

八十六學年度 輻射生物系(所) 組碩士班研究生入學考試

目 微生物學 科號 4104 共 一 頁第 / 頁 \*請在試卷【答案卷】內作答

1. Define or describe the following (30%)
  - a. Colony-forming unit
  - b. Prokaryote
  - c. Heterotroph
  - d. Auxotroph
  - e. Ionizing radiation
  - f. Homologous recombination
  - g. Genotype
  - h. Competent cells
  - i. Stationary phase-specific genes
  - j. Genomic library
  - k. Gene repression
  - l. Peptidoglycan
  - m. SOS repair
  - n. Protoplast
  - o. Gram stain
  
2. Describe or discuss the physiological role of the following cellular proteins (20%)
  - a. Superoxide dismutase
  - b. Kinase
  - c. RecA
  - d. Photolyase
  - e. Oxidase
  
3. How can microorganisms be used to determine the quantity of a specific substance in a sample? (7%)
4. How might viruses cause cancer? (8%)
5. Why are the pseudomonads such important microorganisms? (7%)
6. What techniques can be used to map the bacterial genes? (8%)
7. How is the Ames test carried out? (10%)
8. Describe the principles of mutant isolation (10%)