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%)