

Model VSEPR Solution

Example VSEPR solution for one example molecule of Assignment

Example molecule: SF_4 , Sulphur tetrafluoride. Page 1

Central atom: Sulphur, S.

1) Atomic Number of Sulphur, $S = 16$

2) Electronic configuration of Sulphur is $1s^2 2s^2 2p^6 3s^2 3p^4$

Sulphur forms four bonds in SF_4 . So sulphur should have four unpaired single electrons.

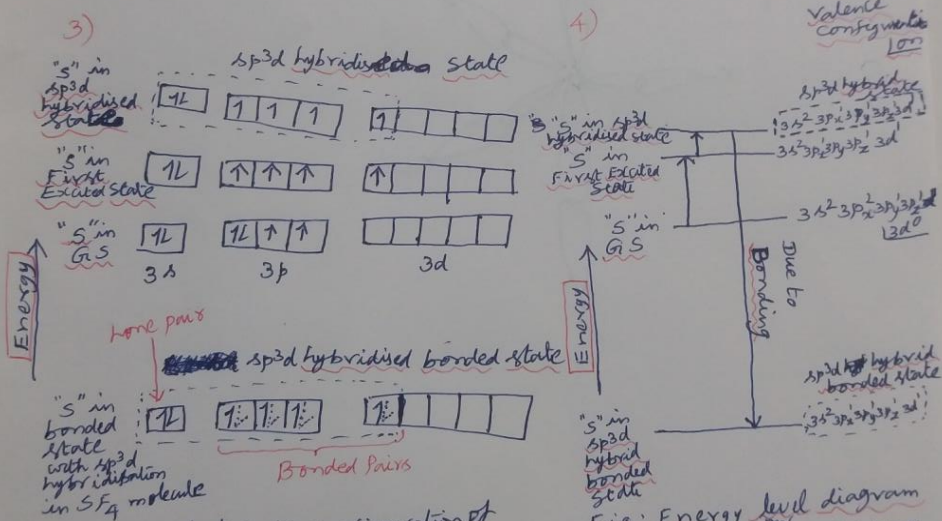
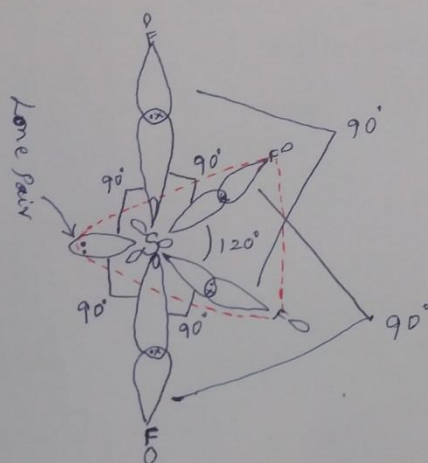


Fig: Electronic configuration of Central Sulphur in SF_4 and Hybridisation.

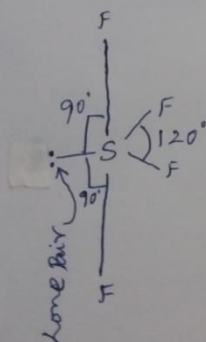
Fig: Energy level diagram
of Sulphur ^{per} VSEPR theory
for SF_4 molecule.

5)

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Fig: Orbital Overlap picture of SF_4 molecule

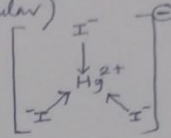
6)

Fig: Line bonded structure of SF_4 molecule.

Model d-orbital splitting.

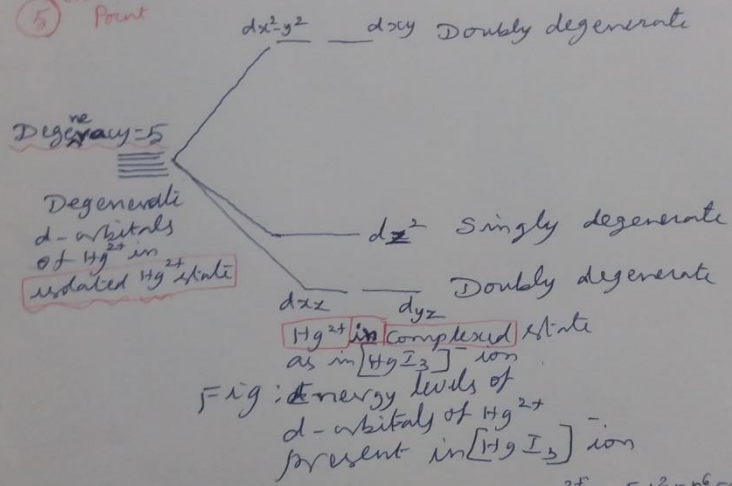
Model (example) Geometry: Trigonal planar geometry
(^{or} Triangular)

1) Example Molecule: $[\text{HgI}_3]^-$
(Complex)



2) Hybridisation in Hg is sp^2 hybridisation

5th Point



3) Valence shell electronic configuration of Hg^{2+} is $5s^2 5p^6 5d^{10} 6s^0 6p^0$

4) Valence shell electronic configuration of Hg^{2+}

