

# 國立中山大學 107 學年度碩士暨碩士專班招生考試試題

科目名稱：普通生物學【海資系碩士班】

題號：452002

※本科目依簡章規定「不可以」使用計算機(問答申論題)

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## 簡答題 (每題6分)

1. Please describe the differences and similarities between small interfering RNAs (siRNAs) and micro RNA (miRNA).
2. Please describe the differences and similarities between Synaptic signaling and Neuroendocrine signaling.
3. Please draw a picture to show homeostatic control of body temperature.
4. Please describe the differences between open circulatory system and close circulatory system.
5. Please describe the mechanism of osmoregulation in a marine fish.
6. Please describe the differences between adaptation and acclimation.
7. Please summarize Darwin's idea of "*Descent with modification*".
8. Please describe the different types of interspecific relationships.

## 解釋名詞 (每題2分)

1. Extracellular matrix (ECM)
2. Aquaporins
3. Osmotic pressure
4. SNPs (single nucleotide polymorphisms)
5. Post-Translational Modifications
6. Excitatory postsynaptic potential
7. Telomerase
8. Housekeeping gene
9. Ligand-gated ion channel
10. Epitope
11. Bottleneck effect
12. Taxon
13. Molecular clock
14. Camouflage
15. Convergent evolution
16. Intermediate disturbance hypothesis

## 問答題(每題10分)

1. Since Industrial Revolution, the emission of carbon dioxide (CO<sub>2</sub>) has significantly increased and caused serious global issues, including global warming and ocean acidification. Please explain the above two phenomena and impacts on marine ecosystems.
2. Please list three marine ecosystems found in Taiwan and describe their environmental and biological characteristics.