

國立臺灣海洋大學 108 學年度研究所碩士班招生考試試題

考試科目：微生物學

系所名稱：食品科學系碩士班生技組

1. 答案以橫式由左至右書寫。2. 請依題號順序作答。

Please provide appropriate answers for the followings.

1. Please define or explain the following terms. (20%)
 - a. commercial sterilization
 - b. operon
 - c. intron
 - d. shuttle vector
 - e. Prion

2. Please describe the factors related to effective disinfection. (8%)

3. Please describe pre-transcriptional regulation of gene expression in bacteria. (6%)

4. How to perform colony hybridization by using a DNA probe to identify a cloned gene of interest? (6%)

5. How does lysogenic cycle differ from lytic cycle? (4%)

6. Please translate the following sentences. (6%)

In addition to properties of the organism itself, the source and habitat of a bacterial isolate are part of the identification processes. In clinical microbiology, a physician will swab a patient's pus or tissue surface. The swab is inserted into a tube of transport media. Transport media are usually not nutritive and are designed to prolong viability of fastidious pathogens.

7. Please define and/or explain the following terms: (28%)
 - 1A. Lactic acid fermentation and alcohol fermentation
 - 1B. Apoenzyme and holoenzyme
 - 1C. Compound light microscopy and electron microscopy
 - 1D. Biotechnology and recombinant DNA technology
 - 1E. The functions of the lysosomes and chloroplasts
 - 1F. Optimum growth temperature and maximum growth temperature
 - 1G. Osmotic pressure and plasmolysis

8. Please describe how microbes are classified on the basis of temperature requirements. (6%)
9. Please compare the phases of microbial growth, and describe their relation to generation time. (6%)
10. Please compare the growth conditions, final hydrogen (e-) acceptor, type of phosphorylation used to generate ATP, and ATP molecules produced per glucose molecules between aerobic respiration and fermentation. (10%)