

※ 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: 共 50%

A. Terminology: 18% (3% each)

- (a) spliceosome, (b) nucleosome, (c) chromatin remodeling,
(d) dosage compensation of X chromosome, (e) nested gene (f) dicer

B. Questions: 32%

- (1) How does the histone acetylation and deacetylation control gene expression? (6%)
(2) Describe the prion property. (6%)
(3) What are the nuclear splicing, group II and group I splicing? What is the difference among them? (7%)
(4) How to detect the DNA methylation pattern in genome by using two restriction enzymes? (7%)
(5) What is the function of Ribozyme, and RNA edition? (6%)

Part II: 共 50% (10% each)

- (1) Site-specific recombination system, Cre/loxP system, is applied to knockout specific gene in mouse, please describe.
(2) The 3'-OH is essential for DNA elongation, please describe 3 different ways to provide the 3'-OH in priming reaction.
(3) Double-strand DNA break triggers recombination in *E. coli* which involves with (a) *chi* site (b) Rec complexes (c) Ruv factors, please describe the mechanism.
(4) Which DNA polymerase provides the priming function in eukaryotes? Which DNA polymerases are replicases in mammals? What are the functions of MCM, Cdc6, PCNA, RFC and FEN1?
(5) How the partition system ensures that the duplicated P1 and R1 plasmids are segregated to different daughter cells produced by division?

試題隨卷繳回