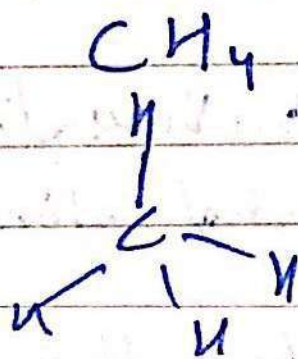


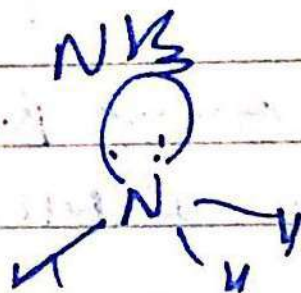
VSEPR

Valence cell $\bar{e}$ pair
 repⁿ theory



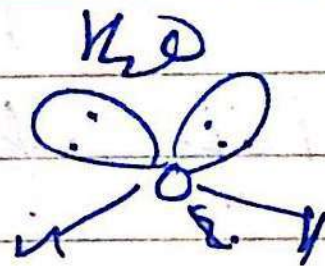
109° 28'

4 B.P.
 shape Td



107° 31'

3 B.P.
 1 L.P.
 Pyramidal



104.5°

2 B.P.
 2 L.P.
 V-shape

Shape → L.P. X

B.P. - ~~2~~
 repⁿ

L.P. - B.P.
 repⁿ
 B.P. - B.P. repⁿ

only we see B.P. repⁿ
 L.P. L.P. }
 L.P. - B.P. }
 B.P. - B.P. }

e Pairs are always repelling each other tries to remain far apart

Diff e pairs have diff order of repulⁿ

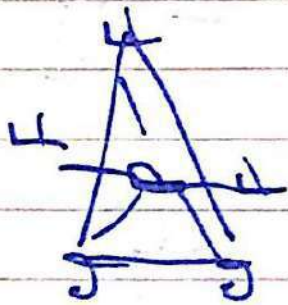
If $L.P. = \text{zero}$ Geometry = Shape
 $L.P. = +ve$ Geometry $\neq$ Shape

Geometry depends upon B.P. + L.P.

Shape depends only B.P. / surrounding atom around central atom

2	B.P.	L.P.	Geometry	Shape	Hyb
2	2	0	linear	linear	sp
2	2	1	C:A-B	C:A-B	sp
3	3	0	Trigonal planar	same	sp ²
3	2	1	"	V shape Bent angular	sp ²

B.P.	L.P.	Geometry	shape	Hyb
2	0		T.d	sp
4	1		Pyramidal (107°)	sp ³
2	2		V-shape (104.5°)	sp ³
5	0		TBP	sp ^{3d}
5	2			
(5)	0			



more E.N. atom

pair for



more s-character

more repulsion if

E.N. atom comes there

l.p. should be at axial posit
sp large in size

more b/lz more

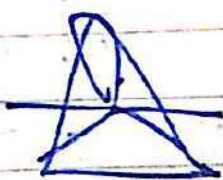
l.p. = free, Bound 21 atom
B-P = Bound but 2-atom

TBP

$sp^3 d$

see-saw str.

TBP



TBP

$sp^3 d$

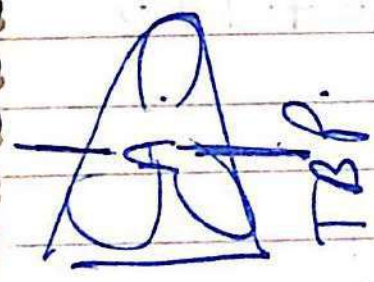
occupy equatorial

more E.N. atom
comes at axial
b/lz less s-character

5

2

3



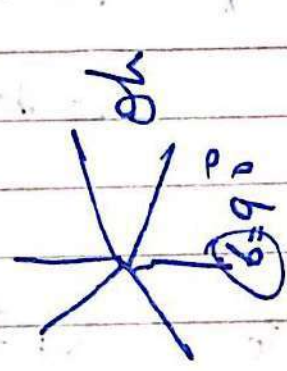
linear

sp

6

6

0



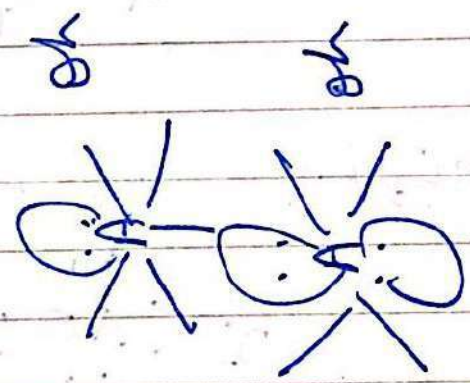
sp^3d^2

oh

6

5

1



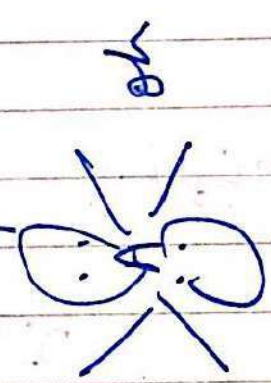
sp^3d

square
pyramidal

6

4

2



sp^2

square
planar