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**

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. Discus 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)