

Sri Lankan A/L Chemistry Solution

<https://gemini.google.com/app/c56ad31da54569c7>

Response: Based on the standard G.C.E. A/L multiple-choice response options (where choices correspond to specific combinations of statements):

- **(a) Correct:** Dichlorodifluoromethane (CF_2Cl_2 , R-12) is a volatile chlorofluorocarbon (CFC) with a long atmospheric lifetime, allowing it to diffuse unreactive through the troposphere and reach the stratosphere.
- **(b) Correct:** R-12 is chemically inert/stable in the troposphere, but upon entering the stratosphere, it undergoes photolysis under intense ultraviolet radiation (UV-C) to release chlorine free radicals ($\text{Cl}^\bullet$):



- **(c) Correct:** R-12 strongly absorbs infrared radiation emitted by the Earth, making it a potent greenhouse gas that contributes to global warming.
- **(d) Incorrect:** Photochemical smog forms ground-level (tropospheric) ozone. R-12 photolyzes and depletes the **stratospheric ozone layer** (good ozone), not tropospheric ozone in photochemical smog.

Statements **(a), (b), and (c)** are correct.

- In the standard Sri Lankan A/L 5-option format where:
 - (1) → (a), (b) correct
 - (2) → (b), (c) correct
 - (3) → (c), (d) correct
 - (4) → (a), (d) correct
 - (5) → **(a), (b), and (c) correct**

The correct answer is **(5)**.
