編號： 62

國立成功大學 108 學年度碩士班招生考試試題

系　　所：生命科學系

考試科目：生態學

考試日期：0224，節次：3

※ 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。

1. Define the following terms, and give examples if applicable:

(1) rank abundance curve [3%]

(2) indirect commensalism [3%]

(3) ecological efficiency [3%]

(4) nutrient spiraling [3%]

(5) "facilitation model"、"tolerance model" and "inhibition model" in ecological succession [6%]

(6) species turnover [3%]

(7) Satoyama landscape[5%]

(8) El Niño–Southern Oscillation [3%]

(9) carbon sink [3%]

(10) Paris Agreement [3%]

2. Explain the following ecological terms (3% each):

(a) Biochemical oxygen demand

(b) Minimum viable population

(c) Oligotrophic lakes

(d) Omnivores

(e) Phenotypic plasticity

(f) Soil profile

(g) Thermoneutral zone

3. Describe three approaches to measure animal population (including size, density, and distribution) at the sandy beach of Tainan Gold Coast. (9%)

4. Compare the differences for (a) **scramble vs. contest competition,** and (b) **numerical vs. functional response** of predators (8%)

5. Give (a) an example of a type of **meta-population** structure; describe (b) what ecological variables you will need to study to understand the sustainability of meta-populations? and (c) why? (10%)

6. What is (a) **character displacement** and what (b) is **limiting similarity**? (4%)

7. Define (a) "**bottom-up**" and "**top-down**" effects, and explain (b) how they may affect community structure? **(8%)**

8. List the most common mechanisms responsible for cooperative and/or altruistic behaviors observed in the nature? **(5%)**