

國立成功大學

113學年度碩士班招生考試試題

編 號：263

系 所：微生物及免疫學研究所

科 目：微生物學

日 期：0202

節 次：第 3 節

備 註：不可使用計算機

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. 如果你被要求從頭開始發展出針對特定致病菌的噬菌體療法，你會如何進行呢？If you were asked to develop a bacteriophage therapy from scratch against a specific pathogenic bacterium, how would you proceed? 10%
2. 人類為了區分會按照各種特性來做細菌分類，請列舉五種細菌分類方式，並簡略說明。Humans classify bacteria according to various characteristics to distinguish them. Please list five ways of classifying bacteria and briefly explain them. 10%
3. 某些梭狀芽孢桿菌屬內的細菌是重要的致病菌，請試著列舉出三種梭狀芽孢桿菌屬致病菌的毒素跟其作用的方式。Some bacteria of the genus *Clostridium* are critical pathogenic bacteria. Please try to list the toxins of three pathogenic bacteria of the genus *Clostridium* and how the toxins work. 12%
4. 請列出兩項細菌跟古菌的差異之處並簡略說明。Please list two differences between bacteria and archaea and briefly explain them. 8%
5. 請舉出螺旋菌中的致病菌菌種名稱及所造成的疾病。Please list the names of the pathogenic bacteria in Spirochaetae (phylum Spirochaetota) and the diseases they cause. 10%
6. 請列舉五點 human immunodeficiency virus (HIV) 在基因複製過程中與其它 RNA 病毒不同之處。Please describe five unique features, which are different from other RNA viruses, for the genome replication of HIV. 10%
7. 老鼠模式被用來研究日本腦炎病毒的致病機轉，病毒感染誘發小鼠腦部產生細胞激素 IL-19，請設計實驗以研究 IL-19 在病毒感染中扮演的角色。A mouse model is used to investigate the pathogenesis of Japan encephalitis virus (JEV). The cytokine, interleukin 19 (IL-19), is induced in the brain of JEV-infected mice. Please design studies to show the role of IL-19 in JEV infection. 16%
8. 請列舉用來降低人類 COVID-19 嚴重度的四種疫苗種類。Please describe four different types of vaccines, which are used to reduce the severe symptoms of COVID-19. 12%
9. 請列舉四種人類用來抵抗病毒感染的免疫反應，並簡述其作用機制。Please list four different types of immune responses and briefly describe how they are used by humans to fight virus infections. 12%