

UNIVERSITI SAINS MALAYSIA

First Semester Examination
Academic Session 2004/2005

October 2004

SBU304E - Environment, Natural Resources and Development
[Alam Sekitar, Sumber Asli dan Pembangunan]

Duration: 3 hours

Please check that this examination paper consists of THREE pages of printed material before you begin the examination.

Sila pastikan bahawa kertas peperiksaan ini mengandungi TIGA muka surat yang bercetak sebelum anda memulakan peperiksaan ini.

Answer **THREE** (3) questions only. You may answer in Bahasa Malaysia or in English.

*Jawab **TIGA** (3) soalan sahaja. Anda boleh jawab dalam Bahasa Malaysia ataupun dalam Bahasa Inggeris.*

1. a) Discuss briefly the major developments in energy technologies in human history.

Bincangkan secara ringkas perkembangan utama teknologi tenaga dalam sejarah manusia.

(40 marks/markah)

- b) Currently, about 85% of global energy consumption comes from nonrenewable fossil fuels (petroleum, natural gas and coal). Petroleum production for example is expected to peak in the next decade, and recoverable reserves may last another 50 years. What are the challenges that human society will have to grapple with during a transition to a post-fossil fuel energy future?

Kini, 85% daripada penggunaan tenaga sedunia terdiri daripada bahan api fosil yang tidak boleh diperbaharui (petroleum, gas asli dan arang batu). Antaranya, pengeluaran petroleum dijangkakan memuncak dalam satu dekad lagi, dan simpanan petroleum barangkali akan habis diguna dalam tempoh masa 50 tahun. Apakah cabaran-cabaran yang perlu ditangani oleh manusia dalam transisi kepada zaman pasca bahan api fosil?

(60 marks/markah)

2. Discuss the factors contributing towards the emergence or re-emergence of infectious diseases, with reference to the following recent episodes:

- a) Hantavirus outbreak (New Mexico, USA, 1993)
- b) Nipah virus outbreak (Malaysia, 1998/1999)
- c) HIV/AIDS (first recorded case, 1959, Kinshasa)
- d) SARS (2003, East Asia)

Bincangkan faktor-faktor yang menyumbang kepada kemunculan dan kemunculan semula penyakit berjangkit dengan merujuk kepada episod-episod berikut:

- a) *Wabak Hantavirus (New Mexico, USA, 1993)*
- b) *Wabak Nipah virus (Malaysia, 1998/1999)*
- c) *Wabak HIV/AIDS (kes pertama dikenali pada tahun 1959, Kinshasa)*
- d) *Wabak SARS (2003, Asia Timur)*

(100 marks/markah)

3. Write short notes on the following:

- a) Air Pollution Index
- b) Kyoto Protocol
- c) Diamond v. Chakrabarty (1980)
- d) Gaia hypothesis

Tuliskan nota-nota ringkas tentang perkara-perkara berikut:

- a) *Indeks Pencemaran Udara*
- a) *Protokol Kyoto*
- b) *Diamond v. Chakrabarty (1980)*
- c) *Hipotesis Gaia*

(100 marks/markah)

4. In July 2003, the National Water Council of Malaysia announced that the Federal Government would soon take control of water resources and its planning and management from the states in the peninsula. Discuss this development from the constitutional, political, and economic aspects.

Pada bulan Julai 2003, Majlis Air Negara mengumumkan bahawa Kerajaan Persekutuan akan mengambilalih kuasa perancangan dan pengurusan sumber air di seluruh Semenanjung Malaysia. Bincangkan perkembangan ini daripada aspek perlembagaan, politik, dan ekonomi.

(100 marks/markah)

5. a) Describe the changes in the composition of the earth's atmosphere since the formation of the earth 4 billion years ago.

Apakah perubahan dalam komposisi atmosfera yang telah berlaku sejak pembentukan dunia 4 billion tahun sebelum kini?

(50 marks/markah)

b) Discuss the concept "sustainable development" as proposed by Herman Daly and his colleagues. To what extent has human society exceeded the carrying capacity of the global ecosystem?

Bincangkan konsep "pembangunan mampan" sepertimana yang dikemukakan oleh Herman Daly dan rakan-rakannya. Sejauhmanakah masyarakat manusia telah melebihi kapasiti tanggungan ekosistem sedunia?

(50 marks/markah)