INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

FACULTY OF SCIENCE AND TECHNOLOGY

END OF SEMESTER EXAMINATIONS - DECEMBER 2025

PROGRAMME: BSEM
YEAR/SEM: YEAR 2/SEMESTER 1
COURSE CODE: BSE2102
NAME: INTEGRATED WATER RESOURCES MANAGEMENT

DATE:
TIME:

INSTRUCTIONS TO CANDIDATES:

SECTION A

Attempt only ONE question

Question 1:

a. Define the following. Two (2) marks each. (06 marks)

i. Water allocation

ii. Water basin management

iii. Water balance management

b. Mention at least four (4) principles of IWRM. (04 marks)

c. With examples, differentiate between point and non-point sources of pollution. (04 marks)

d. With examples, list the three (3) categories of diseases transmitted through water. (06 marks)

e. What is water resource assessment? (02 marks)

f. Define water stress. (02 marks)

g. What factors affect water demand? (05 marks)

h. Explain water scarcity. (04 marks)

i. What are the challenges encountered by stakeholders while ensuring water security? (07 marks)

Question 2:

a. Giving three examples of each, mention any four categories of ecological indicators. (08 marks)

b. Explain any three water challenges in fast-growing cities. (06 marks)

c. Explain the 3E’s of IWRM. (06 marks)

d. With examples, mention at least four categories of water pollutants. (04 marks)

e. Explain the importance of carrying out water quality testing. (06 marks)

f. Mention the climatic factors that influence the hydrologic cycle. (04 marks)

g. Which factors affect the amount of dissolved oxygen in water? (06 marks)

SECTION B

Attempt any THREE questions

Question 1:

Account for the different stages of drinking water treatment process.

Question 2:

With the aid of a labelled diagram, explain the hydrological cycle.

Question 3:

Discuss the financial and economic impacts of water scarcity on Agriculture.

Question 4:

Discuss the importance of risk assessment in ensuring water security.

Question 5:

Explain the different techniques used in biological wastewater treatment.

Question 6:

Discuss water as an agent of erosion.

Question 7:

Describe the Oxygen Sag Curve.

Question 8:

a. Explain the criteria used to determine river types. (10 marks)
b. What factors affect river runoff and regime. (10 marks)

Question 9:

a. Briefly discuss the factors affecting water demand and water use. (10 marks)
b. Describe the concept of eutrophication. (10 marks)

Question 10:

a. Give an account of the major sources of pollution. (10 marks)

b. Explain the causes of water stress. (10 marks)

Question 11:

a. Justify the importance of integrating ecological indicators in river basin monitoring. (10 marks)

b. Explain eutrophication. (10 marks)

Question 12:

a. a. Account for at least ten (10) physical and chemical parameters that affect the quality of a given water body. (10 marks)

b. b. Discuss the importance of ensuring water security. (10 marks)