INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

FACULTY OF SCIENCE AND TECHNOLOGY

END OF SEMESTER EXAMINATIONS - APRIL 2025

PROGRAMME: BSEM
YEAR/SEM: YEAR 1/SEMESTER 2
COURSE CODE: BSE1204
NAME: CONSERVATION AND SUSTAINABLE DEVELOPMENT

DATE:
TIME:

INSTRUCTIONS TO CANDIDATES:

SECTION A

Answer all questions in this section (40 marks)

Question 1:

a. Mention the various types of ecosystems (6 marks)
b. How does man benefit from natural resources? (6 marks)
c. List at least six SDGs (6 marks)
d. Define the following terms as used in environmental science; 2 marks each
i. Extinction
ii. Endangered species
iii. Species
iv. Sustainable agriculture
e. Differentiate between renewable and non-renewable resources. Give at least 3 examples under each category. (7 marks)
f. Why do environmental scientists recommend renewable energy versus non-renewable energy sources? (7 marks)

Question 2:

a. a. What is an ecosystem? (2marks)
b. With examples, differentiate between the biotic and abiotic components of ecosystems (6 marks)
c. How does conservation differ from preservation (4 marks)
d. Define the following terminologies; give at least 2 examples under each category (6 marks)
i. Autotrophs
ii. Heterotrophs
iii. Detritivores
e. What are the potential impacts of ecosystem degradation on local communities? (6 marks)
f. What is sustainable development? (2 marks)
g. What are invasive species and how do they affect biodiversity (7 marks)
h. Give the two types of natural resources (2 marks)

SECTION B

Attempt any 3 questions from this section (60 marks)

Question 1:

Human well-being directly and indirectly relies on the quality of ecosystems. Discuss the various ways in which humanity benefits from ecosystems. 20 marks

Question 2:

Two neighboring regions share a river as their primary water source. One region is heavily industrialized and uses large amounts of water for manufacturing, while the other relies on the river for agriculture and drinking water. Recently, the agricultural community has reported water shortages and pollution from industrial waste. How should government address this conflict to ensure fair and sustainable water distribution for both regions? 20 marks

Question 3:

a. Climate change has significant impacts on the environment, ecosystems, economies, and societies worldwide. Outline these impacts (10 marks)
b. Giving at least three practical examples under each category, differentiate between climate change adaptation and climate change mitigation. (10 marks)

Question 4:

Account for at least 10 causes of biodiversity loss in your home country (10 marks)
b. As an environmental scientist, what do you think should be done to prevent further biodiversity loss (10 marks)

Question 5:

a. Why is environmental conservation important? (8 marks)
b. Discuss the various methods by which environmental conservation can be achieved (12 marks)

Question 6:

a. Briefly explain the 3 different levels of biological diversity (9 marks)
b. Discuss the major threats to biodiversity, including both natural and human-induced factors. (11 marks)

Question 7:

Ecological principles are the foundational rules that help explain how ecosystems function and how organisms interact within their environment. Explain the following ecological principles; 4 marks each
i. The principle of energy flow
ii. The principle of interdependence
iii. The principle of nutrient cycling
iv. The principle of adaptation and evolution

v. The principle of carrying capacity

Question 8:

Define sustainable development and explain its three main pillars. (20 marks

Question 9:

How does climate change impact biodiversity, and what strategies can be implemented to mitigate its effects? (20 marks)

Question 10:

A local community depends on a nearby forest for timber, firewood, and non-timber products. However, over the past decade, deforestation has increased due to illegal logging and agricultural expansion. What strategies can be used to balance the needs of the community while ensuring the long-term sustainability of the forest? 20 marks

Question 11:

a. With examples, define natural resources (2 marks)
b. Mention practical ways in which natural resources can be sustainably managed. (18 marks)

Question 12:

A rural community depends on hunting for food and income, but certain species are being overhunted to the point of decline. Conservation organizations are proposing hunting restrictions, but locals fear this will negatively impact their livelihoods and traditions. What alternative solutions can be proposed to ensure species conservation while addressing the economic and cultural needs of the community? 20 marks