

銘傳大學 98 學年度研究所碩士班招生考試

生物科技學系碩士班

第三節

生物化學試題

(第 ; 頁共 / 頁) (限用答案本作答)

可使用計算機 不可使用計算機

(A) Link: choose one matched answer from items a-j and fill in the blank (20%)

1. () anomers; 2. () cyclic AMP; 3. () ribozyme;
4. () proteasome; 5. () DNA glycosylase; 6. () α -amanitin;
7. () triacylglycerols; 8. () oligomycin; 9. () zymogen;
10. () DNA gyrase

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- (a). an ATP synthase inhibitor
 - (b). RNA molecule with catalytic activity
 - (c). an enzyme that functions in DNA excision repair to remove damaged base.
 - (d). A drug that can inhibit RNA transcription.
 - (e). a second messenger
 - (f). proenzyme
 - (g). a topoisomerase II
 - (h). Isomers of monosaccharides that differ only in their configuration about an asymmetric carbon atom.
 - (i). A multi-protease system that can recognize and degrade ubiquitinated proteins
 - (j). a major form of stored energy in animals

(B) Questions:

1. Please list 20 standard amino acids and their one-letter symbol. (10%)
2. Please describe the mechanism of covalent modification and allosteric regulation of glycogen phosphorylase. (10%)
3. What's tricarboxylic acid (TCA) cycle? (5%) How is the TCA cycle regulated? (5%)
4. How does a proton gradient drive the synthesis of ATP? (10%)
5. What are the mechanisms of enzyme catalysis? (10%)
6. How does calcium (Ca^{2+}) regulate muscle contraction? (10%)
7. Please specify one application of polymerase chain reaction (PCR). (10%)
8. Please describe the mechanism of DNA replication. (10%)

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