

Aug 27

Orbital < atomic molecule

- electrons can be described using wavefunction

$\psi = \sin nx$ Quantum numbers
 n, l, m_l, m_s

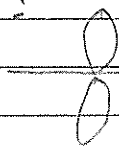
- each e^- can be defined using these 4 quantum numbers.

Q: how about the e^- s in Mg ?

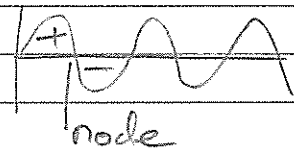
$l=0$, s orbital = spherical



$l=1$, p orbital =

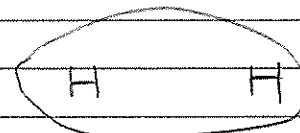
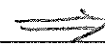
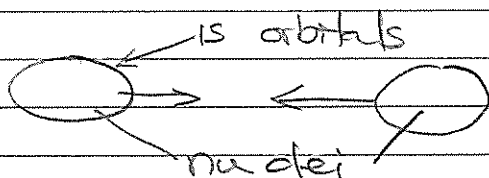
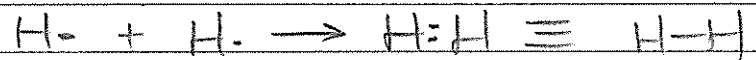


dumbbell shape



'signs' different from charges.

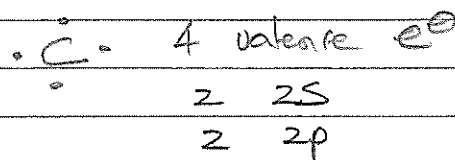
- Molecular orbital



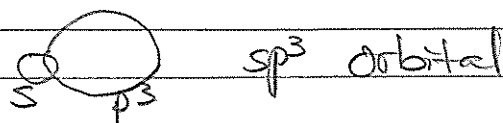
bonding orbital

- hybrid orbitals

Q: CH_4 : why all 4 C-H bonds have the same bond length?



M.O



In CH_4 , there are no C-H bond, rather mixing orbitals of s & p \Rightarrow sp^3 orbitals 4 identical ones.