

※ 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. What is a spontaneous process? Give three examples of spontaneous process. Give three examples of nonspontaneous process. (10%)
2. State the second law of thermodynamics. (10%)
3. Explain why calcium sulfate is less soluble in sodium sulfate solution than in pure water. (10%)
4. What is a fuel cell? Describe an example. (10%)
5. Explain why evaporation leads to cooling of the liquid. (10%)
6. Describe the bonding in O_3 , using molecular orbital theory. Compare this with the resonance description. (10%)
7. Distinguish between an anodic and basic oxide. Give examples of each. (10%)
8. Define an exothermic reaction and endothermic reaction. Give an example of each. (10%)
9. Why must oxidation and reduction occur together in a reaction? (10%)
10. What is the difference between a molecular formula and a structural formula? (10%)