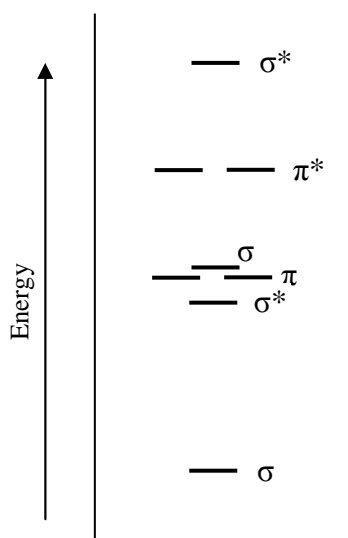


Marks
6

- Carbon and nitrogen can combine to form a cyanide ion or a neutral free radical.

The molecular orbital energy level diagram provided shows the energies of the orbitals for the valence electrons in the free radical CN. Indicate on this diagram the ground state electronic configuration of CN using the arrow notation for electron spins.



How would you expect the magnetic properties of CN to differ from that of CN⁻?

How would adding an electron to CN to form CN⁻ affect the strength of the bond between the two atoms? Explain your answer.

Why do we only need to consider the valence electrons when discussing the bonding of CN?