

※ 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。

一、名詞解釋 (30%, 3 points per term) (請不要只是英翻中，請清楚解釋)

1. Epigenetics
2. RNA editing
3. Translatome
4. Non-coding RNA
5. Molecular chaperone
6. Nucleosome
7. Polycistronic
8. RISC
9. Holiday junction
10. Chromosome remodeling

二、簡答題 (70%)

1. Please describe the characteristics of four different DNA binding proteins which act as transcriptional regulator. (12 points)
2. What is the process of microRNA biogenesis? Please describe the process as detail as possible. (12 points)
3. Please describe three types of post-translational modification (6 points), and their effects on proteins. (6 points)
4. What is autophagy? (3 points), and what is the biological function of autophagy? (3 points)
5. What are the mechanisms of RNAi in inhibiting the expression of target genes? (6 points)
6. Please describe the life cycle of phage λ . (6 points)
7. What is the structure organization of a polypeptide? (8 points)
8. How does a transcriptional factor regulate gene expression? (4 points)
9. What is the molecular mechanism of gene knockout? (4 points)