

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. Give the chemical structure and describe the usage of the following chemicals in the industry. (20%, 4% for each)
  - (a) DEHP ;
  - (b) Bis-phenol A ;
  - (c) hexabromocyclododecanes (HBCD);
  - (d) 2,3,7,8-tetrachlorodibenzo-p-dioxins ;
  - (e) 1,3-hexachlorobutadien
2. Please explain the following terms. (20%, 4% for each)
  - (a) Green house effect ;
  - (b) Osmotic pressure ;
  - (c) Beer's Law ;
  - (d) Raoult's Law ;
  - (e) Breakpoint Chlorination
3. What evidences had been stemmed to confirm that iron and manganese gain entrance to water supplies through changes produced in environmental conditions as results of biological reactions? (16%)
4. Please describe the nitrogen cycle in the ecosystem and describe the role of organism in the nitrogen cycle. (15%)
5. The incineration becomes a principal method for treatment of municipal solid waste in Taiwan. Please use reactive equation to describe the formation mechanisms of dioxins during the combustion of municipal solid waste. (15%)
6. Please describe the formation mechanism of photochemical smog. (14%)