

1. 接種 *Escherichia coli* 於一含有培養液之三角瓶中，經一段時間之培養後，菌數不增反減，請說明其可能之原因。(8%)
2. 簡述細菌進行格蘭氏染色之原理及染色後可能之結果。(10%)
3. 簡要說明細菌可以利用何種形式之氮源，以便在菌體內生成含氮化合物(nitrogenous compounds)。(9%)
4. 簡要說明(A) Transduction (B) differential medium (C) plaque assay。(12%)
5. 何謂 antibiotics? (4%)。簡要說明誰最早發現 antibiotics (2%)及其發現 antibiotics 之經過 (5%)
6. Describe each of the following plasmids and their importance (9%): (A) F factor, (B) R factor, (C) Col plasmid.
7. Define (A) auxotrophic mutants (3%), (B) replica plating (3%), and (C) describe how replica plating is used to detect and isolate auxotrophic mutants (4%)
8. What is the Ames test and how is it carried out (8%)? What assumption concerning mutagenicity and carcinogenicity is it based upon (2%)?
9. Define or describe the following (9%): (A) promoter, (B) Pribnow box, (C) Shine-Dalgarno sequence.
10. Summarize the major features of (A) the Embden-Myerhof-Parnas pathway and (B) the Entner-Doudoroff pathway from glucose substrate (12%). Include the products of the pathways, the critical or unique enzymes, the ATP yields.

試題隨卷繳回