



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN
BIOLOGICAL SCIENCE
4th YEAR 2nd SEMESTER 2018/2019 ACADEMIC YEAR
MAIN CAMPUS - REGULAR

COURSE CODE: SBI 3446
COURSE TITLE: WETLAND ECOLOGY
EXAM VENUE: BIO LAB STREAM: (BIO)
DATE: 30/04/2019 EXAM SESSION: 12.00-2.00PM
TIME: 2 HOURS

Instructions:

- 1. Answer ALL questions in Section A and Any two questions in Section B**
 - 2. Candidates are advised not to write on question paper**
 - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. Define the following terms a). Hydric soil b). Marshes c). Bogs (3 marks).
2. Explain Liebig's Law of the Minimum and how it relates to eutrophication (3 marks).
3. List six hydrological inputs and outputs of a wetland that determines its water budget (3 marks).
4. Outline three disadvantages of light/dark bottle method of determining productivity in wetlands (3 marks).
5. Define swamps and distinguish between recharge and discharge wetlands (3 marks).
6. Outline the main categories of wetland plants as proposed by Sculthorpe (1967) (3 marks).
7. Describe three major challenges of conserving wetlands in Kenya (3 marks).
8. Explain the influence of water source on the fertility, nutrient status and diversity of wetlands (3 marks).
9. Account for the unique chemical properties of hydric soils that may act as indicators of wetland conditions (3 marks).
10. Explain the influence of flooding on nutrient availability on wetland soils (3 marks).

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Critically analyse key ecosystem services derived from wetlands (20 marks).
12. a) Discuss the biogeochemical dynamics of phosphorus and nitrogen in fresh water wetlands and their implication on fresh water productivity (15 marks).
b.) Explain the major causes of eutrophication and how it can be managed (5 marks).
13. Discuss the morphological and behavioral adaptations of wetland organisms to water logged and intertidal environments (20 marks).
14. You have been appointed the County Director of Environment in Siaya County. One of the first task is to initiate a process leading to development of Strategic Management Plan for the Yala swamp wetland. You have organized a workshop for environmental officers from the county to discuss with them your plans and conclude that you will need to undertake a situational analysis to begin the process.
a). Explain what you mean by Strategic Wetland Management Plan and why it is necessary (5 marks).
b). Explain what you mean by Situational Analysis and how you purpose to undertake the process (15 marks).