

Q. Find out the shape and structure of following molecules :-

a) BrF_5^- b) XeF_4 c) BF_3 d) $[\text{BF}_4]^-$ e) NH_3 f) H_2O

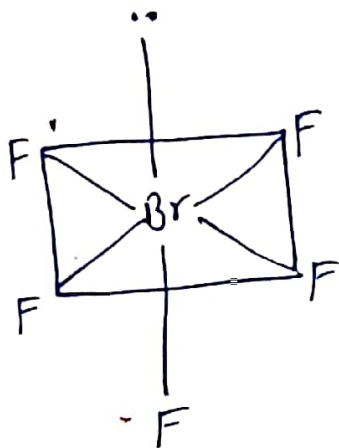
a) BrF_5^-

Total No. of electron pair around the central atom = $\frac{1}{2}(7+5) = \frac{1}{2} \times 12 = 6$

No. of bond pair = 5

No. of lone pair = $6 - 5 = 1$

VSEP No = 6, Octahedral with one lone pair



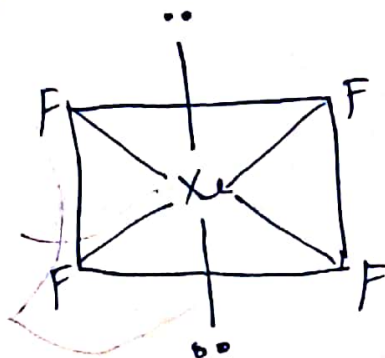
b) XeF_4

Total No. of electron pair around the central atom = $\frac{1}{2}(8+4) = \frac{1}{2} \times 12 = 6$

No. of bond pair = 4

No. of lone pair = $6 - 4 = 2$

VSEP No = 6, Octahedral with 2 lone pair
square planar



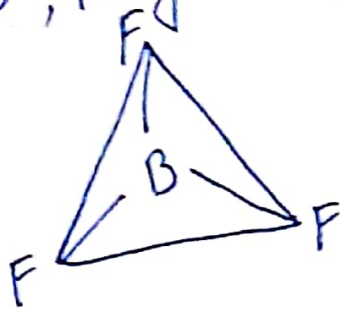
> BF_3

Total No. of electron pair around the central atom = $\frac{1}{2}(3+3) = \frac{1}{2} \times 6 = 3$

No. of bond pair = 3

No. of lone pair = $3 - 3 = 0$

VSEP NO = 3, Trigonal planar.



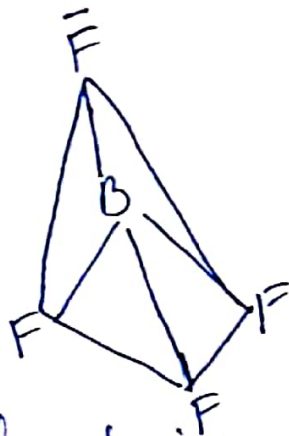
d) $[\text{BF}_4]^-$

Total No. of electron pair around the central atom = $\frac{1}{2}(3+1+4) = \frac{1}{2} \times 8 = 4$

No. of bond pair = 4

No. of lone pair = $4 - 4 = 0$

VSEP NO = 4, Tetrahedral



e) NH_3

Total No. of electron pair around the central atom = $\frac{1}{2}(5+3) = \frac{1}{2} \times 8 = 4$

No. of bond pair = 3

No. of lone pair = $4 - 3 = 1$

VSEP NO = 4 Tetrahedral with one lone pair Pyramidal.

