

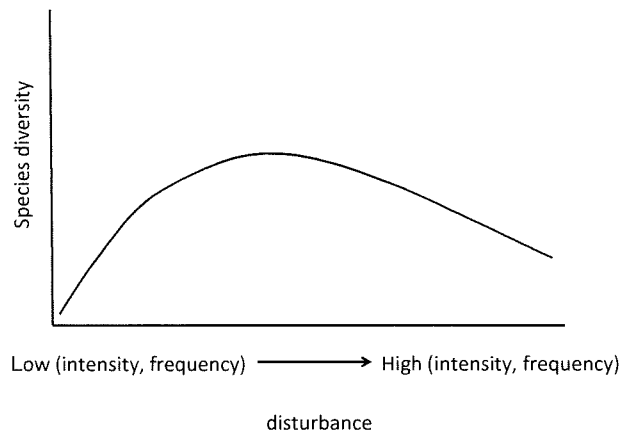
國立臺灣師範大學 101 學年度碩士班招生考試試題

科目：生態學

適用系所：生命科學系

注意：1.本試題共 1 頁，請依序在答案卷上作答，並標明題號，不必抄題。2.答案必須寫在指定作答區內，否則依規定扣分。

1. Define “meta-population” and describe its implication in conservation. (10 分)
2. Use water potential to describe the movement of water from the soil to tree leaves. (10 分)
3. Describe major factors affecting the pattern of species diversity of the ocean from the coast to the open sea. (10 分)
4. Which ecological hypothesis can be used to describe the relationship between species diversity and disturbance in the following figure? What is the role of competitive exclusion in this relationship and why? (20 分)



5. Please define “local adaptation” and provide an example to illustrate the local adaptation. (5 分)
6. Do you agree the following statement: all phenotypic traits of an organism are optimized by mighty natural selection? Please provide your justifications and evidences to support your arguments. (10 分)
7. The Batesian mimicry is the cases that a palatable species has evolved to imitate the warning signals of an unpalatable species.
 - a. What’s the difference between the Batesian mimicry and Mullerian mimicry? (5 分)
 - b. What is the benefit of mimic and model species in a Batesian mimicry system, if any? (5 分)
 - c. For a Batesian mimicry system to be effective, what would be the abundance of model species? Why? (5 分)
 - d. What would be the abundances of model species related to mimic species within their sympatric zone? Why? (5 分)
8. Both geographic isolation and natural selection are considered as the engine of speciation.
 - a. Please explain how both factors promote species multiplication. (10 分)
 - b. Recent studies revealed that presence of post-divergence gene flow since divergence of two species could be a common phenomenon. It is quite different from the view of geographic speciation advocated by Mayr. Please make your comments about the conflict between two different views of speciation. (5 分)