

海洋生物学 (1 / 2)

(注意) 全ての問題を 1 枚の答案用紙に解答すること。裏も使用してよい。

(解答は英語・日本語のどちらでもよい [英語/ラテン語と指示してある場合以外]。文法などの間違いは採点に影響しない)

[1] Choose one of the following topics and discuss. (20 points)

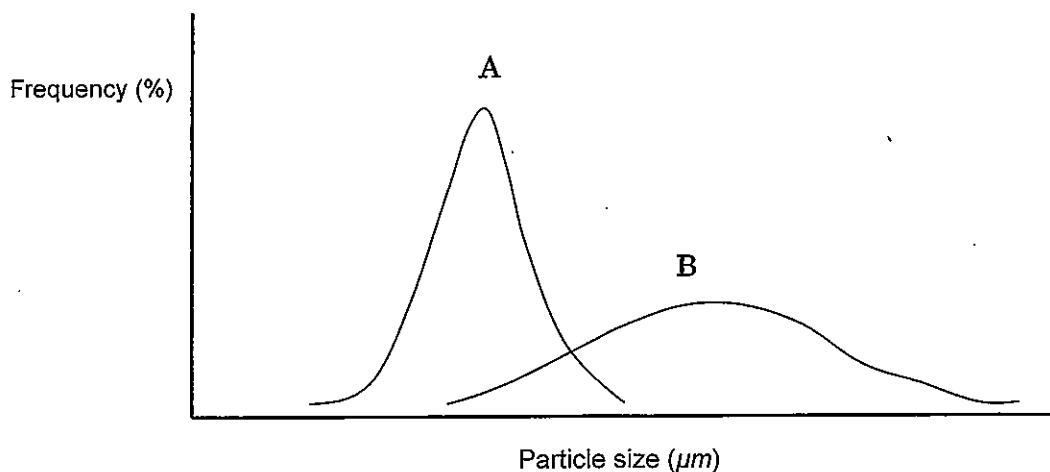
- (1) Seasonal patterns of primary production in temperate seas
- (2) Factors that affect the phenomenon of zonation in the intertidal
- (3) Morphological and ecological characteristics of benthos inhabiting exposed rocky shores
- (4) Geographical distribution of coral reefs
- (5) Environmental degradation of estuarine waters

[2] Answer the following three questions. (total: 25 points)

- (1) Explain the ecological linkage between benthic and planktonic systems in the sea. (10 points)
- (2) “Marine arthropods are all mobile, not sessile, organisms”. Discuss whether this statement is true or not. (5 points)
- (3) Explain briefly what the phenomenon of ocean acidification is and name two marine organisms (groups/taxa) which are considered to be affected by it. (10 points)

[3] The graph below shows the size-frequency distribution of organic particles ingested by two deposit-feeding polychaetes (species A and B) from the same habitat. (total: 30 points)

- (1) Polychaetes belong to which phylum of animals? Answer in Latin or English. (5 points)
- (2) Explain what are “organic particles” ingested by polychaetes? (5 points)
- (3) Describe the differences in the patterns of particle ingestion between the two species. (10 points)
- (4) Consider the possible consequences of a reduction in the availability of large particle sizes. (10 points)



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- [4] Two species of sea urchin occur on subtropical intertidal shores and are known to share the same food resources, algae growing on rock surfaces. In order to clarify the possible competitive relationship between these two species, devise and explain an experiment, either in the field or in the laboratory, paying particular attention to (a) the hypothesis you propose to test with the experiment, (b) possible results and their interpretations. (25 points)