

系所組別：生理學研究所甲、乙組

考試科目：生物化學

考試日期：0226，節次：1

- [1] Protein structure is important for protein functions. (a) Please list three important elements of secondary structure. (b) What is "supersecondary structure". (c) Please describe two experimental methods to distinguish different secondary structures. (20%)
- [2] Glycoprotein is a novel field in biological studies. (a) What are glycoproteins? (b) Please list two bonds which connect different components inside glycoprotein? (c) Please list three biological functions of glycoprotein. (d) How to identify one specific glycoprotein in one cell? (20%)
- [3] Amino acids are translated from the mRNAs. Please describe the different phases for translation, and explain the main purpose of each phase. (20%)
- [4] Please design one experiment to show the bidirectional replication of DNA in *E. coli*. (10%)
- [5] Please describe the relationship between glycogen and pyruvate. (10%)
- [6] Citrate synthase is an important enzyme in the reaction of citric acid cycle. (a) Please describe the function of citrate synthase. (b) Please design one experiment to show the function of citrate synthase. (20%)