

Daily Tutorial Sheet 5 JEE Main (Archive)

**61.(D)** Structure of  $XeO_3F_2$  is  $O = XeO_0$ 

No. of bond pairs = 5, No. of  $\pi$  - bonds = 3, No. of lone pairs = 0.

**62.(A)** Electron affinity order : Cl > F > O

Due to strong electron-electron repulsions, the electron affinity of fluorine is less than chlorine.

**63.(C)** Structures of oxides of nitrogen are:

Thus,  $N_2O_3$  and  $N_2O_4$  contain one N-N bond.

**64.(D)** Rn (Radon do not occur in nature)

It is obtained as a decay product of Ra

$$_{88}$$
Ra $^{226}$   $\longrightarrow$   $_{86}$ Rn $^{222}$  +  $_{2}$ He $^{4}$  (Radium) (Radon)

Technically no option is matching.

- 65.(A) Due to intermolecular hydrogen bonding HF has highest boiling point among hydrogen halides.
- **66.(C)**  $\stackrel{+2}{NO}$ ,  $\stackrel{+1}{N_2O}$ ,  $\stackrel{+4}{NO_2}$ ,  $\stackrel{+3}{N_2O_3}$
- **67.(D)**  $H_3PO_2$   $HO \stackrel{O}{\underset{H}{\bigvee}} H$  H-directily attached to P are reducing
- **68.(D)**  $H_{3}PO_{2}$  O O H  $H_{4}P_{2}O_{5}$
- **69.(A)**  $3Cl_2 + 6NaOH \longrightarrow 5NaCl + NaClO_3 + 3H_2O$
- **70.(A)**  $I_2 + 10 \text{ HNO}_3 \longrightarrow 2 \text{ HIO}_3 + 10 \text{ NO}_2 \uparrow + 4 \text{ H}_2\text{O}_{(Y)}$

Oxidation state of I in  $HIO_3 = 5$ 

**71.(B)**  $\frac{6 \text{NaOH}}{\text{Hot and conc.}} + \frac{\text{Cl}_2 \rightarrow \text{NaClO}_3 + 5 \text{NaCl} + 3 \text{H}_2 \text{O}}{\text{EVa} \left( \text{OH} \right)_2 + \text{Cl}_2 \rightarrow \text{Ca} \left( \text{OCl} \right)_2 + \text{CaCl}_2 + \text{H}_2 \text{O}}$ 



72.(C)

Basicity of  $H_3PO_2 = 1$  (one replaceable  $H^+$  ion per molecule)

**74.(C)**  $N_2O_3$ ,  $Li_2O$ ,  $Al_2O_3$ 

 $\mathrm{N}_2\mathrm{O}_3$  is a acidic oxide (it is a non metal oxide)

Whereas,  $\text{Li}_2\text{O}$  oxide of Li (alkali metal) is basic in nature and  $\text{Al}_2\text{O}_3$  reacts with both acids and alkali and hence it is amphoteric in nature.

Other examples of amphoteric oxides are ZnO, BeO,  $Ga_2O_3$ ,  $Cr_2O_3$  etc.

$$\textbf{75.(1.67)} \ 3\text{Cl}_2 + \underbrace{6\text{NaOH}}_{\left(\text{Hot \& conc}\right)} \rightarrow \underbrace{5\text{NaCl+ NaClO}}_{\left(x\right)} + 3\text{H}_2\text{O}$$

$$NaCl + AgNO_3 \rightarrow AgCl \downarrow NaNO_3$$

$$-O - Cl = 0$$
 $\parallel$ 
 $O$ 

Bond order = 
$$1 + \frac{\text{no of } \pi \text{ bond}}{\text{no. of } \sigma \text{ bond}} = 1 + \frac{2}{3} = \frac{5}{3} = 1.67$$

(in Resonance)

 $(S_2O_8^{2-})$ 

(Number of S - O bonds = 8)

(rhombic sulphur)

(Number of S - S bonds = 8)