19 The first ionization Enthalpy values (in kJ mol^{-1}) of grp 13 Elements are

B	Al	Ga	In	Tl
801	577	579	558	589

How would you Explain this deviation from the general trend ?

Ans The decrease in $\Delta_i H$, value from B to Al is due to the bigger size of Al.
In Ga go there is 10 d^1 Electron which does not screen as is done by s and p Electron. The same is with into Tl. The latter has fourteen 4f electron with very poor shielding Effect. This also increases the effective nuclear charge Hence the value of $\Delta_i H$ increases.

20 Which of the following pair of elements would have a more negative element gain Enthalpy.
(i) O or F (ii) F or Cl

(i) Both O and F lie in 2nd period. As we move from O to F the atomic size decreases Due to smaller size of F nuclear charge increases Further, gain of one Electron by,
$F \rightarrow F^-$
F$^-$ ions has inert gas configration, while the gain of one electron by
$O \rightarrow O^-$
Give O^- ions which does not have stable inert gas configration, Consequently, the Energy released is much higher in going form.
In other word Electron gain Enthalpy of F is much more negative than that of Oxygen.

(ii) The reason for deviation is due to the smaller of F. Due to its small size, the Electron repulsion in the relatively compact 2p-subshell are comparatively large hence the attractive for incoming Electron is less in the case of Cl.

22 What is the basic difference between the terms Electron gain Enthalpy and Electronegatively ?

ans Electron gain Enthalpy refers to an isolated gaseous atom to accept an additional Electron to form a negative ion. whereas Electronegativity refers to tendency of the atom of an Element to attract shared pair of Electron towards in a covalent bond.

23 How would you react to the Statement that the Electronegativity of N on pauling Scale is 3.0 in all the nitrogen compounds

ans On pauling Scale, the Electronegatively of Nitrogen (3.0) Indicated that it is sufficiently Electronegative But it is not correct to say that the Electronegativity of nitrogen in all the compounds is 3. It depend on state of Hybridisation. more is the s character more will be the Electronegativity

24 What you Expect the first ionization enthalpies of two isotopes of the same elements to be the same / different ? Justify. Ionization Enthalpy, among the first ionization depends upon Electronic Configuration and nuclear charge Since isotopes of an Elements have the same Electronic and same nuclear charge, they have same ionization