

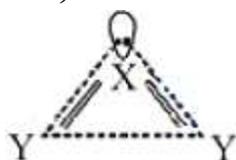
CHEMISTRY

Chemical Bonding

61. (2)

Since, XY_2 forms 2σ , 2π bonds and has 1 lone pair of electrons. It must have the structure $Y = \overset{\cdot\cdot}{\underset{\cdot\cdot}{X}} = Y$. Hence, Y is divalent. The hybridisation of X is $sp^2 \left(\frac{1}{2}(6+0+0-0) = 3 \right)$. So XY_2 is

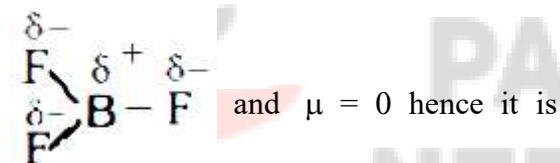
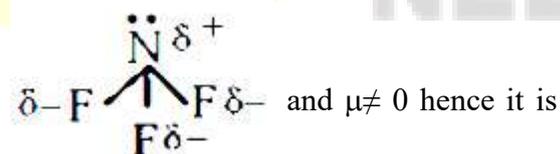
trigonal planar



(like

 SO_2)

62. (4)

The shape of BF_3 is trigonal planarnon-polar. The shape of NF_3 is pyramidal

polar.

63. (2)

According to Fajan's rules smaller, highly charged cation has greatest covalent character while large cation with smaller charge has greatest ionic character.

64. (4)

(1) $ONCl = 8+7+17 = 32e^-$
 $ONO^- = 8+7+8+1 = 24e^-$ } not isoelectronic



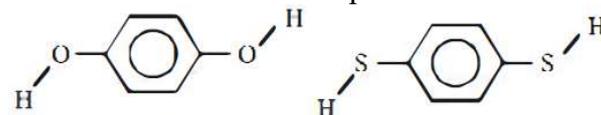
The central atom is sp^2 hybridised with one lone pair.

(3) It is a pale blue gas.

(4) It is diamagnetic in nature due to absence of unpaired electrons.

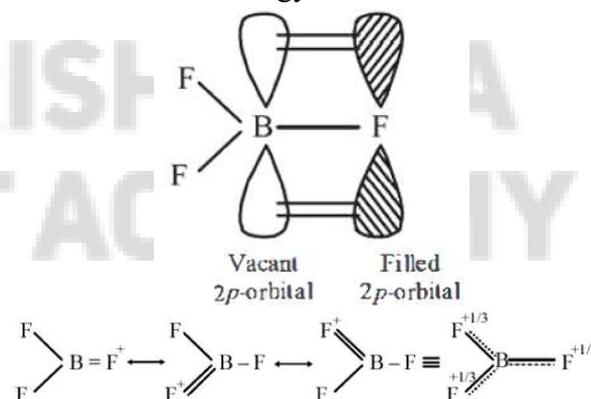
65. (4)

In both the molecules the bond moments are not cancelling with each other and hence the molecules has a resultant dipole and hence the molecule is polar.



66. (2)

The delocalised $p\pi-p\pi$ bonding between filled p-orbital of F and vacant p-orbital of B leads to shortening of B-F bond length which results in higher bond dissociation energy of the B-F bond.



67. (2)

The structure of CaC_2 is $Ca^{2+} [:C \equiv C:]^{2-}$ i.e., one σ and two π bonds.

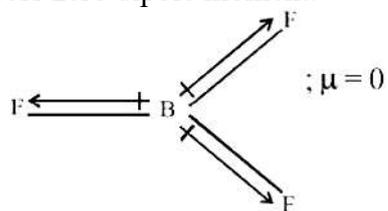
68. (3)

In CO (three shared electron pairs between C and O) the bond order is 3. For N_2 bond order is 3, H_2 , Cl_2 , Br_2 have identical bond order is 1.

69. (2)

BF_3 has planar and symmetrical structure thus as a result the resultant of two bond moments, being equal and opposite to the

third, cancels out and hence molecule possess zero dipole moment.



70. (4)

NH_3

H \rightarrow $4sp^3$

L \rightarrow 1

s \rightarrow pyramidal



PARISHRAMA
NEET ACADEMY