or Cl                      c) Na or Al                      d) O or F

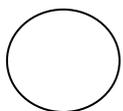
21. Ionization energy is



22. Which letter on the chart indicates the noble gases or the inert elements —

23. Circle the atom *in each pair* that has the greater ionization energy.  
a) Li or Be    b) Cl or Si    c) Ca or Ba    d) P or Ar
24. Electronegativity is:
25. Circle the atom *in each pair* that has the greater electronegativity.  
a) Ca or Ga    b) Br or As    c) Ba or Sr    d) O or S
26. Arrange each of the following in order of increasing ionic size.  
a)  $\text{I}^-$ ,  $\text{Br}^-$ ,  $\text{Cl}^-$                       b)  $\text{P}^{3-}$ ,  $\text{S}^{2-}$ ,  $\text{Cl}^-$                       c)  $\text{Ba}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ca}^{2+}$

27. Which atom represents a neutral sodium atom? Which atom represents a sodium ion ( $\text{Na}^{1+}$ )?

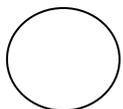


a. \_\_\_\_\_



b. \_\_\_\_\_

28. Which atom represents a neutral oxygen atom? Which atom represents an oxide ion ( $\text{O}^{2-}$ )?



a. \_\_\_\_\_



b. \_\_\_\_\_

**Part 3:** Name the following:

29.  $\text{P}_2\text{O}_5$

32.  $\text{VO}_2$

30.  $\text{Zn}(\text{NO}_3)_2$

33.  $\text{PbS}$

31.  $\text{IO}_2$

**Part 4:** Determine the formula for the following:

34. disilicon hexabromide

37. silver acetate

35. copper (I) phosphate

38. calcium sulfate

36. gallium oxide

**Part 5:** Draw the Lewis structure and determine the molecular geometry for each.

	Lewis structure		Lewis structure
39. $\text{PCl}_3$		41. $\text{BCl}_3$	
40. $\text{CCl}_4$		42. $\text{SCl}_2$	

**Part 6:** Determine if the following bonds are polar or nonpolar

43. H-O

44. N-Cl

45. P-Cl

**Part 7:** Name each molecular shape. (linear, trigonal planar, tetrahedral, bent, pyramidal)

