
UNIVERSITI SAINS MALAYSIA

Second Semester Examination
Academic Session 2007/2008

April 2008

BST 204/3 – Tropical Ecosystems
[Ekosistem Tropika]

Duration: 3 hours
[Masa : 3 jam]

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

[Sila pastikan bahawa kertas peperiksaan ini mengandungi EMPAT 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. According to the article by Norman Duke (2006) there are a number of key factors influencing the geographical distribution of mangroves in the Indo-West Pacific. Name and describe the factors that were identified.

(20 marks)

2. In the tropics, soils are low in nutrients. Nutrient uptake by plants from the soil is known to be enhanced by the presence of mycorrhizas.
 - [a] What is mycorrhizza?

(5 marks)

 - [b] Describe the importance and role of mycorrhiza to tropical plants.

(15 marks)

3. Write an essay on decomposition and nutrient cycling in the tropics.

(20 marks)

4. Define "tropical marine ecosystem". Giving specific examples explain how tropical marine ecosystems are connected to other ecosystems.

(20 marks)

5. Explain why the South China Sea is regarded as a marine biodiversity hotspot. What are the key factors that caused the degradation of the biodiversity here?

(20 marks)

6. Environmental cues are thought to trigger the mass spawning of some species of corals in the tropics. Explain the environmental events and the associated gonadal development that lead up to mass spawning of these corals.

(20 marks)

1. Berdasarkan artikel Norman Duke (2006) terdapat beberapa faktor utama yang mempengaruhi taburan geografi hutan bakau di kawasan Indo-Barat Pasifik. Nama dan huraikan setiap faktor yang dikenalpasti.

(20 markah)

2. Tanah di kawasan tropika mengandungi nutrien yang rendah. Pengambilan nutrien daripada tanah dibantu dengan kehadiran mikoriza.
 - [a] Apakah mikoriza?

(5 markah)

 - [b] Jelaskan kepentingan dan peranan mikoriza kepada tumbuhan tropika.

(15 markah)

3. Tulis esei tentang penguraian dan kitaran nutrien di kawasan tropika.

(20 markah)

4. Takrifkan "ekosistem tropikal marin". Terangkan bagaimana ekosistem tropikal marin berhubungkait dengan ekosistem-ekosistem yang lain dengan memberikan contoh-contoh spesifik.

(20 markah)

5. Jelaskan kenapa Laut China Selatan dianggap sebagai kawasan "hotspot" biodiversiti marin. Apakah faktor-faktor utama yang menyebabkan degradasi biodiversiti di sini?

(20 markah)