

國立中山大學生物科學系 97 學年下學期  
博士班資格考試(筆試)

Ph. D. qualification examination: Ecology

Time allowance: max. 3 hrs.

There are ten essay questions listed below, please select any five questions and provide the best answers for them.

- ① What distinguishes proximate and ultimate cues for predicting environmental change, and how does this related to ecotype differentiation?
- ② What are some characteristic adaptations of parasite life cycles?
- ③ What are the effects of El Niño on ocean currents of the southern Pacific and on climate patterns throughout the world?
- ④ What is the relationship among gross production, net production, and net ecosystem production?
5. What is the difference between bottom-up and top-down ecosystem regulation, and how do these two processes interact?
- ⑥ How are isozyme analysis, DNA fingerprinting, and RFLPs used to examine genetic structure?
- ⑦ What is a metapopulation? And how does the metapopulation concept relate to the concept of landscape ecology?
- ⑧ How do population oscillations and limit cycles arise?
- ⑨ What is involved in a population viability analysis?
- ⑩ What is allelopathy, and why is it important in agriculture?

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行為生態學 博士資格考

姓名：\_\_\_\_\_ 2009.5

Choose Four, 25% each 題目要交回 時間 3 小時

- ① 試說明研究行為生態所採用的方式有那些？在測試假說 (Hypotheses) 時，應注意的事項為何？並舉例說明之。
2. 試說明 "Marginal value theorem" 的原理及舉例說明之。
- ③ 試說明 "Ideal free distribution" 的原理及舉例說明之。
- ④ 試說明動物為何要群居生活或覓食？利與弊為何？並舉例說明之。
- ⑤ 解釋 "Sexual selection"。Parental care 與 Mating systems 有何關係？影響 mating systems 的因素為何？
- ⑥ 自然界中為何有利他行為 (Altruism) 出現？試從演化之觀點探討其類型以及是否在遺傳上為自私之行為？

(不敷使用，請用 A4 紙書寫)