Covalent bond

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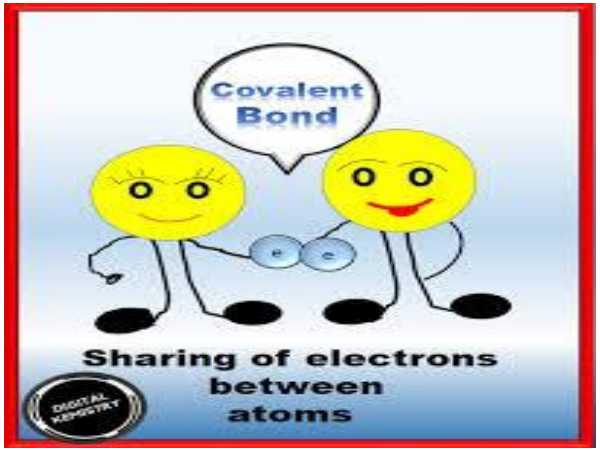
Definition of covalent bond

Bond formed between two similar or dissimilar atoms due mutual sharing of electrons between them is called as Covalent bond.



Types of covalent bond

There are three types of covalent bond

1) **Single covalent Bond**

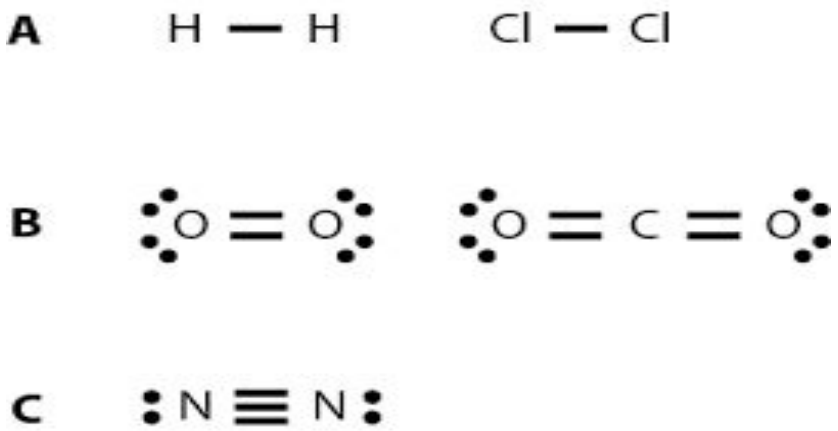
   A* *B

2) **Double covalent Bond**

   A **B**

3) **Triple covalent Bond**

   A* ***B**



Bonding in single covalent bond

1.Water molecule

H2O has three atoms in it,two atoms of H and one atom of Oxygen

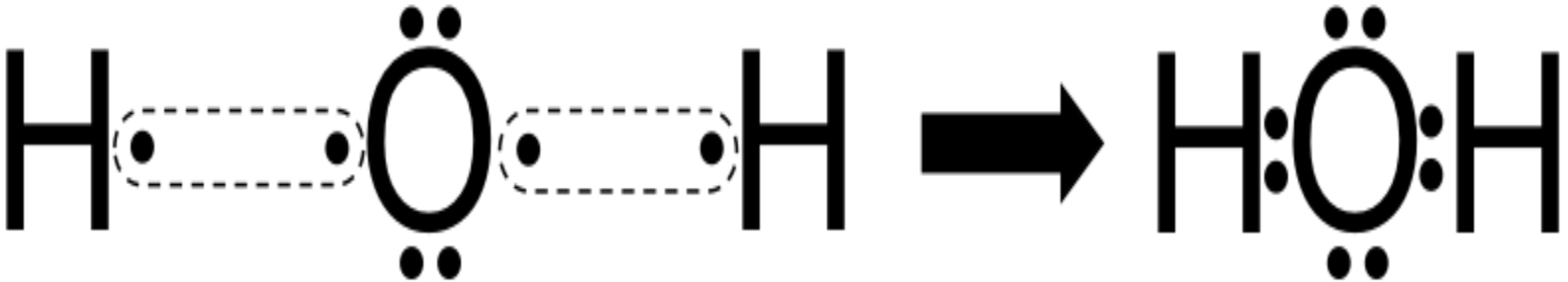
Atomic number of H is (1) and that of O is 8 (2,6)

H atom needs one electron to complete its duplet state and H needs two to complete its octet state.

So each H atom share their one electron with O atom to complete their duplet state and oxygen its one electron each with Hydrogen to complete its octet state.

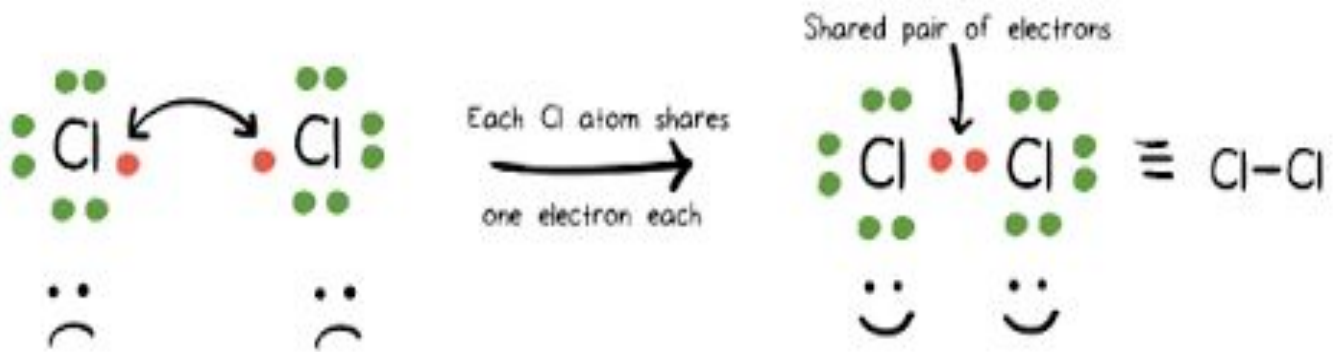
H and O share one pair of electron between them ,hence results in **Single covalent bond**

H2O molecule



(1) (2,6) (1) Single covalent bond

Chlorine molecule



Bonding in DOUBLE covalent bond

1.Carbon dioxide molecule

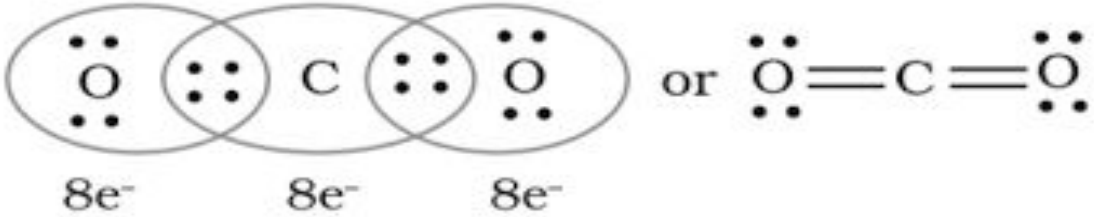
There are three atoms in CO2 molecule ,1 atom of C and 2 atoms of O

C is (2,4) and each O is (2,6)

C will share two electron from each O atom and complete its octet and each O atom will share 2 electron from C to complete its octet

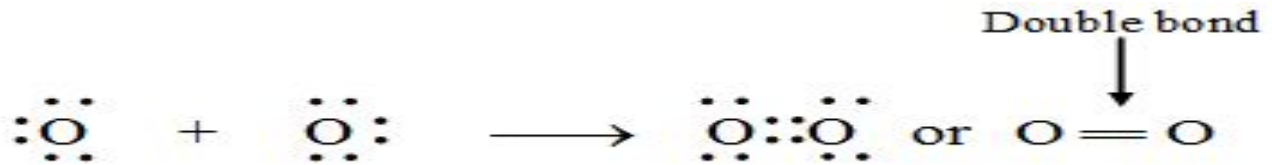
There is sharing of two pair of electron between O and C resulting in **double covalent bond**

Carbon dioxide



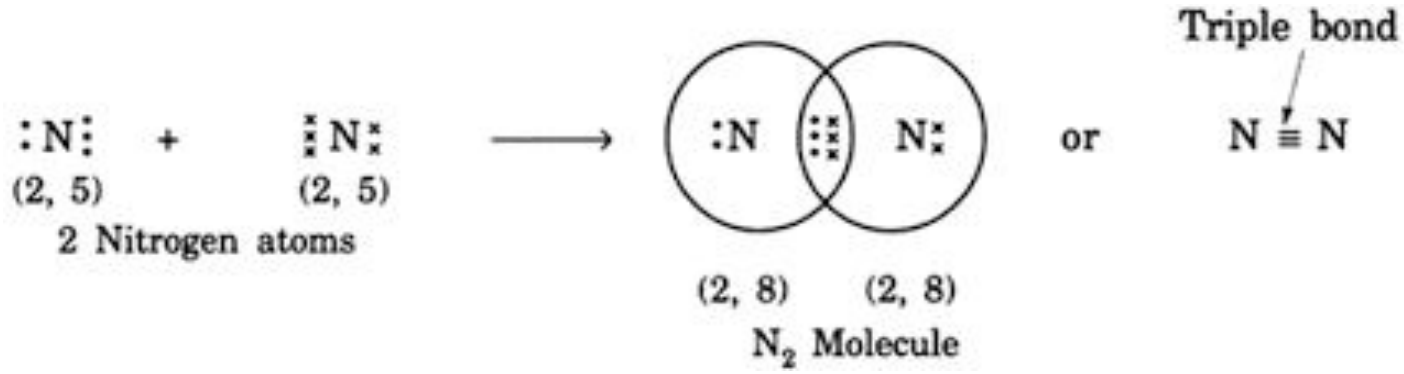
Double bonds in CO_2 molecule

(2,6) **(2,4)** **(2,6)**



(2,6) **(2,6)**

Bonding in Triple covalent bond



Properties of covalent Compounds

i) These compounds are insoluble in water but highly soluble in organic solvents.

(ii) They are generally rigid and directional hence show isomerism.

(iii) They have low melting and boiling points.

(iv) They are bad conductors of electricity (due to the absence of ions).

(v) They are mostly liquids or gas

(vi) They are formed by mutual sharing of electrons

Questions

1. The bond formed by sharing of four electrons between two bonding atoms is called as
2. The bond formed by sharing two pairs of electrons between two a bonding atoms, is called as
3. During formation of nitrogen molecule,number of electrons shared between the two bonding nitrogen atoms are
4. Nitrogen molecule is an example of