

# 銘傳大學 99 學年度研究所碩士班招生考試

## 生物科技學系碩士班

### 第二節

#### 微生物學試題

(第 1 頁共 1 頁) (限用答案本作答)

可使用計算機  不可使用計算機

1. Explain how you would find an antibiotic-resistant mutant by direct selection and how you would find an antibiotic-sensitive mutant by indirect selection. (8%)
2. How would UV radiation and gamma ray affect DNA? (6%)
3. Describe the endospore formation and germination and describe the structure of the bacterial endospore using a labeled diagram. (8%)
4. Describe in some detail the composition and structure of peptidoglycan, gram-positive cell walls, and gram-negative cell walls. (9%)
5. Describe the following kinds of media and their uses: chemical defined media, complex media, selective media, differential media, and enrichment media. (10%)
6. Define bacterial growth. Describe the four phases of the growth curve in a closed system and discuss the causes of each. (8%)
7. Define an anaplerotic reaction and give an example. (4%)
8. Define transformation and competence. (5%)
9. Outline in detail two different ways to isolate and clone a specific gene. What is a genomic library? (9%)
10. How are gene-specific probes obtained? (5%)
11. What is a prion? In what way does a prion appear to differ fundamentally from viruses and viroids? (6%)
12. Describe the structure and function of each of the following blood cells: monocytes, macrophages, basophils, eosinophils, neutrophils, mast cells, B cells, and T cells. (8%)
13. Explain the major modes of action of antimicrobial drugs, and give an example of each. (5%)
14. Describe the steps you would take to isolate, cultivate, and identify a microbial pathogen from a urine sample. (5%)
15. Summarize the origins and biological actions of interferon. (4%)

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