4. BF3

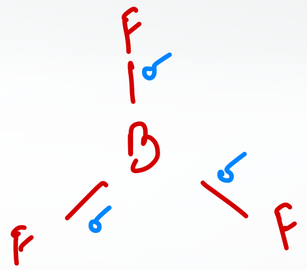
5. SO3

6.SO2

+

7.NH4

④



$SN = \sigma \text{ Bond} + lp$

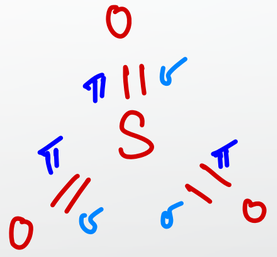
$= 3 + 0$

$= 3$

Hyb: sp^2

Geo. Trigonal planar.

⑤



THO | $SN = \sigma \text{ Bond} + lp$

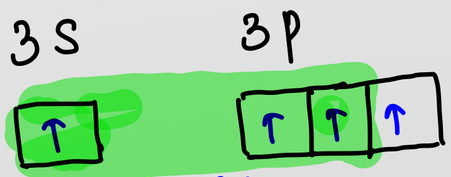
$= 3 + 0$

$= 3$

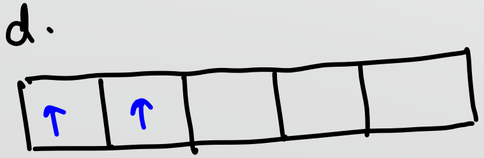
Hyb: sp^2

Geo : Trigonal planar.

$_{16}S$



HO: $3(sp^2)$

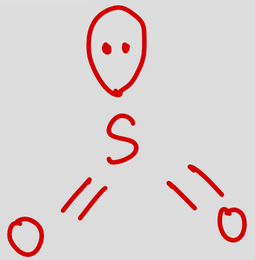


π Bonds

$p\pi - p\pi \rightarrow 1$

$d\pi - p\pi \rightarrow 2$

⑥



$SN = \sigma \text{ Bond} + lp$

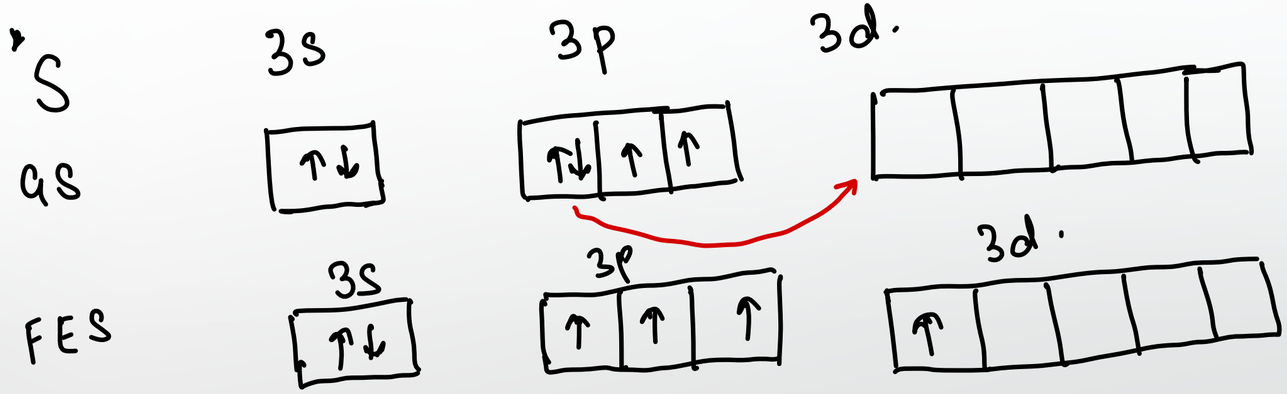
$= 2 + 1$

$= 3$

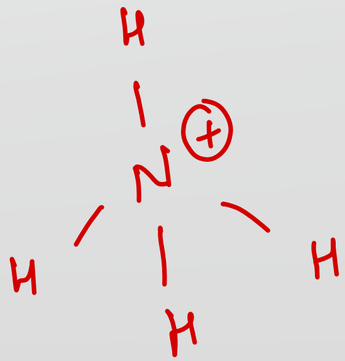
Hyb: sp^2

Geo: V shape / Bent / angular.

⑥ SO_2 (S Covalency 4)



⑦ NH_4^+



SN = 4

Hyb: sp^3

Geo: Tetrahedral.

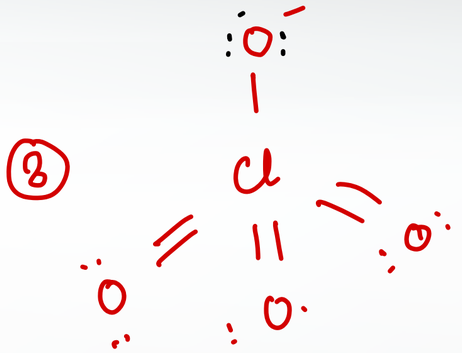
8. ClO_4^- (oxy-anim)

9. PCl_3

10. I_3^+

11. PCl_5

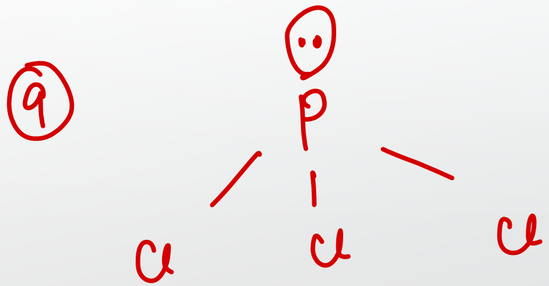
12. SF_4



SN = σ Bond + lp
= 4 + 0
= 4

Hyb: sp^3

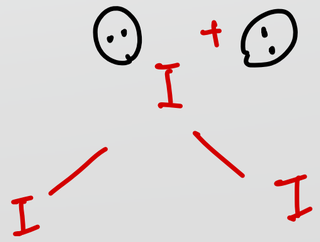
Geo | shape: tetrahedral.



SN = σ Bond + lp
= 3 + 1
= 4

Hyb: sp^3

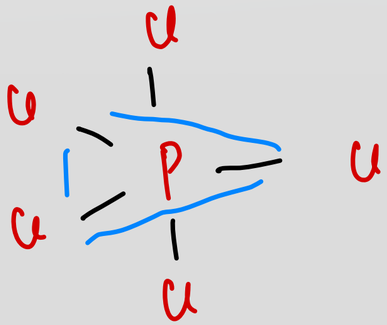
Geo | shape: Trigonal pyramidal.



SN = σ Bond + lp
= 2 + 2
= 4

Hyb: sp^3

Geo | shape: V shape | Bent



SN = σ Bond + lp
= 5 + 0
= 5

Hyb: sp^3d

Geo | shape: Trigonal bipyramidal

(12)

SN = σ Bond + lp

= 4 + 1

= 5

Hyb: sp^3d.

Geo/Shape: See-Saw.

lonepair → equitorial.

Chemical Bonding

13. H_3O^+

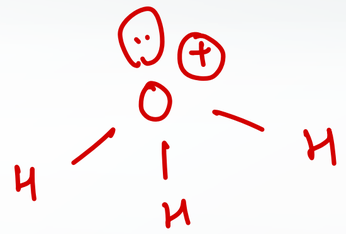
14. NO_3^-

15. NO_2^-

16. NO_2^+

17. SO_4^{2-}

(13)

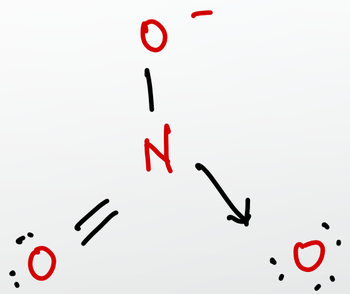


SN = σ Bond + lp
= 3 + 1
= 4

Hyb: sp^3

Geo | Shape: Trigonal pyramidal

(14)

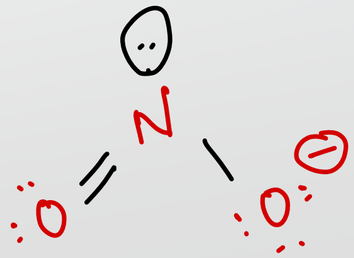


SN = σ Bond + lp
= 3 + 0
= 3

Hyb: sp^2

Geo | Shape : Trigonal planar.

(15)



SN = σ Bond + lp
= 2 + 1
= 3

Hyb: sp^2

Geo | Shape: V shape | Bent

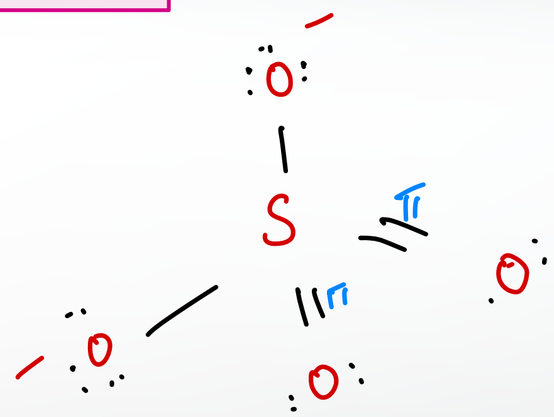
(16)

SN = σ Bond + lp
= 2 + 0
= 2

Hyb: sp

Geo | Shape: linear.

(17)



SN : σ Bond + lp

: 4 + 0 = 4

Hyb: sp^3

Geo| shape: tetra hedral

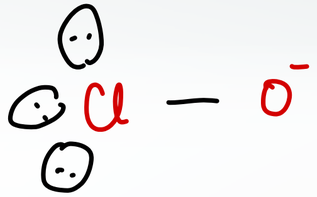
18. $\bar{O}Cl$

19. IF_3

20. ClF_3

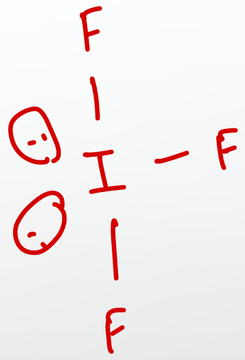
21. XeF_2

22. $\bar{I}_3$

(18) 

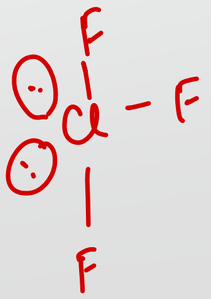
SN: σ Bond + lp
: 1 + 3
: 4

Hyb: sp^3
Geol shape: linear.

(19) 

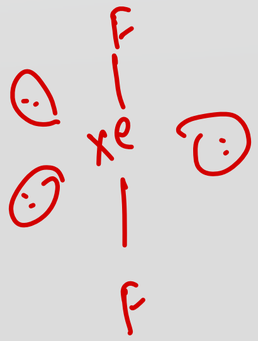
SN: σ Bond + lp
: 3 + 2
: 5

Hyb: sp^3d.
Geol shape: T-shape.

(20) 

SN: σ Bond + lp
: 3 + 2
: 5

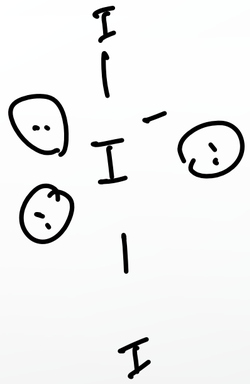
Hyb: sp^3d
Shape: T shape

(21) 

SN: σ Bond + lp
: 2 + 3
: 5

Hyb: sp^3d.
Shape: linear.

(22)



SN = σ Bond + lp

= 2 + 3

= 5

Hyb: sp^3d.

Geo | Shape: linear.

23. $\bar{I}Cl_2$

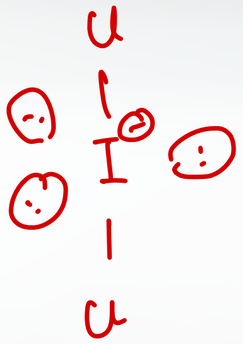
24. $\bar{B}rCl_2$

25. SF_6

26. IF_5

27. $\bar{I}Cl_4$

(23)



SN: σ Bond + lp

= 2 + 3

= 5

Hyb: sp^3d

Geo: linear.

(24) Same as above.

(25) SF_6 (classnotes)

(26)

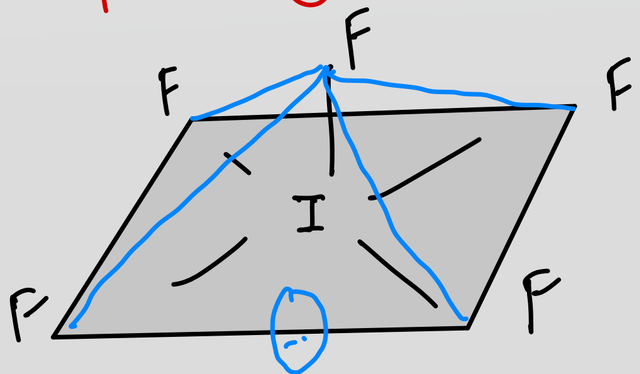
SN: σ Bond + lp

= 5 + 1

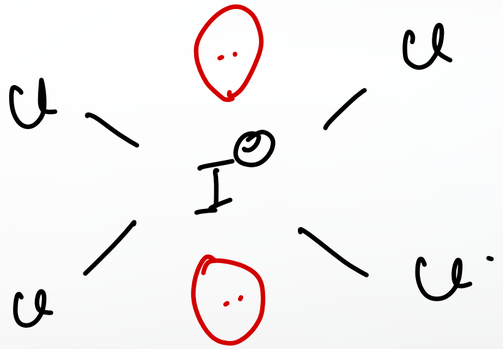
= 6

Hyb: sp^3d^2

Geo: Square pyramidal.



(27)



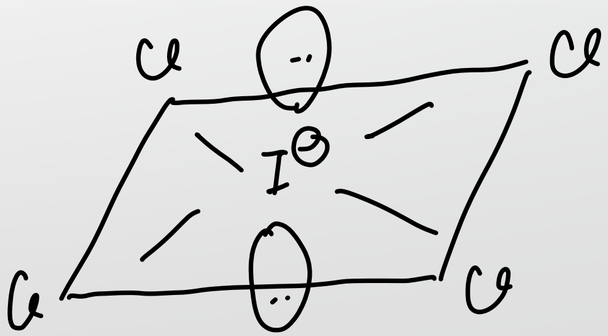
SN: σ Bond + lp

= 4 + 2

= 6

Hyb: sp^3d^2

Shape: Square planar.



28. IF7

29. XeF2

30. XeF4

31. XeF6

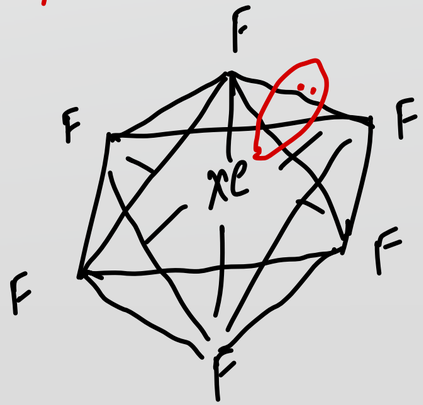
32. XeO2F2

(28) Hyb: sp^3d^3 Shape: pentagonal Bipyramidal

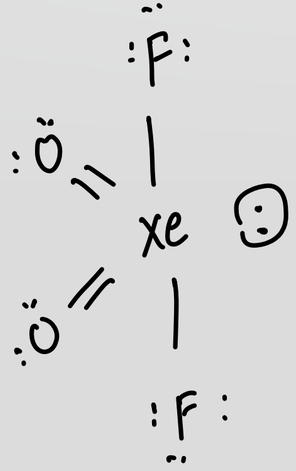
(29) Hyb: sp^3d Shape: linear.

(30) Hyb: sp^3d^2 shape: square planar.

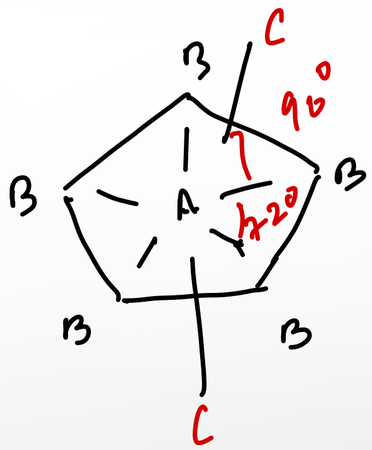
(31) Hyb: sp^3d^3 shape: distorted octahedral.



(32) Hyb: sp^3d Shape: See-saw



Chemical Bonding



$BA_{(ax)} > BA_{(eq)}$

$BL_{(ax)} < BL_{(eq)}$

$\left[BL \propto \frac{1}{B.A} \right]$.