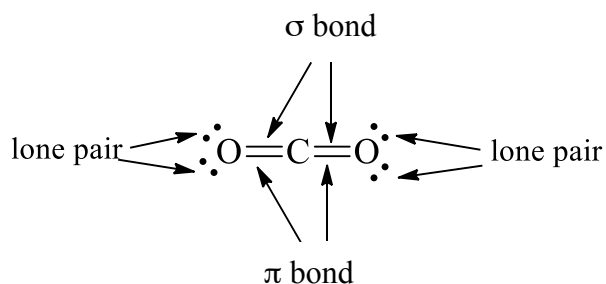


- Draw the Lewis structure of carbon dioxide and label the electron pairs as either 'σ-bond' or 'π-bond' or 'lone pair'.

Marks
4

What is the hybridisation of the carbon atom and the oxygen atoms?

C: sp

O: sp^2

Does carbon dioxide have a permanent dipole moment? Explain your reasoning.

As oxygen is more electronegative than carbon. The shared electrons in this bond lie more towards the oxygen. Each C–O bond is polar.

However, the symmetry of the molecule means that the 2 bond moments cancel each other. Overall, there is no permanent dipole moment.