Daily Tutorial Sheet-4	Level – 1

46.(A) Fluorine exhibits only negative oxidation state of –1. Other halogens in addition to –1 oxidation state exhibit formal positive oxidation states.

47.(B) No. of elements in a period

If n = even $\Rightarrow \left(\frac{n+2}{2}\right)^2 \times 2$

If n = odd $\Rightarrow \left(\frac{n+1}{2}\right)^2 \times 2$

48.(C) In a period, alkali metal has minimum nuclear charge and high atomic size. Thus, force of attraction is small in alkali metal.

49.(D) Electronegativity is an average of *IE* and *EA*

50.(B) Along the period, E.N increases and down the group E.N decreases

51.(D) Paramagnetic species have at least one unpaired electron. Write the electronic configuration and observe the unpaired orbital.

$Na^+(11): 1s^2, 2s^2 2p^6$ – All paired electrons ;

$Zn^{2+}(30): 1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}$ – All paired electrons :

$Cu^+(29): 1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}$ – All paired electrons :

$Fe^{3+}(26): 1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^5$ – Unpaired electrons

52.(B) Diamagnetic species have all paired electrons.

$Cu^{2+}(29): 1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^2$ – Unpaired electrons

$Cr^{3+}(24): 3s^2, 2s^2 2p^6, 3s^2 3p^6 3d^3$ – Unpaired electrons

$Co^{3+}(27): 1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^6$ - Unpaired electrons

$Cd^{2+}; 1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}, 4s^2 4p^6 4d^{10}$ – All paired electrons

53.(D) Remember the following points:

(i) Alkali and alkaline earth metals are most electropositive. Alkali metals are more electropositive than alkaline earth metals.

(ii) In d-block series, the elements near alkaline earth metals are more electropositive than rest of the members.

(iii) Metalloids are less electropositive than metals.

(iv) Halogens (Non-metals) are least electropositive. In halogen group, electropositive character increases as atomic number increases.

54.(A) In third period, 3s- and 3p-orbitals are filled. Total orbitals to be filled = one s + three p = 4. Thus, number of elements = 4 × 3 = 12.

55.(D) Allred-Rochow electronegativity value is given by $\chi^{AR} = \left(\frac{3590 \times Z_{eff}}{r^2_{covalent}}\right) + 0.744$.

56.(D) $IE_1 < IE_2 < IE_3$. As after removing first electron $= \left(\frac{Z}{e}\right)$ ratio increases so Z_{eff} increases so it becomes difficult to remove second electron. hence more energy is required and same is the case with removal of IIIrd electron.

57.(B) Energy required = 178 + 348 = 526 Kcal/mol.

58.(B) $IE_5 >> IE_4$ i.e. it should be very difficult to remove fifth electron after removing four electrons from the element which will be only in the case of silicon.

59.(C) Electronegativity increases across a period and it decreases down the group

60.(C) B and D are noble gases.
Down the group, E.A decreases but due to small size of F, inter electronic repulsion makes its less stable as compared to Cl after accepting e^-.