Marks

4

• The electronic configuration of molecular nitrogen in its ground state is, in order (from left to right) of orbitals of increasing energy:

$$\sigma^2 \sigma^{*2} \sigma^2 \sigma^{*2} \pi^4 \sigma^2$$

What is the bond order of N_2 ?

How many of the valence electrons in N_2 are in non-bonding 'lone pairs' according to Lewis theory?

On the electron configuration of N_2 below, indicate by arrows the molecular orbitals that contain the non-bonding electrons.

 $\sigma^2 \sigma^{*2} \sigma^2 \sigma^{*2} \pi^4 \sigma^2$

THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY