

國立中山大學九十二學年度博士班招生考試試題

科目：生物學【海生所】

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每題 25分

1. Summarize what you know about the biology and ecology of SARS virus, or the general properties of the same type of pathogens (limit your answer to within half a page).
2. Concisely explain modern taxonomy, and its importance to non-biologists (<half a page).
3. Briefly explain what happens when a pathogen enters a human body (limit your answer to this question to within one page)
4. Explain replication, transcription and translation, by listing (< one page)
 - 甲、 Where in the cell
 - 乙、 What organelles are involved
 - 丙、 What enzymes, reactants are involved, and the products
 - 丁、 Processes
 - 戊、 When is it necessary

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Develop complete answer to the following questions.

1. How do physical and biological factors interact to create zonal patterns in a rocky shore versus a salt marsh? Is the keystone species concept applicable to both environments? Why? 20%
2. Please define and then connect the following terms in a short essay:
 - (a) Global change
 - (b) Biodiversity
 - (c) Carbon flux20%
3. Name three factors that limit primary production in marine environments. Compare the seasonality of primary production in the temperate and the tropic oceans based on these limiting factors. 20%
4. Please define the microbial loop in the ocean and its significance. 20%
5. Why marine nekton, although possessing very different evolutionary histories, show a strong convergence in morphology? 20%