



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY  
SCHOOL OF SPATIAL PLANNING  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN  
WATER AND ENVIRONMENTAL MANAGEMENT**

**YEAR FOUR SEMESTER I 2024/2025 ACADEMIC YEAR**

**CENTRE: ONLINE - ODeL**

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**COURSE CODE: PNB 1306**

**COURSE TITLE: SCIENTIFIC AND ECONOMIC INSTRUMENTS FOR ENVIRONMENTAL  
MANAGEMENT**

**EXAM VENUE: STREAM: BSc. Water and Env Res Management [3.2]**

**DATE: 23/4/2025**

**EXAM SESSION: 9.00-11.00**

**TIME: 2 HOURS**

**Instructions:**

- 1. Answer question 1 (compulsory) and ANY other 2 questions.**
- 2. Candidates are advised not to write on the question paper.**

**Candidates must hand in their answer booklets to the invigilator while in the examination room.**

## QUESTION ONE

- a) Critique the concept 'ecosystem services valuation' in environmental management [6 marks]
- b) Explain six characteristics of an environmental appraisal process [6 marks]
- c) Explain criteria for environmental decision-making management process [6 marks]
- d) Explain how application of 'green environmental tax' promotes sustainability [6 marks]
- e) Explain how Life Cycle Assessment(LCA) promotes environmental management [6 marks]

## Question 2

- a) With appropriate examples explain how 'payment for ecosystem services' supports environmental resources management agenda (10 marks)
- b) With examples critique environmental valuation methods (10 marks)

## Question 3

- a) With examples analyze Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) tools [10 marks]
- b) Explain how subsidies are applied as economic instruments of environmental management [10 marks]

## Question 4

Illustrate how you can establish and implement a robust Environmental Management System (EMS) at a higher institution of learning [20 marks]

## Question 5

- a) Evaluate Environmental Audit as an environmental management tool (10 marks)
- b) Discuss how green tax principles can be implemented in an economy(10 marks)