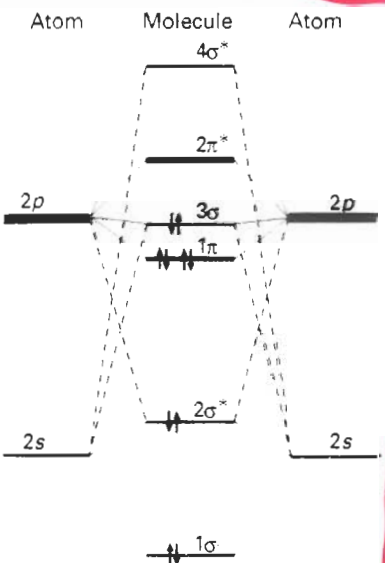


14.26 The molecular orbital energy level diagram for homonuclear diatomic molecules. As remarked in the text, this diagram should be used for D_2 (for which the electron configuration is shown) and F_2 .

14.27 The variation of the orbital energies of Period-2 homonuclear diatomic molecules.

Exercise E14.7. Sketch the 'd orbitals' that may be formed by the remaining two d orbitals (and which contribute to bonding in some d-metal cluster compounds). [See Fig. 14.30]

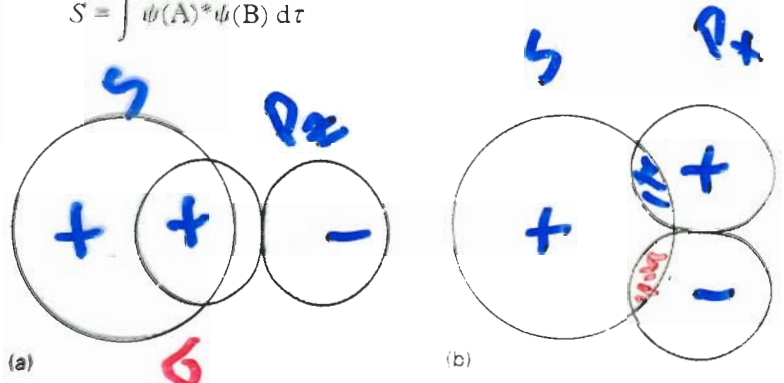


14.28 An alternative molecular orbital energy-level diagram for homonuclear diatomic molecules. As remarked in the text, this diagram should be used for diatomics as far as N_2 . The electron configuration shown is that for N_2 .

The overlap integral

The extent to which two atomic orbitals overlap is measured by the overlap integral, S :

$$S = \int \psi(A)^* \psi(B) d\tau$$



14.29 Overlapping s- and p-orbitals. (a) End-on overlap leads to non-zero overlap and the formation of a σ orbital. (b) Broadside overlap leads to no net accumulation of electron density.