國立臺灣大學 104 學年度碩士班招生考試試題

* 請按順序作答

A、Explain following terms（每題 4 分，共 16 分）

1. obligate mutualism
2. functional response
3. ecological efficiency
4. characters displacement

B、Compare and contrast the following pairs of terms (每題 6 分，共 30 分):

1. Dispersal vs. dispersion
2. facilitation vs. inhibition models of succession
3. β diversity vs. γ diversity
4. climate change mitigation vs. adaptation
5. landscape ecology vs. geographical ecology

C 、Questions and answers（共 54 分）

1. The life table of species M is shown below. Calculate survivorship for each age class (p_x), net reproductive rate (R_0), and answer if population size of species M will increase, decrease, or not change. Your answers should include p_0, p_1, p_2, p_3, p_4, R_0 and how will population size of species M change (10 points).

Age	L_x	m_x	p_x
0	1.0	0	p_0
1	0.5	0	p_1
2	0.4	2	p_2
3	0.2	2	p_3
4	0.05	0	p_4
5	0	--	--

l_x: survivorship from birth
m_x: age specific fecundity

2. Draw a curve of the latitudinal diversity gradient and give three hypotheses for the origin of this gradient, explaining each hypothesis with 1-2 sentences. (10 points)

3. What are the heat exchange pathways that determine body temperature? (10 points)

4. What are reciprocal transplants? Why are they so useful in ecological studies? (8 points)

5. Although there are 275,000 species of land plants, a series of filters eliminates most of these species from any given site and restricts that actual vegetation to a relatively small number of species. What could be the possible restrains that determine the species composition of vegetation in a particular area? (6 points)

6. Describe the geographic distribution of major terrestrial biomes on earth. What factors contribute to their differences in primary productivity? (10 points)

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