

# 國立成功大學

## 112學年度碩士班招生考試試題

編 號：262

系 所：生理學研究所

科 目：分子生物學

日 期：0207

節 次：第 2 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. What are three critical structures of a nucleic acid? (10%)
2. How to replicate DNA in the lagging strand? (20%)
3. Please explain the following terms. (a) promoter (b) activator (c) splicing (d) start codon (e) DNA proofreading (f) Aminoacyl-tRNA (30%)
4. Please provide three mechanisms to regulate gene expression. (20%)
5. Prof. Svante Pääbo succeeded in sequencing the genome of the Neanderthal, and also discovered a previously unknown hominin, Denisova. As a result, he won the Nobel Prize in Physiology or Medicine 2022. Please describe the molecular methods he used in the above description. How does it work? (20%)