

請清楚標示題號並依序作答於試卷上

簡答題(68%)

1. The simplest classification, which is based on the structure of cells, divides all living organisms on earth into two groups. What are these two groups? (5%)
2. Insulin is a protein that is produced by pancreatic cells and secreted into the bloodstream. Please list the transport route of insulin from its production to its exit from the cell. (5%)
3. What is the common mechanism of producing ATPs in cellular respiration and photosynthesis? (5%)
4. What is the cell cycle checkpoint? (5%)
5. A micrograph of a dividing mouse cell showed 19 chromosomes, each consisting of two sister chromatids. During which stage of cell division cycle could this picture been taken? (5%)
6. The recombination frequencies between four linked loci, A, B, C, and D are as the following: A-B: 4%; A-C: 9%; A-D: 7%; B-C: 5%; B-D: 10%; C-D: 15%. What's the relative order of these loci on the chromosome? (5%)
7. If the coding strand of a gene has a sequence of 5'ACCTGC3', what is the corresponding sequence in the mRNA molecule from 5' to 3'? (5%)
8. In the seed of a particular flowering plant, the embryo cells have 12 chromosomes, how many chromosomes are there in the simple endosperm cells? (5%)
9. The secondary growth in woody plants is due to cell divisions at two sites of meristem cells, what are they? (5%)
10. Define and describe the relationship between centromeres, kinetochores, and spindle microtubules in mitosis. (5%)
11. How does the brain determine the pitches and the loudness of a sound? (8%)
12. How can some hormones affect many targets, while other hormones affect only one? (5%)
13. Why are people easy to catch a cold after a stressful period, like final exams? (5%)

解釋名詞(32%)

14. synapse
15. active immunity
16. electroencephalogram
17. stretch reflex
18. ecological niche
19. fertilization
20. sinoatrial node
21. endothermy

試題隨卷繳回