INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

FACULTY OF BUSINESS MANAGEMENT

END OF SEMESTER EXAMINATIONS - APRIL 2025

PROGRAMME: BTHM
YEAR/SEM: YEAR 1/SEMESTER 1
COURSE CODE: BTHM 1103
NAME: PLANT ECOLOGY

DATE:
TIME:

INSTRUCTIONS TO CANDIDATES:

SECTION A

Section A is compulsory

Question 1:

Case study: Plant Tourism in the Amazon Rainforest

In the Amazon Rainforest, local communities have developed a unique tourism initiative that showcases the medicinal properties of indigenous plants. Tourists participate in guided forest walks, learning about the traditional uses of plants such as aloe vera for skin conditions, and una de gato for arthritis. The initiative not only generates income for local communities but also promotes the conservation of medicinal plants and preserves traditional knowledge. Moreover, tourists have the opportunity to purchase local herbal remedies and products, further supporting the local economy.

Questions

(a) Examine the potential benefits of plant for the tourism Industry (10 marks)

(b) Elaborate on the fact that tourism development contributes to the conservation indigenous plants and traditional knowledge (10 mark

(c) Examine the potential risks or challenges associated with medicinal plant tourism, and how can they be mitigated (5 marks)

(c) Advice tourists on how they can ensure that they are supporting responsible and sustainable plant tourism practices (5 marks)

(e) Describe how tourists support sustainable plant use and conservation practices during their visit to the Amazon Rainforest (10 marks)

Question 2:

Kibale National Park in western Uganda is a tropical rainforest with a diverse array of plant species. The park's unique climate and environmental conditions have led to the evolution of various leaf adaptations in its plant species. The park's tropical rainforest is characterized by high temperatures, high humidity, and intense sunlight. To cope with these conditions, plants have developed specialized leaves with adaptations such as: - Large leaf size to maximize photosynthesis - Thick cuticles to prevent water loss - Waxy coatings to reflect excess sunlight - Drip tips to facilitate water runoff - Hairy or pubescent leaves to reduce transpiration. Some examples of plant species found in Kibale Nat ional Park with unique leaf adaptations include: - The umbrella tree (Musanga ecropioides) with its large, flat leaves that provide shade and protect against heavy rainfall - The fig tree (Ficus spp.) with its small, hairy leaves that reduce transpiration and conserve water - The palm tree (Arecaceae) with its long, slender leaves that maximize photosynthesis and withstand strong winds

Questions:

(a) Discuss the importance of leaf size and shape in plants found in Kibale National Park (8 marks)

(b) Describe how plants in Kibale National Park prevent water loss through their leaves (10

marks)

(c) Discuss the importance of leaf adaptations in enabling plants to survive and thrive in the tropical rainforests of Kibale National Park (10 marks)

(d) Examine the role of environmental factors such as light, temperature, and humidity in shaping leaf adaptations in plants found in Kibale National Park (12 marks)

SECTION B

Select any THREE (3) Questions from this Section (60 Marks)

Question 1:

(a) Discuss the ethnobotanical values of plants in regards to cultural, economic, ecological and biological values (15 Marks)

(b) Examine the significance of flora in facilitating tourism development in your country or region (10 Marks)

Question 2:

(a) Differentiate between primary growth and secondary growth and identify the associated plant cells for each.(8 Marks)

(b) Examine the distinct types of plant cells and their specific functions

Question 3:

(a) Describe the adaptations that enable plants to survive in the following environments (5 marks each)

(i) Arid Environments.

(ii) Aquatic Environments.

(iii) Alpine Environments.

(b)Examine the adoptions of plants to competitive environments and provide examples of each (5 Marks)

Question 4:

(a) Discuss the factors that influence the structure and composition of plant communities. (13 Marks)

(b) Explain the concept of ecological succession and how it shapes plant communities over time. (12 Marks)

Question 5:

(a)Explain the role of plant defenses in protecting against pathogens and herbivores (12 marks)

(b)Discuss the differences between angiosperms and gymnosperms (8 marks)

Question 6:

(a) Analyze the impact of tourism infrastructure development on plant communities and ecosystems (12 marks)

(b) Examine the role played by tourism in promoting plant conservation efforts in your Country. Support your answer with examples (13 marks)

Question 7:

(a) Analyze the impact of tourism infrastructure development on plant communities and ecosystems(10 marks)

(b) Explain the differences between tap roots and fibrous roots (10 marks)

Question 8:

(a)Describe the various ways in which plants defend themselves against pathogens and herbivores (15 marks)

(b)Examine the modification of underground stems (5 marks)

Question 9:

(a) Compare and contrast the reproductive structures of monocots and dicots (10 marks)

(b) Discuss the adaptations of plants that enable them to reproduce in different environments (10 marks)

Question 10:

Compare and contrast self-pollination and cross-pollination, including the advantages and disadvantages of each (20 marks)

Question 11:

(a) Discuss the functions of leaves to plants (10 marks)

(b)Examine the difference between roots and stems (10 marks)

Question 12:

(a)Describe the difference between stilt roots and aerial roots (10 marks)

(b) Examine the modification of roots in plants (10 marks)