

銘傳大學 100 學年度研究所碩士班招生考試

生物科技學系碩士班

第二節

分子生物學試題

(第 1 頁共 2 頁) (限用答案本作答)

可使用計算機 不可使用計算機

一 選擇題:(每題 3 分)

1. Radioactivity probe can be produced during nick translation used:
 - a. DNA polymerase I
 - b. DNA polymerase II
 - c. DNA polymerase III
 - d. All can be used
2. Which one RNA polymerase may transcript genes encoding ribosomal RNA?
 - a. RNA polymerase I
 - b. RNA polymerase II
 - c. RNA polymerase III
3. GFP gene is frequently used as a reporter of expression. What statement is not true?
 - a. To expose blue light, GFP can fluoresces green light
 - b. GFP has a typical beta barrel structure
 - c. Therefore inserting a gene to the GFP gene region, GFP can fluoresces green light.
 - d. All are true.
4. Several different triple codons may have the same meaning for translation. It is called ?
 - a. frameshift
 - b. synonym
 - c. cloverleaf
 - d. polymorphism
5. The activities of other sigma factors are controlled by **anti-sigma factor** proteins, what is its mechanism?
 - a. demethylation DNA to turn off the DNA express
 - b. to compete the sigma factor binding site
 - c. bind to sigma factor to prevent their interaction with the RNA polymerase core enzymes
 - d. all are not true
6. Xist is an RNA gene, what characteristic is not true?
 - a. on the X chromosome of the placental mammals that acts as major effector of the X inactivation process
 - b. processed similarly to mRNAs, through splicing and polyadenylation
 - c. translated to protein
7. SnRNA plays an important role at ?
 - a. 5' capping

本試題兩面印刷

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分子生物學試題

(第 2 頁共 2 頁) (限用答案本作答)

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- b. 3' tailing
 - c. Splicing
 - d. Transport
 - e. Gene express
8. UVB light can cause direct DNA damage. The radiation excites DNA molecules in skin cells, causing aberrant covalent bonds to form ?
- a. AA dimer
 - b. TT dimer
 - c. CC dimer
 - d. GG dimer
9. EcoRI is a common restriction enzyme to recognize the specific DNA sequence. What characteristic of the specific DNA sequence that EcoRI can reaction?
- a. tendon repeat
 - b. GC rich
 - c. Palindromes
 - d. AT rich
10. Plasmids are a useful vectors to transformation other gene to different host cell. In these map, there are some regions for functions. Which one can be use to selected the successful transformation host via antibiotics?
- a. *OriC*
 - b. Amp
 - c. Lac Z
 - d. MCS

貳:問答題

1. 請詳述利用農桿菌轉殖外源基因至植物的機制? (15 分)
2. 請問藍白篩選(bule and white screening)的流程和原理? (15 分)
3. 請問 PCR 的流程和原理?((15 分)
4. 何為分子生物學的 Central Dogma ? (15 分)
5. 請你設計並解釋如何判斷兩個蛋白質 間是否有 interaction?(10 分)

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試題完