

一、是非題(每小題 2 分，共 40 分)

注意：請於答案卷之「選擇題作答區」作答，答案以 O、X 表示且均寫於(A)欄內。

1. The molecular logic of life is simple but elegant: Small molecules common to all organisms are ordered into unique macromolecules.
2. The taxonomy of the protists is in a state of flux as new information shapes our understanding of this kingdom.
3. Most atmospheric oxygen gas is of biological origin, produced probably by ancient cyanobacteria during the water-splitting step of photosynthesis.
4. An organism is a closed system that exchanges materials and energy with its surroundings.
5. When phospholipids are added to water, they self-assemble into bilayers that shield their hydrophilic portions from water.
6. The use of biofuels from plant biomass would reduce the net emission of CO<sub>2</sub>, in addition, less energy may be required to produce biofuels than would be produced from combustion of these products.
7. A hydrostatic skeleton consists of fluid held under pressure in an open body compartment.
8. Gram-positive bacteria have more complex cell walls with relatively small amount of peptidoglycan.
9. Green algae and red algae are the closest relatives of land plants.
10. Structure and function are correlated at all levels of biological organization.
11. Evidences now support the view that bacteria and archaea represent two very distinct branches of prokaryotic life.
12. Biology is a multidisciplinary science.
13. Secondary immune response is faster, of greater magnitude, and more prolonged.
14. A clade, also called a monophyletic group, includes an ancestral species and all of its descendants.
15. DNA, carbohydrates and proteins could be used as tape measures of evolution.
16. The movement of oxygen and carbon dioxide across moist respiratory surfaces takes place by either diffusion or active transport.
17. Plant nutrition often involves relationships with other organisms such as soil bacteria and nematodes.
18. Homeostasis in animals relies largely on positive feedback.
19. Emergent properties are unique to life.
20. Expression of a few prophage genes may alter the host's phenotype, a phenomenon that can have important medical significance.

二、問答題(每題 15 分，共 60 分)

注意：請於答案卷之「非選擇題作答區」作答。

1. Please discuss the crucial roles that prokaryotes play in the biosphere.
2. What is innate immunity? Please describe the unique aspects of vertebrate innate immunity.
3. How does the phrase "descent with modification" capture the duality of life's unity and diversity?
4. Please distinguish between primary and secondary growth of plants.

試題隨卷繳回