

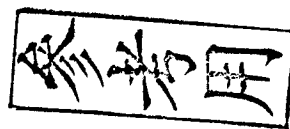
國立中央大學八十七學年度碩士班研究生入學試題卷

所別: 生命科學研究所 不分組 科目: 分子生物學 共 / 頁 第 / 頁

I. 填充題 (每格 3 分, 共 72 分)

1. An enzyme that breaks DNA, dispels the tension, and reseals the strand ahead of a DNA replication growing fork is called _____.
2. Short segments of DNA, synthesized during DNA replication, are called _____ fragment.
3. The array of fibrous proteins present in the cytoplasm of most eucaryotic cells is called the _____.
4. _____ are small circles of DNA that are capable of independent replication in bacterial cells.
5. The technique used to analyze DNA by reassociation is called ___(a)___ blotting. A similar technique used to analyze RNA is called ___(b)___ blotting.
6. Introduction of foreign genes into animals and plants produces _____ organisms.
7. A mutation that causes the stop of translation is called a _____ mutation.
8. The _____ is the smallest structural unit of chromatin, which is composed of DNA in association with proteins.
9. Sequences that can change location within the genome are collectively called _____.
10. The ends of chromosomes are replicated by an enzyme called _____.
11. Eucaryotic genes contain a consensus sequence, called the _____, that is located 25 bp upstream of the start site and helps position RNA polymerase II for transcription.
12. _____ are DNA sequences that can act over long distances and in either orientation to regulate transcription.
13. Splice sites in pre-mRNA are marked by two universally conserved sequences at the ends of introns: a ___(a)___ sequence at the 5' end and a ___(b)___ sequence at the 3' end.
14. Nucleic acids involved in splicing a primary transcript are called _____ RNA.
15. A bacterial cell containing an integrated lambda phage genome is called a ___(a)____. The integrated genome is called a ___(b)_____.
16. _____ are proteins that keep other proteins in an unfolded configuration or help them fold properly.
17. Nascent secretory proteins are targeted to the endoplasmic reticulum by a ___(a)___ sequence, which is composed of ___(b)___ amino acids.
18. A procaryotic transcription unit containing several genes under the control of one promoter is called an ___(a)____. Such genes are transcribed to produce a ___(b)___ mRNA.
19. A common technique used to define the nucleotide sequence that interacts with DNA-binding proteins is called _____.

II. 問答題 (每題 14 分)



1. DNA fingerprinting technique is a powerful tool in criminal investigation. Please describe the molecular basis for this technique.
2. Please make a comparison on the translation initiation between eucaryotic and procaryotic cells.