



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
3rd YEAR 1st SEMESTER 2022-2023 ACADEMIC YEAR
MAIN CAMPUS - REGULAR

COURSE CODE: SBB 1303
COURSE TITLE: PRINCIPLES OF ECOLOGY II
EXAM VENUE: BOT LAB
DATE: 14/12/2022 EXAM SESSION: 15.00-17.00PM
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: (30 MARKS) ANSWER ALL QUESTIONS

1. Define the following ecological terms
 - a) Ecological community
 - b) Synecology (3 marks)
2. What do you understand by the term “Community structure”? (3 marks)
3. List the underlying causes of community zonation of species distributions?(3 marks)
4. Explain three ways by which community structures can be delineated (3 marks)
5. Explain the principle of competitive exclusion (3 marks)
6. a) List two measures of species diversity that are incorporated when calculating indices of species diversity? (2 marks)
b) Explain the relationship between habitat diversity and species diversity? (1 mark)
7. Using an example, explain why pollination in plants is regarded a co-evolutionary process (3 marks)
7. Distinguish between objective and subjective sampling of ecological communities (3 marks)
8. The table below comprises different species found in a forest community. Calculate Simpson’s diversity index of the community (3 marks)

| Species | Absolute abundance |
|----------|--------------------|
| Mouse | 24 |
| Squirrel | 16 |
| Shrew | 8 |
| Wobbler | 34 |

9. With an illustration, explain three types of plant responses to herbivory (3 marks)
10. Explain why it is likely to find higher species diversity in an ecotone compared to the two adjacent communities (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. You have been asked to conduct an ecological survey of the Ruma National Park
Discuss in detail, the appropriate methodologies and tools you will rely on to
successfully carry out the assignment (20 marks)
12. Discuss key ecosystem services derived from wetlands (20 marks)
13. Discuss how humans have influenced the structure and functions of ecological
communities (20 marks)
14. Discuss how vegetation structure and composition influence animal diversity in a
community (20 marks)