1. A 1,000-gallon underground gasoline storage tank was leaking and causing the contamination of subsurface soil and groundwater.
   (1) Please briefly describe the procedures for groundwater contaminant plume detection/delineation. (10%)
   (2) Please list three technologies to remediate gasoline-contaminated groundwater. Give a short description of each technology. (10%)

2. To comply with the current R.O.C. EPA regulations, please indicate the technologies needed to properly treat and /or dispose of the following industrial wastes and explain why:
   (1) Dusts generated in steel mills employing electric arc furnaces. (10%)
   (2) Sludges generated in chloro-alkali plants employing the mercury process to generate chlorine gas, hydrogen gas, and caustic soda. (10%)

3. 試舉排氣中硫化氫、氨、乙醛、丁酮等四種物質之經濟有效處理方法各二例，並略作說明。 (20%)

4. 試回答下列問題：
   (1) 都市垃圾焚化爐排氣中主要有害空氣污染物(Hazardous Air Pollutants) 爲何？目前最佳可行控制技術(BACT) 爲何？ (10%)
   (2) 何謂第諾瓦(de Novo)生成機制？如何避免其發生？ (10%)

5. 試以流程圖說明：(1)高級淨水處理廠; (2)污水處理廠 (放流水須符合 89 年排放標準) (20%)