

# 國立中央大學八十六學年度碩士班研究生入學試題卷

所別： 環境工程研究所 甲組 科目： 環境化學及環境微生物學 共 / 頁 第 / 頁

環境化學

- 1) Define each of the following terms and describe their significance in environmental engineering: (24%)
  - (a) Mie scattering
  - (b) trihalomethane formation
  - (c) activity coefficient
  - (d) greenhouse gases
  - (e) Henry's Law
  - (f) Winkler method
  
- 2) Dioxins and furans are regarded as the most toxic substances ever found in environment. Show a general formula for dioxins and furans and describe their major sources. (8%)
  
- 3) a) Freon-12 has long been used as coolant in refrigerators and air conditioners. Show a general formula for Freon-12 and describe the impacts it has caused to the environment. (5%)  
b) R-134 has been developed as a substitute for Freon-12. Show the chemical structure of R-134 and explain why it is more environmentally friendly compared with Freon-12. (5%)
  
- 4) What is "crown corrosion"? List three possible methods for controlling crown corrosion in a large concrete sanitary sewer. (8%)

## 環境微生物學

1. 試申論微生物在環境保護上所扮演之角色及其重要性。(10%)
2. 由生化反應，好氧分解與厭氧分解有何差異？其應用於污染物之生物處理時，各有何優缺點？(10%)
3. 試說明水體優養化之原因及機制，並提出其主要的防治方法。(10%)
4. 影響微生物生長之因子有那些？試詳細說明其原因。(10%)
5. 試申論生物基因與遺傳工程對環境保護之影響。(10%)