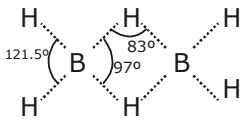
387. [A]



388. [D]

$O=\overset{\oplus}{N}=O$

$\bar{O}-\overset{}{N}=O$ $\quad \overset{\bullet}{N}=O$ (↓ O) $\quad O=\overset{\oplus}{N}=O$

no. of lp=1 $\quad$ no. of l.P $=\frac{1}{2}$ no. of l.p. =O

There for

$\Rightarrow$ $NO_2^+ > NO_2 > NO_2^-$ (Bond Agle)

389. [D]

O_2, $\quad$ B.O=2

$H_2O_2 \Rightarrow O_2^{2-}$, total e^- = 18

$$\text{B.O.} = \frac{1}{2}\begin{bmatrix} 2 & 2 \\ 2 & 2 \\ 6 & 4 \end{bmatrix} = \frac{1}{2}(6-4) = \frac{1}{2}\times 2 = (1)$$

$\bar{O}-\overset{+}{O}=O$ $\quad$ B.O. $= \dfrac{\text{Total w.of Bond}}{\text{Total } \sigma \text{ Bond}}$

$= \frac{3}{2} = 1.5$

	O2	O_2^{2-}	O_3
B.O.	(2)	(1)	(1.5)

$\Rightarrow$ B.O. $\times \dfrac{1}{\text{B.l.}}$

$\Rightarrow$ $O_2^{2-} > O_3 > O_2$ (B.l.)

$\Rightarrow$ $H_2O_2 > O_3 > O_2$ (Bond length)

390. [A]

391. [B]

As bond length $\propto$ 1/bond order

Bond length is inversely proportional to bond order.

Bond order in $NO^+ = 3$

Bond order in $NO = 2.5$

Hence, bond length in $NO > NO^+$

392. [D]

As Bond strength × Bond order

O_2, Total $e^- = 16 \Rightarrow$ B.O. = 2

O_2^- Total $e^- = 17 \Rightarrow$ B.O. = 1.5

O_2^{2-}, Total $e^- = 18 \Rightarrow$ B.O. = 1

O_2^+, Total $e^- = 15 \Rightarrow 15 \Rightarrow$ B.O. = 2.5

$\Rightarrow$ $O_2^+ > O_2 > O_2^- > > O_2^{2-}$

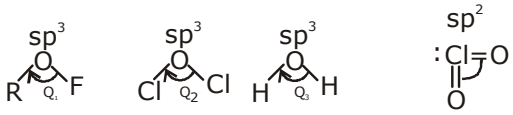
(Order of Bond strength)

393. [C]

Correct order of dipole moments

$CH_4 < CHCl_3 < CH_2Cl_2 < CH_3Cl$

394. [A]



$\Rightarrow$ $Q_4 > O_2 > Q_3 > Q_1$

395. [B]

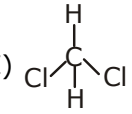
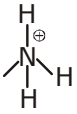
Hydration energy $\propto$ polarising power

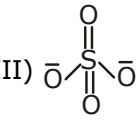
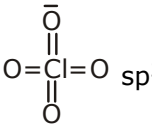
$Na^+ < Mg^{2+} < Mg^{3+} < Be^{3+} < Al^{3+}$

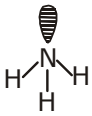
396. [A]

In frame test thermal excitation deexcitation takes place in cation with low Ionisation potential

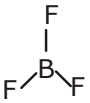
397. [D]

(I)  sp^3, (II)  sp^3

(III)  sp^3 (IV)  sp^3

(V)  sp^3

398. [C]

 sp^2

 sp^3

$\Rightarrow$ $BF_3 > PF_3 >$  sp^3d

399. [A]

Order of B.P.

$H_2O > SbH_3 > NH_3 > AsH_3 > PH_3$

V > IV > I > III > II

(Order of Boiling points)

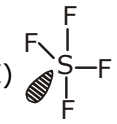
400. [AC]

$KO_2 \xrightarrow{\Delta} K_2O + \frac{1}{2}O_2$

$KO_2 + H_2O \xrightarrow{0°C} KOH + O_2$

401. [A]

(I)  sp^3d^2, eq. planer

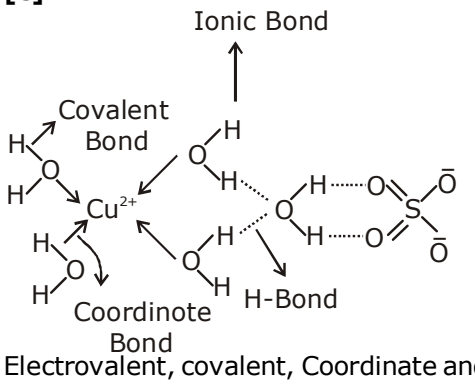
(II)  sp^3d sec saw

(III) WFL ↑ $[NiCl_4]^{2-}$ sp^3, Tetrahedral

(IV) $[PdCl_4]^{2-}$ (2nd T.S. element) sp^2, eq. planer

$\Rightarrow$ for 2nd T.S. element, all ligends are SFL.

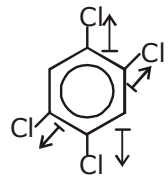
402. [C]

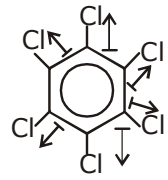


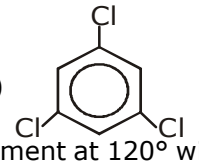
$\Rightarrow$ Electrovalent, covalent, Coordinate and H-Bond, all are present in $CuSO_4\ SH_2O$

403. [C]

404. [D]

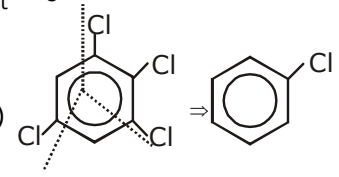
(A)  u net=0

(B)  u net=

(C) 

$\Rightarrow$ Moment at 120° will cancel each other

$\Rightarrow$ $\mu_{net} = 0$

(D) 

$= x\ \mu_{net} \neq 0$

405. [A]

$O(g) + 2e^- \rightarrow O^{2-}(g)$, $\Delta H = 603\ kJ\ mol^{-1}$ (i)

$O(g) + e^- \rightarrow O^-(g)$, $\Delta H = -141\ kJ\ mol^{-1}$ (ii)

Equation (i) and (ii) gives :

$O^- + e^- \rightarrow O^{2-}(g)$, $\Delta H = 603 - (-141)$

$= 744\ kJ\ mol^{-1}$

406. [B]

407. [A]

Radii of anions carrying same charge decrease from left to right in a period and increase down the group.

408. [B]

$A \longrightarrow \underset{\text{Lime water}}{Ca(OH)_2}$

$\underset{\text{Lime water}}{Ca(OH)_2} + CO_2 \longrightarrow \underset{\text{White ppt (C)}}{CaCO_3} + H_2O$

$C \longrightarrow CaCO_3$

$Ca(OH)_2 + Na_2CO_3 \longrightarrow \underset{C}{CaCO_3} + \underset{B}{NaOH}$

409. [D]

As HF is not stronger acid than HCl because fluorine is more electronegative than chlorine therefore hydrogen does not donate easily in than in HCl.

410. [D]

411. [B]

As bond dissociation energy decreases in the order :

$Cl_2 > Br_2 > F_2 > I_2$

412. [D]