

國立嘉義大學九十七學年度
微生物與免疫學系碩士班招生考試試題

科目：分子生物學

一、申論題（每題 10-20 分，共 100 分）

1. In gram-negative bacteria, self-transmissible plasmid encoded at least two clusters of genes in the conjugation process. Outline these functional genes and describe the process, briefly. (20%)
2. Please describe the necessary components in each initiation procedures of DNA replication, transcription in prokaryotic cell (e.g. *Escherichia coli*), respectively. (20%)
3. Briefly describe the following terms or the mechanisms:
 - (1) Open reading frame (5%)
 - (2) RT-PCR (5%)
4. How do you design an experiment to (A) cure a genetic defect patient with gene therapy (10%) or (B) treat the carcinoma patient by immune therapy? (10%)
5. If you want to engineering the mitochondrial or chloroplast DNA mutation, please outline the flowchart for such experiment? (20%)
6. Regarding to the regulation of gene expression, what is the main processes to control the gene expression in eukaryotes? (10%)