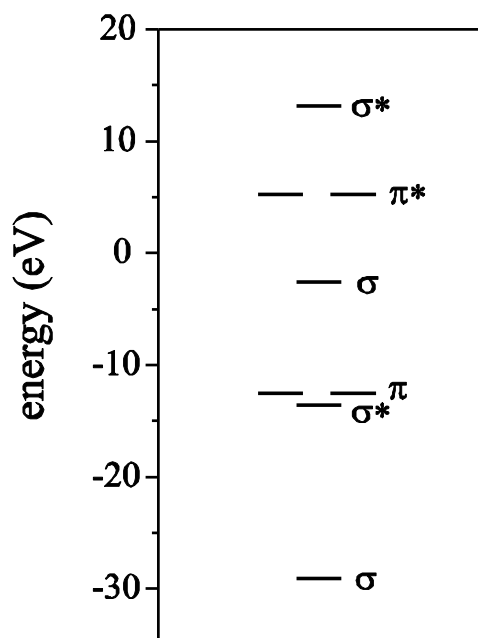


Marks
5

- C_2 is a reaction intermediate observed in flames, comets, circumstellar shells and the interstellar medium. In 2011, a new state of C_2 was observed with 4 parallel spins.

How many *valence* electrons are there in C_2 ?

Complete the calculated MO diagram for the lowest energy state of C_2 with 4 *parallel spins* by inserting the appropriate number of electrons into the appropriate orbitals.



What is the bond order of this state of C_2 ?

Is this state paramagnetic? Give reasoning.

What is the bond order of the ground state of C_2 ?