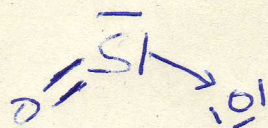


Exo 1

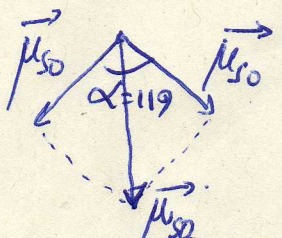


→ type AX₂E ≈ AX₃.

Structure planaire

l'angle entre plan divise en 3

l'angle est légèrement différent de 120° à cause du volume qu'occupe le doublet libre (E)



$$\vec{\mu}_{SO_2} = \vec{\mu}_{SO} + \vec{\mu}_{SO} = 2\vec{\mu}_{SO}$$

$$\|\mu_{SO_2}\|^2 = \|\mu_{SO}\|^2 + \|\mu_{SO}\|^2 + 2\|\mu_{SO}\| \cdot \|\mu_{SO}\| \cos \alpha$$

$$\|\mu_{SO_2}\|^2 = \|\mu_{SO}\|^2 [2 + 2\cos \alpha] = 2\mu_{SO}^2 [1 + \cos \alpha]$$

$$\mu_{SO} = \frac{\mu_{SO_2}}{2[1 + \cos \alpha]} \Rightarrow \mu_{SO} = \mu_{SO_2} \sqrt{\frac{1}{2[1 + \cos \alpha]}}$$

$$\cos \alpha = 1 - 2 \sin^2 \frac{\alpha}{2}$$

$$1 + \cos \alpha = 2 - 2 \sin^2 \frac{\alpha}{2} = 2[1 - \sin^2 \frac{\alpha}{2}] = 2 \cos^2 \frac{\alpha}{2}$$

$$\Rightarrow \mu_{SO} = \mu_{SO_2} \sqrt{\frac{1}{2 \times 2 \cos^2 \frac{\alpha}{2}}} = \frac{\mu_{SO_2}}{2 \cos \frac{\alpha}{2}}$$

ou bien $\cos \frac{\alpha}{2} = \frac{\mu_{SO_2}}{2} \Rightarrow \mu_{SO} = \frac{\mu_{SO_2}}{2 \cos \frac{\alpha}{2}} = \frac{1,633}{2 \cos \frac{112}{2}} = 1,608$

$$0 < \delta < 1 \quad 0 < q < e \quad q = \delta e$$

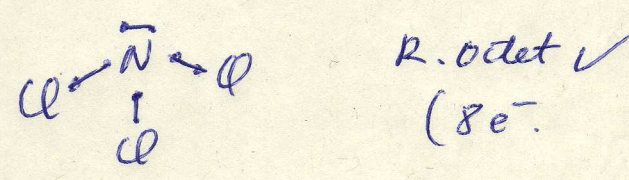
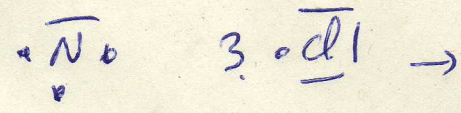
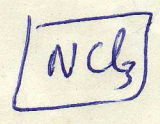
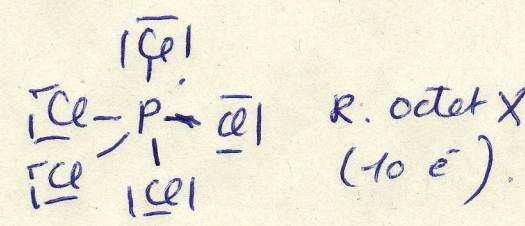
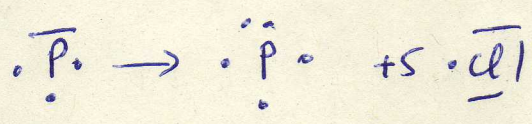
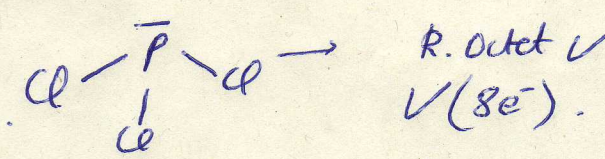
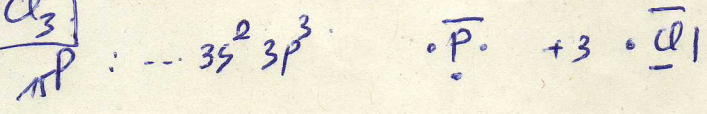
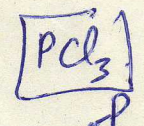
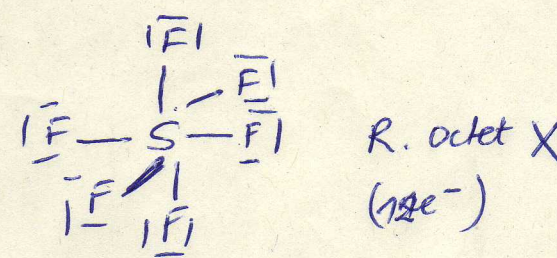
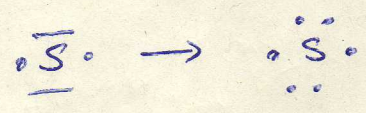
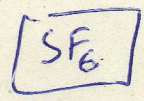
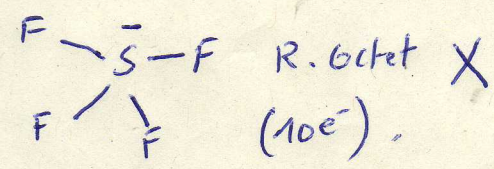
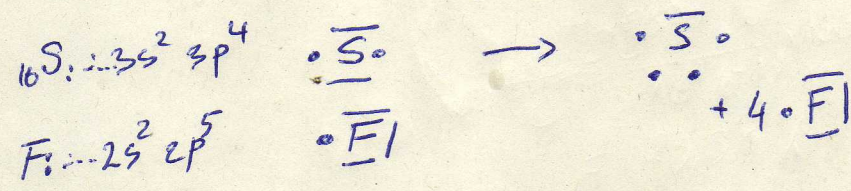
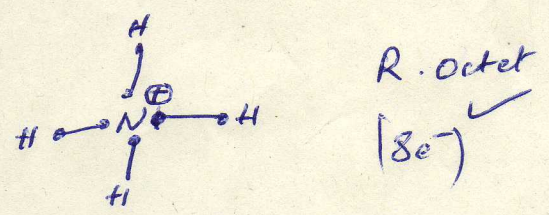
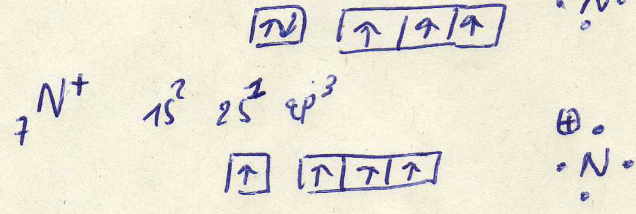
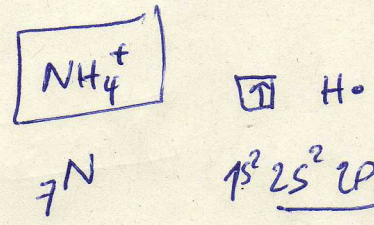
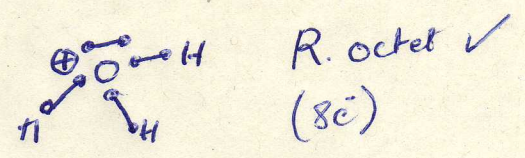
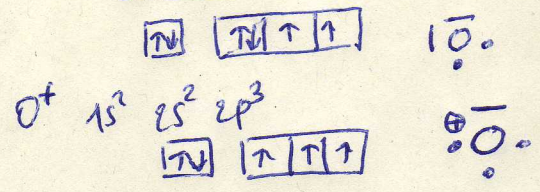
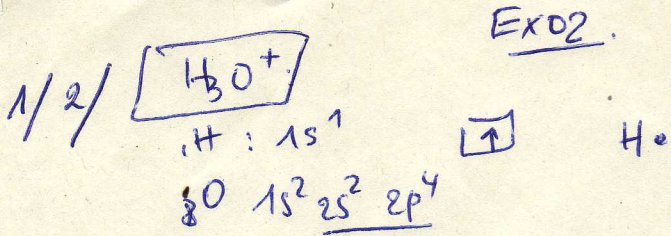
$$\mu = q \cdot l = \delta e l$$

$$q = \frac{\mu_{SO}}{e_{SO}} = \frac{1,608 \cdot 3,33 \cdot 10^{-30}}{1,431 \cdot 10^{-10}} = 3,7435 \cdot 10^{-20} = 0,374 \cdot 10^{-19} \text{ C}$$

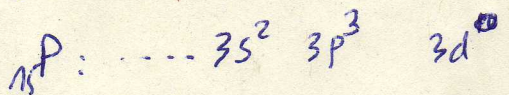
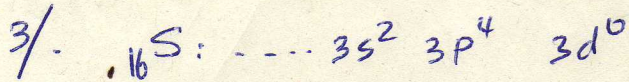
le pourcentage ionique de la liaison S-O.

$$\% \text{ ionique} = \frac{q}{e} = \frac{\delta e \times 100}{e} = \frac{0,374 \cdot 10^{-19}}{1,6 \cdot 10^{-19}} \times 100 = 23,39 \%$$

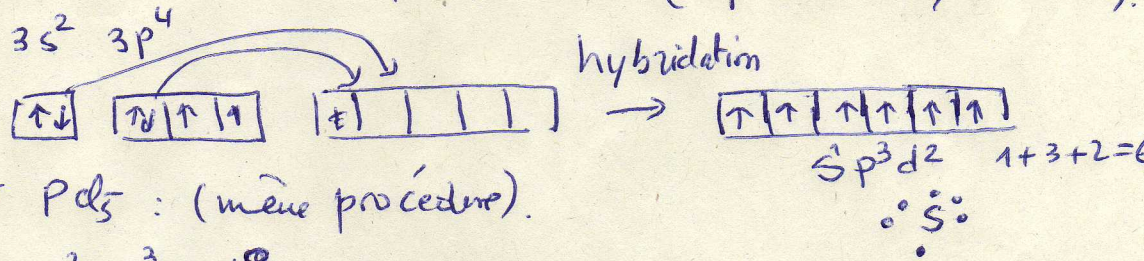
~~23,39%~~



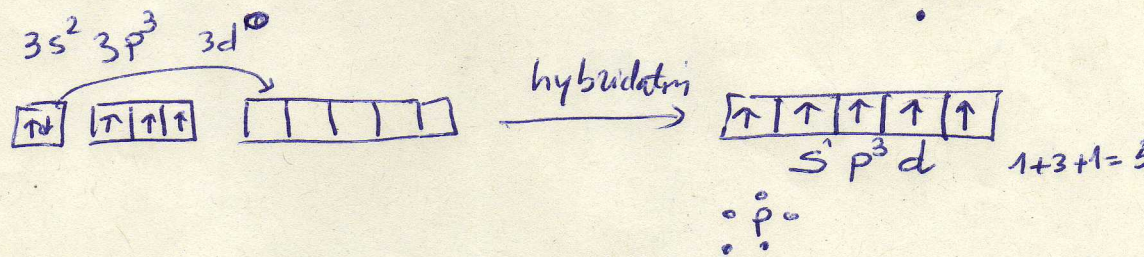
Exo2



Pour former SF_6 il faut solliciter la s.couche 3d du phosphore qui est vide. (opération d'hybridation)

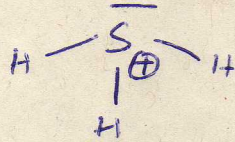
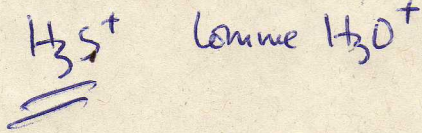


Pour former PCl_5 : (même procédure).

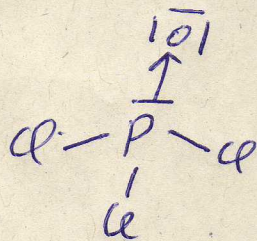
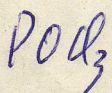
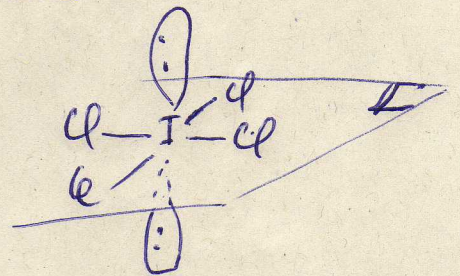
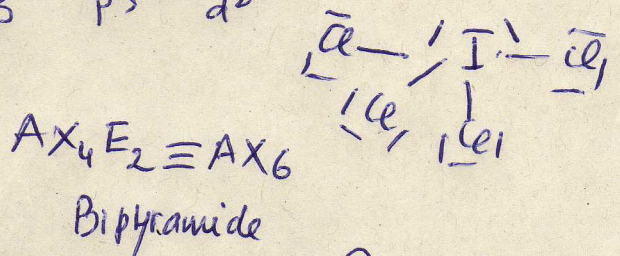
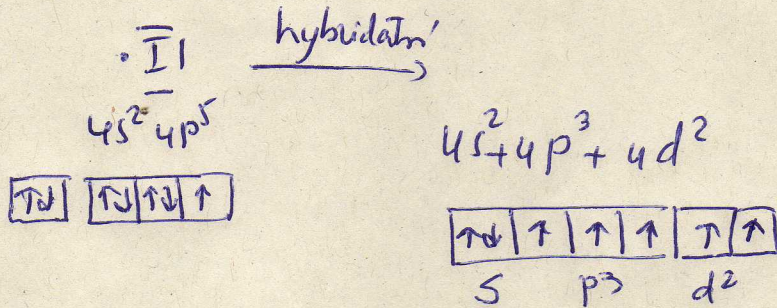
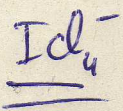
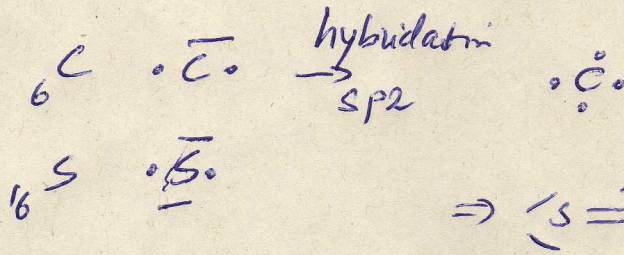
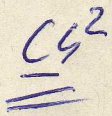
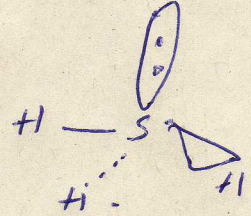


4/ le composé NCl_5 ne peut exister car la sous couche 2d n'existe pas pour $n=2, l=1 \rightarrow p$.
l'atome de N ne peut procéder à l'hybridation comme l'atome de Phosphore P.

EX03.



forme $AX_3E \approx AX_4$.
structure tétraédrique.



$\Rightarrow AX_3X' \approx AX_4$. Tétraédrique

