1. 假設在某一最適培養條件下，*E. coli* 世代時間為 30 分鐘，批式培養液中菌數為 100,000 cells/mL，請分別說明再經（1）5h, (2) 10h 培養後，培養液中之可能菌數並請詳細說明您之理由。(10%)

2. 解釋下列術語 (20%)：(1) F plasmid, (2) specialized transduction, (3) replica plating, (4) Ames test, (5) Koch's postulates, (6) Facilitated diffusion, (7) Okazaki fragments, (8) Hfr strain of *E. coli*, (9) Ti plasmid, (10) diauxic growth curve.

3. Briefly summarize the experiment of Frederick Griffith and his important findings to the study of genetic engineering? (10%)

4. List two genera from each of the following groups (10%): (1) Gram-negative aerobic rods, (2) Gram-negative facultative anaerobic rods, (3) Gram-positive cocci, (4) Gram-positive endospore-forming rods, (5) Gram-positive nonsporulating rods.

5. 舉例比較說明(10%) : (1) chemotrophic microorganism 與(2) chemoautotrophic microorganism.

6. 簡要說明 Restriction endonuclease 在細胞內之正常作用及其於遺傳工程上之應用。(10%)

7. 說明真核 (eucaryotic cells)與原核細胞 (procaryotic cells)中細胞膜 (cytoplasmic membrane)之異同。 (12%)

8. 說明一 antimicrobial chemical 所呈現(1) bacteriostatic 與 (2) bactericidal 之作用及其與劑量之關係。 (9%)

9. 解釋名詞(9%) : (1) endospore, (2) spread plate, (3) sanitizer.

試題隨卷繳回