

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

一、簡答題 (75%)

1. On biological species concept emphasizing reproductive isolation (barrier),
 - a. What is the "Reproductive Barrier"? (10 points)
 - b. Name any five types of reproductive barriers. (10 points)
 - c. Why would it lead to new species created? (10 points)

2. Almost half (44%) of human genome is made up of transposable elements and related sequences without known function. Explain why scientists still study them. (20 points)

3. Except some species, all mitochondria of eukaryotes are said to evolve from single α -proteobacterium through endosymbiosis.
 - a. What is the endosymbiosis theory in eukaryotic cell evolution? (10 points)
 - b. Will each mitochondrion have own ribosomes and tRNA genes? (5 points)
 - c. A pathogenic eukaryote has degenerative type of mitochondrion. Will it be a good selective drug target site? Explain your reasons. (10 points)

二、填充題 (>5%)

Inferred Origins of Key Eukaryotic Features	
Feature	Original Source
Mitochondrion	bacterial
Metabolic genes	A
DNA replication enzymes	B
Cell division apparatus	Most archaeal
Translation enzymes	C
Transcription enzymes	D
Endoplasmic reticulum	E