

系所組別： 奈米科技暨微系統工程研究所

考試科目： 生物技術概論

考試日期：0219，節次：2

※ 考生請注意：本試題 可 不可 使用計算機

1. Please explain the following technology and their applications: (4 x 5 = 20%)
  - (1) Protein microarray
  - (2) Buffer solution
  - (3) Polymerase chain reaction
  - (4) Fluorescence resonance energy transfer
  - (5) Two-dimensional electrophoresis
2. Please give two methods available to purify protein. (20%)
3. Enzyme-linked immunosorbent assay (ELISA) has become an important clinical method to analyze the biomarkers, please express it in detail and then describe its problems in practical use? (10%)
4. How glucose be oxidized to be CO<sub>2</sub> and H<sub>2</sub>O in the living body ? (10%)
5. The enzyme is classified to be six kinds as the following, please express their function respectively. (10%)
  - (1) oxidoreductases, (2) transferases, (3) hydrolases, (4) lyases, (5) isomerases, (6) ligases
6. Please give two methods available to show how the concentration of blood glucose can be measured. (10%)
7. Nanotechnology has be merged bio-related components to form many hot topics in this decade, please give two examples to show them. (10%)
8. Please describe the expert fields for bio-related faculties in the institute of Nanotechnology and Microsystems Engineering, NCKU. (10%)