

※下列題目請標明題號，依序作答於試卷內「非選擇題作答區」。可用中文或英文作答※

一、 Please describe the following terms (20%):

- (1) allosteric regulation
- (2) *cis*-acting control element
- (3) facilitated diffusion
- (4) metagenomics
- (5) transposon

二、 What are the driving forces for secretory proteins being (1) cotranslationally and (2) posttranslationally transported into the ER? (8%)

三、 Please explain how ribosomes determine where at a mRNA to initiate translation in (1) prokaryotic cells and (2) eukaryotic cells. (16%)

四、 Please describe and explain how cholesterol affects membrane fluidity at (1) high temperatures and (2) low temperatures. (16%)

五、 Please draw and label the structures inside (1) a flagellum and (2) a microvillus. (10%)

六、 Both ATP synthases of the mitochondria and the chloroplasts use energy stored in proton gradients to make ATP. Please compare the following items of mitochondria versus chloroplasts. (1) The location where ATP synthase exists; (2) The membrane where proton gradient is established; (3) The place where ATP is generated; (4) The energy source that establishes the proton gradient; and (5) The purpose that ATP is used for (10%)

七、 How will a truncated epidermal growth factor receptor (EGFR), which lacks its tyrosine kinase domain, affect the functions of a normal EGFR? Please explain your answer. (10%)

八、 Unlike most normal cells, cancer cells gain the ability to invade surrounding normal tissues and spread throughout the body (metastasis). What are the properties of cancer cells that facilitate them to metastasize? (10%)

試題隨卷繳回