

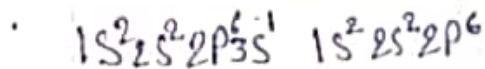
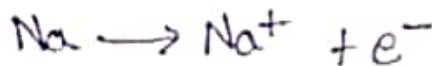
25/01/19

Why do chemical bond is formed?

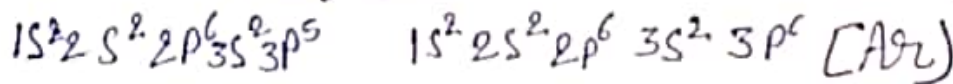
Chemical Bond: It is force of attraction b/w 2 atom to form a stable molecule

① To attain stability: Due to form of chemical bond overall P.E. ↓ so hence stability ↑.

② Kossel approach: Every atom tends to attain configuration of nearest noble gas.

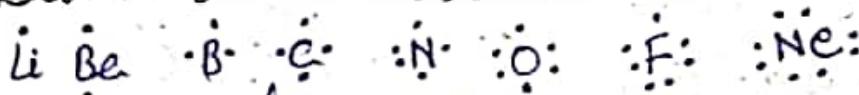


OR  
[Ne]

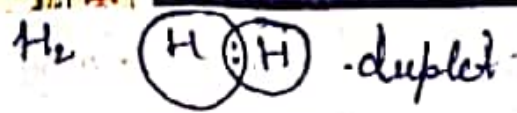


③ Lewis's octet Rule: Every atom tends to complete its octet i.e.  $8e^-$  in its outermost shell

Lewis dot structure:—



dot → Valence  $e^-$



(2)



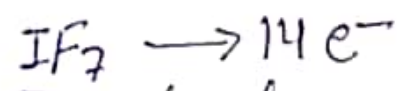
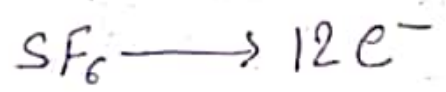
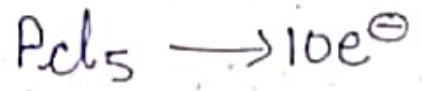
Exceptions to Lewis octet Rule: —

①  $e^-$  deficient molecule ( $< 8e^-$ )

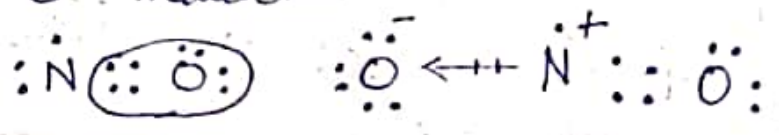


$BF_3, BCl_3, AlCl_3 \rightarrow 6e^-$

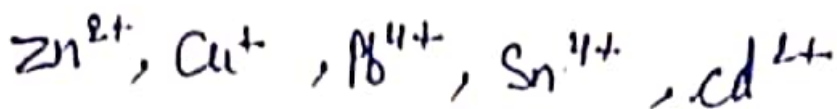
② Expansion of octet ( $> 8e^-$ )



③ odd  $e^-$  molecule.



④ Pseudo inert gas configuration: —  $(18e^-)$  ②



Drawback: —

(1) It could not define stability ~~stability~~ of molecules.

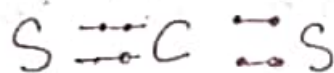
(2) It could not define shape of molecules.

Formal charge: — (F.C.)

$$F.C. = \text{no. of valence } e^- - \text{no. of unpaired } e^\ominus - \frac{1}{2} \times \text{no. of bonds } e^\ominus$$

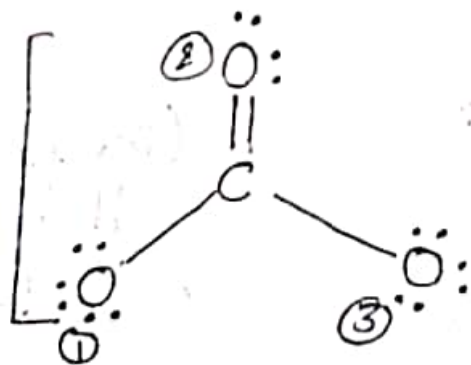
Ques: Find formal charge on C in

①  $CS_2$



$$F.C. \text{ on C} = 4 - 0 - \frac{1}{2} \times 8 = 0$$

②



$$F.C. = 4 - 0 - \frac{1}{2} \times 8 = 0$$

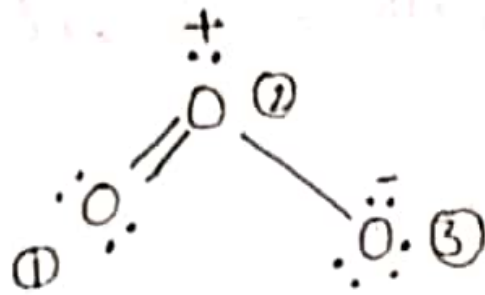
$$F.C. \text{ on } O_1 = 6 - 6 - \frac{1}{2} \times 2 = -1$$

$$F.C. \text{ on } O_2 = 6 - 4 - \frac{1}{2} \times 4 = 0$$

$$F.C. \text{ on } O_3 = 6 - 6 - \frac{1}{2} \times 2 = -1$$



Q.211: Find formal charge on each O-atom in ozone



$$FC \text{ (1)} = 6 - 4 - \frac{1}{2} \times 4 = 0$$

$$FC \text{ (2)} = 6 - 2 - \frac{1}{2} \times 6 = +1$$

$$FC \text{ (3)} = 6 - 6 - \frac{1}{2} \times 2 = -1$$

Note: Resonant structures which have less formal charge is more stable.

### Chemical Bond.

