

Chemistry

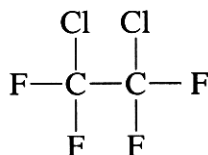
Section I – Part B (continued)

Marks

Question 25 (6 marks)

- (a) What is the systematic name of the CFC in the diagram?

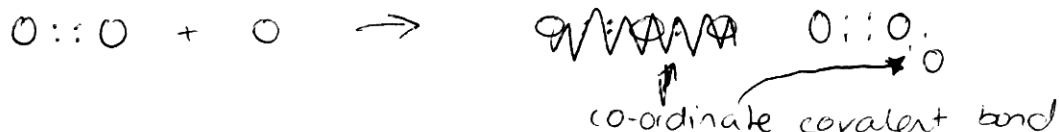
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..... 1,2-dichloro-1,1,2,2-tetrafluoroethane

- (b) Identify the bonding within ozone, using a Lewis electron-dot diagram.

2



- (c) Discuss how CFCs damage the ozone layer, using relevant equations.

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CFC's break down in the upper atmosphere to form

free radicals that damage the ozone layer. These free

radicals then react with O_3 : $\text{Cl} + \text{O}_3 \rightarrow \text{ClO} + \text{O}_2$.

The ClO atoms then react with O_3 : $\text{ClO} + \text{O}_3 \rightarrow \text{Cl} + \text{O}_2$

This then means the Cl free radical hasn't been

used up and can now damage/break another O_3 molecule.

This chain reaction continues to occur until broken by other means. One Cl atom has the potential to break off about 1000 O_3 molecules.