

編號： 71 系所：生命科學系乙組

科目：生態學

本試題是否可以使用計算機：可使用，不可使用（請命題老師勾選）**Short answer questions (30%)**

1. Please define and explain the following terms (4 % each)

- Hardy-Weinberg equilibrium
- Co-evolution
- Fitness
- Natural selection
- Genetic drift

2. Give definition of the following terms: (2% each)

- Phenology
- Leaf Area Index (LAI)
- Quadrats
- Diameter at breast height (DBH)
- Relative importance value (RIV)

**Essay questions (70%)**

3. What is "Disturbance Ecology"? Give some major sources of disturbance in community and describe what their influence might be (10%)
4. The largest and smallest microchiropterans (bats) in Taiwan weigh about 50 and 4 g, respectively. The largest species occurs in the lowland area, while the smallest species has been collected at 1500 m above sea level. If you want to understand why the two species have different distributions in altitude, what and how do you study? Explain your answers. (10%)
5. How does nutrient cycling differ between terrestrial, lake, and river ecosystems? (10%)
6. Compare the ancient earth atmosphere to the present atmosphere. What has caused the differences? (5%)
7. What are foundation species? (5%)
8. If ecosystems are undergoing constant change, why should we (a) establish and protect nature reserves and (b) carry out ecological restoration? (5%)
9. The earth is ruled by microbes. Why? (5%)

(背面仍有題目,請繼續作答)

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10. Provide a specific example and discuss why and how behavior may affect abundance and distribution of animals (8%).

11. In planning to study the composition, diversity, and other properties of animal assemblages at a mountainous area, what similar and different approaches you would take for (a) dragonflies and birds; and for (b) fishes living in a lake and in a stream, respectively (12%)