



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME : TERRESTRIAL ECOLOGY
COURSE CODE : BWJ 20503
PROGRAMME : 2 BWW
EXAMINATION DATE : DECEMBER 2015 / JANUARY 2016
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

- Q1** (a) Explain how the First Law of Thermodynamics is applied to ecology. (5 marks)
- (b) The conversion of energy from one form to another is not 100% efficient, which means that energy is lost when it is transformed from one form to another. Illustrate how this phenomenon is applied in a food chain. (5 marks)
- (c) The Earth is comprised of a vast network of integrated ecosystems and ecological functioning ranges from global to microscopic scale. Outline the specific ecosystem service providers or trophic level according to the following ecological functioning. (10 marks)
- (i) Soil generation and fertility
 - (ii) Purification of water
 - (iii) UV protection
 - (iv) Flood mitigation
 - (v) Pest control
- Q2** (a) Show the distribution of tropical rainforest of the world using a sketch of the world map. (5 marks)
- (b) Outline the characteristics of a lowland tropical rainforest. (10 marks)
- (c) Animals in a lowland tropical rainforest are distributed temporally and spatially. Propose two reasons why these distributions happen. Support your answer by giving examples for each of the type of distribution. (5 marks)
- Q3** (a) Deciduous forests encompass of five different zones. Identify these zones and the vegetative composition of the each zone. (5 marks)
- (b) Deforestation, fragmentation and climate change are the major anthropogenic and abiotic factors threatening sustainability of deciduous forest. However, biotic factors also pose a threat to this valuable ecosystem. Explain this statement by demonstrating appropriate examples. (6 marks)
- (c) Grassland biomes can be divided into two types based on temperature. Demonstrate the characteristics for each type of grasslands. (4 marks)
- (d) Grassland soil is rich in nutrient and almost anything can grow here. However this advantage has become double-edged sword for the ecosystem's well-being. In this context, outline the threats and propose how to overcome the problems. (5 marks)

- Q4** (a) Describe the characteristic of a limestone ecosystem that makes it unstable, thereby endangering the life of the people as well as biodiversity. (5 marks)
- (b) Mangrove is an ecosystem that is neither strictly terrestrial nor aquatic. Outline the characteristics of mangroves that make it able to adapt to either environment. (10 marks)
- (c) Mudflats and estuaries are two ecosystems that are often neglected and least pronounced as compared to other ecosystems like the tropical rainforests. Proposed a conservation strategy that will increase the conservation value of these ecosystems based solely on ecological functioning. (5 marks)
- Q5** (a) Explain why peat swamp forest is special and unique. (5 marks)
- (b) In 2002, three peat swamp conservation sites in Malaysia received financial support from the World Bank. Analyze the characteristics of these areas in terms of location, uniqueness and some findings. (10 marks)
- (c) One of the issues in Malaysia is land conversion. Assess how FELDA has made a success in the Malaysian system of land development. (5 marks)

- END OF QUESTIONS -