INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

FACULTY OF SCIENCE AND TECHNOLOGY

END OF SEMESTER EXAMINATIONS - AUGUST 2025

PROGRAMME: BSEM
YEAR/SEM: YEAR 1/SEMESTER 1
COURSE CODE: BSE1103
NAME: ENVIRONMENTAL STRUCTURES & GEO PROCESSES

DATE:
TIME:

INSTRUCTIONS TO CANDIDATES:

SECTION A

Answer all questions in this section (compulsory)

Question 1:

a) How were sea and oceans formed during planet formation? (6 marks)

b) State and explain the general principles of relative dating. (5 marks)

c) Use diagrams to illustrate the physical distinct layers of the earth. (6 marks)

d) Explain how the ages of rocks can be determined. (4 marks)

e) Outline the techniques used in absolute dating. (4 marks)

f) Illustrate the three types of plate boundary. (6 marks)

g) Outline the characteristics of the solar system. (6 marks)

h) Why are some planets heavier than others? (3 marks)

Question 2:

a) Identify the eight planets that make up the solar system. (4 marks)

b) State and explain the three types of plate boundaries. (6 marks)

c) Why are earth rocks younger than meteorites and moon rocks? (6 marks)

d) State and explain the general principles of relative dating. (5 marks)

e) Use diagrams to illustrate the physical distinct layers of the earth. (6 marks)

f) Explain the techniques used in absolute dating (3 marks)

g) Using examples differentiate between terrestrial and jovian planets. (4 marks)

h) State and explain the three types of plate boundary. (6 marks)

SECTION B

Attempt only three (3) questions from this section

Question 1:

a) Discuss the characteristics of the solar system. (10 marks)

b) Distinguish between terrestrial and jovian planets. (10 marks)

Question 2:

a) With the aid of diagrams, illustrate the earth's interior layers. (10 marks)

b) Describe the composition of the following: (10 marks)

i) The lithosphere

ii) The core

iii) The asthenosphere

Question 3:

a) Discuss the economic and societal impacts of earthquakes? (10 marks)

b) Describe how the size and strength of earthquake measured? (10 marks)

Question 4:

a) Explain the following hypotheses; (10 marks)

i) Why are some planets heavier than others?

ii) Why are some planets hotter than others?

b) Describe the story of planet building process using the two distinct models (10 marks)

Question 5:

The earth has gone through different geological times. Identify them with the major events that occurred in each. (20 Marks)

Question 6:

a) Discuss the characteristics of the solar system. (10 marks)

b) Distinguish between terrestrial and jovian planets. (10 marks)

Question 7:

a) With the aid of diagrams, illustrate the earth's interior layers (10 marks)

b) The hydrological cycle is an important cycle in running geological processes, use a diagram to illustrate the hydrological cycle. (10 marks)

Question 8:

Discuss how the first, second and third atmospheres where formed (20 marks)

Question 9:

a) Define the term volcanicity (4 marks).

b) Explain the different types of volcanic eruptions (6 marks)

c) Discuss the social and societal impacts of volcanic eruptions (10 Marks).

Question 10:

a)Write short notes on the elastic rebound theory (10 marks)

b) Discuss the different precursors for earthquakes (10 marks)

Question 11:

a) Define the rock cycle. (4 marks)
b) Describe how igneous, sedimentary, and metamorphic rocks are formed. (8 marks)
c) Explain how rocks transition from one form to another within the cycle. (8 marks)

Question 12:

a) List three major volcanic hazards and describe how each affects the environment and human settlements. (6 marks)
b) Identify two major active volcanoes in the East African Rift System. (4 marks)
c) Suggest four strategies for minimizing risks in volcanic regions. (10 marks)