INDIAN SCHOOL NIZWA - WORKSHEET

CHEMISTRY

CH:3 CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES

Name: _____ Date:_____ Class: XI Sec: ___

I Answer the following

1. Arrange the following in the increasing order of radii. a) I, I^+, I^- b)C, N, Si, P c) O^{2-} , N^{3-}, S^{2-}, F^-. d) Li^{2+}, He^+ , Be^{3+}

2. For each of the following predict which one has lower first ionization enthalpy?
   N or O b) Na or Na^+ c) Be^+ or Mg^{+2} d) I or I^-. e) Be, B

3. Define covalent and metallic Vanderwaal's radius.

4. Define the following and explain how do they vary along a period and down a group.
   a) Ionization enthalpy
   b) Electron gain enthalpy
   c) Electronegativity

5. How would you explain the fact that first ionization enthalpy of sodium is lower than that of magnesium, but its second ionization enthalpy is higher than that of magnesium?

6. Electron gain enthalpy of noble gases is zero or positive.Why?

7. Which one of the following pairs would have a larger size? Explain.
   i)K or K^+ ii) Br or Br^- iii) Li^+ or Na^+ iv) Na^+ or Mg^{2+}

8. What are lanthanoids and actinoids?

9. First member of each group of representative elements shows anomalous behavior. Give reason.Give examples.

10. Explain diagonal relationship and give examples.

11. Which of the following pairs will have more negative electron gain enthalpy? Explain
    a) N or O b) F or Cl c) S or O d) C or Si

12. 1. The first ionization and second ionization enthalpies in KJ/Mol of 3 elements I, II, III are given below

	I	II	III
$\Delta_i H_1$	403	549	1142
$\Delta_i H_2$	2640	1060	2080

    Identify the element which is likely to be a) Non metal b) An alkali metal c) an alkaline earth metal

13. From each set ,choose the atom which has the largest ionization enthalpy and explain your answer
    a) F, O, N b) Mg, P, Ar c) B, Al, Ga

14. $O + e^- \longrightarrow O^-$ $\Delta_{eg} H_1 = -141KJ/Mol$
$O^- + e \longrightarrow O^{2-}$ $\Delta_{eg} H_1 = +780KJ/Mol$. Give reason for the above

15. Arrange the following in the decreasing order of negative electron gain enthalpy F, Cl, Br, I.

16. Which of the following has lesser second ionization enthalpy a) C&N b) O&F
c) Li &Be

17. Explain why the first ionization enthalpy of carbon is more than that boron but the reverse is true for the second ionization enthalpy.

18. Among the elements B, Al,C and Si
i) Which has highest first ionization enthalpy?
ii) Which has the most negative electron gain enthalpy ?
iii) Which has the larget atomic radius?
iv) Which has the most metallic character?