

※ 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 %

- (A) Describe the GG-NER and TC-NER in *E. coli*. (10%)
- (B) Describe the bacteria two-component signaling system, and how the *vir* genes functioning in T-DNA transfer from *Agrobacteria* to plant. (10%)
- (C) How to deal with the oxidized guanine by BER?? (10%)
- (D) Please compare the common component of the priming and replication complex in Prokaryotic and Eukaryotic cells. (20%) (2% each)

Function	<i>E. coli</i>	Eukaryote
Helicase	DnaB	1
Loading helicase	2	Cdc6
Single-strand maintenance	SSB	3
Priming	4	Pola/primase
Sliding clamp	5	PCNA
Clamp loading (ATPase)	$\gamma\delta$ complex	6
Catalysis	Pol III core	7
Holoenzyme dimerization	8	?
RNA removal	Pol I	9
Ligation	10	Ligase 1

Part II: 50%

- (A) Definition and explanation: 20% (4% each)
 1. Epigenetics
 2. Alternative splicing
 3. Yeast two-hybrid assays
 4. Ac/Ds elements
 5. Prion
- (B) Essays: 30%
 1. Describe the process of mRNA transcription from a gene on the chromosome to a mature mRNA. (15%)
 2. What are common themes of the *cis*-elements and *trans*-acting factors to regulate gene expression? (15%)

試題隨卷繳回