

# 國立臺北科技大學

## 九十四學年度環境規劃與管理研究所入學考試

### 環境科學試題

填 准 考 證 號 碼

第一頁 共二頁

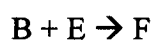
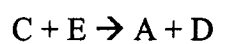
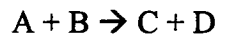
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#### 注意事項：

1. 本試題共 10 題，每題 10 分，配分共 100 分。
2. 請按順序標明題號作答，不必抄題。
3. 全部答案均須答在答案卷之答案欄內，否則不予計分。
4. 中、英文作答皆可。

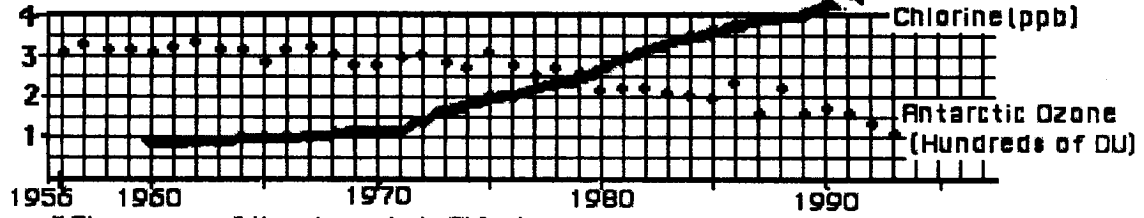
1. Assuming the Kyoto Protocol on Greenhouse Gas Emissions is ratified and implemented, the cost of compliance will increase with time. Explain why the costs would increase.
2. Acid precipitation can indirectly kill fish in lakes. I.e., the toxicity is not caused by the acid itself (from precipitation falling in the lake or surrounding land). Therefore, fish die even though the lake pH does not fall below tolerable levels. Describe the process by which this indirect toxicity occurs.
3. Assuming all other factors to be equal, which chemical synthesis will be "greener":
  - (a) a six-step process in which 44% of the atoms (by mass) in the reactants are incorporated into the desired product; *OR*
  - (b) a four-step process in which 68% of the atoms (by mass) in the reactants are incorporated into the desired product. **Explain.**

4. Write the overall reaction for the following reaction sequence, and identify the catalyst and any reactive intermediates:



5. The graphs below show some of the “smoking gun” evidence which implicated CFCs as being the main cause of the Antarctic “ozone hole”. Explain how this evidence implicates CFCs.

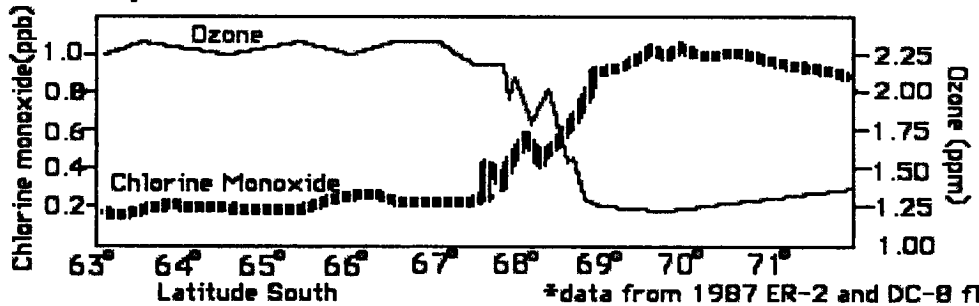
**Relative concentrations of atmospheric Chlorine vs. Antarctic Ozone**



\*The source of the atmospheric Chlorine is the World Meteorological Organization.

\*The Ozone is the mean October column thickness, measured at Halley Bay (J. Shanklin, 1993)

**Stratosphere: ClO vs Ozone at different latitudes**



\*data from 1987 ER-2 and DC-8 flights

6. An argument commonly heard from those ignorant of the facts of global warming goes something like “Place X had their coldest winter in Y years last year, therefore we aren’t experiencing global warming”. Construct an argument to explain to this person why this is not evidence against the reality of global warming.

7. Briefly explain three ways in which oceans affect the Earth’s climate and/or its climate change.

8. Say I’ve got some nice, high quality virgin white paper produced in Canada. In wasting this paper (remember, this is a hypothetical situation), what are three ways in which I have contributed to a net increase in atmospheric greenhouse gas concentrations?

注意：背面尚有試題

9. Although global warming due to an *enhanced* greenhouse effect is considered by many to be a tremendous environmental problem, the greenhouse effect is a natural and beneficial phenomenon. Describe in detail how the greenhouse effect works and state its benefit to life on Earth.
10. What is an endocrine disruptor?