

Chemistry

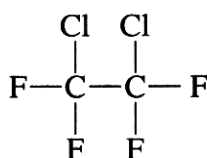
Section I – Part B (continued)

Marks

Question 25 (6 marks)

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

1



1, 2 dichloro, 1, 1, 2, 2 tetra fluoro ethane

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

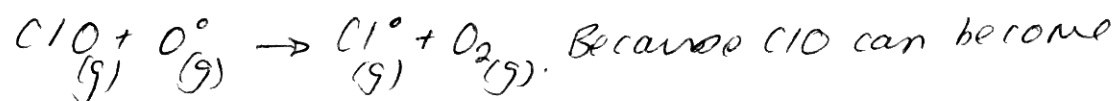
2



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

3

CFC's are chlorofluorocarbon released from refrigerants and aerosol cans. They can break down in the presence of u.v. light into chlorine free radicals. Eg $\text{C}_2\text{Cl}_2\text{F}_4$
 $\text{C}_2\text{Cl}_2\text{F}_4 \xrightarrow{\text{UV light}} 2\text{C}_2\text{ClF}_2 + \text{Cl}^\bullet$ These chlorine free radicals react with Ozone in the UV light in the equation;
 $\text{Cl}^\bullet + \text{O}_3 \rightarrow \text{ClO} + \text{O}_2$ Ozone in the stratosphere has now been decomposed. However,



Because ClO can become Cl^\bullet in the presence of O^\bullet a chain reaction occurs meaning that next one Cl^\bullet (free radical) can break down 1000 ozone molecules.