

※ 注意：請於答案卷上依序作答，並應註明作答之部份及其題號。

**Part I : 50%**

**Term Explanation (3% of each), 15%**

1. Nick translation
2. Glycosylase and AP endonuclease 1 (APE1)
3. DNA Ligase III and IV
4. Mfd, CSA and CSB proteins
5. Tus and ter site

**Assay: 35%**

1. Describe how to identify the DNA binding site of transcription factor by using DNA footprinting technique in vitro (5%).
2. Describe the septum formation and localization control in E. coli (10%)
3. Describe the factors, ORC, Cdc6, Cdt1 and MCM, require for yeast DNA replication, and the most recently knowledge on MCM activation (10%).
4. How to stabilize the end length of chromosome?? (10%)

**Part II: 50%**

1. Please explain the following terms: (20%)
  - (1) Prion
  - (2) CpG islands
  - (3) Ribozyme
  - (4) Yeast two hybrid
  - (5) ChIP-seq
2. What is CRISPR/Cas9 system? Explain the differences between RNA interference (RNAi) and CRISPR/Cas9 system. (20%)
3. Please describe the major differences between eukaryotic and prokaryotic transcription in terms of (1) template, (2) location, (3) type of RNA polymerase. (10%)

試題隨卷繳回