

※ 注意：請於試卷內之「非選擇題作答區」依序作答，並應註明作答之部份及題號。

第一題(25%)

請翻譯下列文字為中文。

Many places on Earth share similar climatic conditions despite being found in geographically different areas. As a result of natural selection, comparable ecosystems have developed in these separated areas. Scientists call these major ecosystem types biomes. The geographical distribution (and productivity) of the various biomes is controlled primarily by the climatic variables precipitation and temperature. Most of the classified biomes are identified by the dominant plants found in their communities. For example, the various types of grasslands are dominated by a variety of annual and perennial species of grass, while deserts are occupied by plant species that require very little water for survival or by plants that have specific adaptations to conserve or acquire water. Adaptation and niche specialization are nicely demonstrated in the biome concept. Organisms that fill similar niches in geographically separated but similar ecosystems usually are different species that have undergone similar adaptation independently, in response to similar environmental pressures.

第二題(25%)

請說明地球生物圈內的水文循環(hydrological cycle)，並請解釋 precipitation、canopy interception、runoff、infiltration、evaporation、transpiration 等這些水文循環的名詞。

第三題(25%)

請說明物種豐富度(species richness)與物種歧異度(species diversity)在概念上或計算上的差異。並請說明何謂 alpha、beta、gamma diversity。

第四題(25%)

請說明氣候暖化可能對原生的生物物種、群集、或生態系產生怎樣的影響？請設計至少一個觀察實驗(observation experiment)以及一個操弄實驗(manipulation experiment)，來探討你所提出的預測。

試題隨卷繳回