

考生注意事項：所有考題務必在答案卷上依序作答，在問題卷上作答者不計分。

1. Please describe the following terms:
 - a. Oligonucleotides (3%)
 - b. Midpoint temperature (T_m) (3%)
 - c. Chromatosome (3%)
 - d. Palindromes (3%)
 - e. Pseudogenes (3%)
2. Please describe the molecular mechanisms that are used for maintaining the telomere length. (7%)
3. At severe DNA damage conditions how the *E. coli* repairs its DNA using SOS DNA repair system. (8%)
4. Describe the possible mechanisms of transcriptional repression in eucaryotic cells. (10%)
5. (1) What is suppressor tRNA? (5%) ; (2) Why is it impossible to convert the met-tRNA into a suppressor tRNA (5%)
6. Describe the major differences in translation between eucaryotic and procaryotic cells. (10%)
7. Describe the protein targeting in eucaryotic cells, and give one example that the appropriate protein targeting may regulate protein activity. (10%)
8. 請詳細比較原核細胞與真核細胞在轉錄作用(transcription)之異同處？ (10%)
9. 基因的調控，可以分為幾個層次。您如何證明某基因之調控在基因之轉錄作用(transcription)上。 (10%)
10. 有幾個模式解釋轉錄作用(transcription)之延長作用(elongation)。請您闡述這些模式之優缺點及實驗之證明。 (10%)