
UNIVERSITI SAINS MALAYSIA

Second Semester Examination
Academic Session 2008/2009

April/Mei 2009

BAT 213/4 – Coastal & Marine Ecosystem
[Ekosistem Pinggir & Marin]

Duration: 3 hours
[Masa : 3 jam]

Please ensure that this examination paper contains FIVE printed pages before you begin the examination.

[Sila pastikan bahawa kertas peperiksaan ini mengandungi LIMA muka surat yang bercetak sebelum anda memulakan peperiksaan ini.]

Instructions: Answer **FIVE** (5) out of **SIX** (6) questions, in English or Bahasa Malaysia. Each question carries 20 marks.

[Arahan: Jawab **LIMA** (5) daripada **ENAM** (6) soalan yang diberikan dalam Bahasa Inggeris atau Bahasa Malaysia. Tiap-tiap soalan bernilai 20 markah.]

1. [a] Describe **FIVE** (5) environmental pressures faced by an intertidal organism. (10 marks)
- [b] Explain briefly **THREE** (3) of the adaptation methods used by soft-bottom intertidal organisms (10 marks)
2. [a] Explain **THREE** (3) unique physical features of an estuary. (6 marks)
- [b] Provide **THREE** (3) methods of adaptation of an organism in adapting itself to the drastic changes in salinity of an estuary? (6 marks)
- [c] By using a graph (body salinity versus environmental salinity), differentiate the definition of osmoregulator and osmoconformer. (8 marks)
3. Compare the following ecosystems with respect to their physical characteristics and typical communities:
- [a] Rocky intertidal
 - [b] Sandy beaches
 - [c] Muddy beaches
 - [d] Mangrove forests
 - [e] Estuaries
- (20 marks)

4. [a] Using specific and suitable examples, design a field procedure to measure the changes in a seagrass ecosystem.
(15 marks)
- [b] State the criterias that you need to consider when measuring the changes in the seagrass ecosystem.
(5 marks)
5. [a] How does high sedimentation affect the health of corals?
(10 marks)
- [b] Illustrate a typical fringing reef of Malaysia by using a cross-section diagram.
(10 marks)
6. Describe the characteristics of planktonic and benthic organisms. Compare the adaptation methods used by the organisms against its respective environment.
(20 marks)

1. [a] Huraikan **LIMA** (5) tekanan persekitaran yang dihadapi oleh sesuatu organisma intertidal. (10 markah)
- [b] Jelaskan dengan ringkas **TIGA** (3) cara beradaptasi yang digunakan oleh organisma intertidal dasar lembut. (10 markah)
2. [a] Terangkan **TIGA** (3) ciri unik sesuatu estuari. (6 markah)
- [b] Berikan **TIGA** (3) kaedah adaptasi sesuatu organisma terhadap pertukaran saliniti yang mendadak di sesebuah estuari? (6 markah)
- [c] Dengan menggunakan suatu graf (saliniti badan melawan saliniti persekitaran), bezalan istilah osmoregulator dan osmokonformer. (8 markah)
3. Bandingkan ekosistem-ekosistem berikut berdasarkan ciri-ciri fizikal dan komuniti tipikal:
- [a] Intertidal berbatu
- [b] Pantai berpasir
- [c] Pantai berselut
- [d] Hutan paya bakau
- [e] Estuari (20 markah)

4. [a] Dengan menggunakan contoh yang spesifik dan sesuai, rangkakan satu prosedur lapangan untuk mengukur perubahan dalam suatu ekosistem rumput laut.
(15 markah)
- [b] Nyatakan kriteria-kriteria yang perlu diambil-kira apabila mengukur perubahan dalam suatu ekosistem rumput laut.
(5 markah)
5. [a] Bagaimanakah sedimentasi tinggi mempengaruhi kesihatan karang?
(10 markah)
- [b] Gambarkan suatu terumbu pinggir yang tipikal di Malaysia dengan menggunakan suatu gambarajah keratan rentas.
(10 markah)
6. Huraikan ciri-ciri organisma planktonik dan bentik. Bandingkan cara-cara beradaptasi organisma-organisma tersebut terhadap persekitaran masing-masing.
(20 markah)