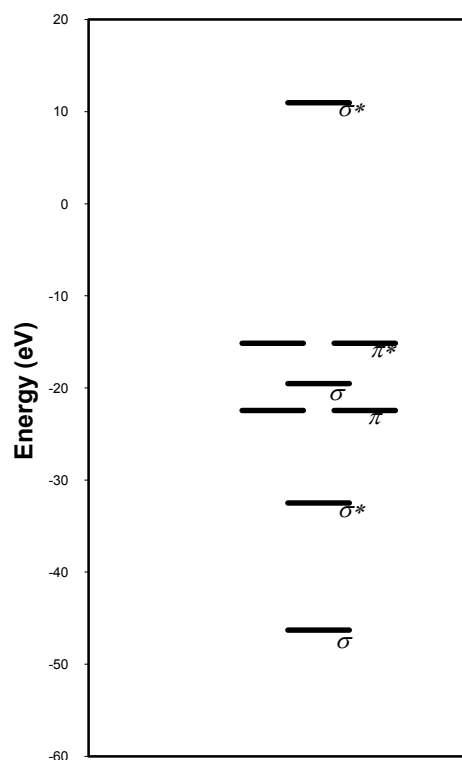


Marks
4

- The following relate to the electronic structure of the O_2^+ molecular ion.

How many valence electrons are there in O_2^+ ?

Complete the MO diagram for the ground state electronic configuration of O_2^+ by inserting an arrow to represent each valence electron.



What is the bond order of O_2^+ ?

Do you expect O_2^+ to be paramagnetic? Explain your answer.

- Sketch the following wave functions as lobe representations.

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(a) a $2p$ atomic orbital

(b) a σ^* molecular orbital