



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

UNIVERSITY EXAMINATIONS

2021 / 2022 ACADEMIC YEAR

**MAIN EXAMINATIONS
MAIN CAMPUS**

THIRD YEAR SECOND SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF**

**BACHELOR OF SCIENCE IN BIOLOGY/EDUCATION
SCIENCE/AGRICULTURAL EDUCATION AND EXTENSION**

COURSE CODE: SBN 321

COURSE TITLE: PLANT ECOLOGY

DATE: THURSDAY, 21ST APRIL 2022

TIME: 3:00 – 5:00 P.M.

INSTRUCTIONS TO CANDIDATES

Answer ALL questions in section A and ANY TWO selected from section B

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over. ►

SECTION A (SHORT ANSWER QUESTIONS, 40 MARKS)

1. State how environmental heterogeneity influences the distribution of plant communities within landscapes (5 marks)
2. In one of the plant ecology field excursions, students were asked to identify the observable analytical characters of plants within the botanical garden. State any five of these characters that were observed (5 marks)
3. a) Define a guild in relation to rainforest ecosystem (2 marks)
b) State the three levels through which plant communities can be analysed (3 marks)
4. State any five instances where plants have high sociability rates (5 marks)
5. Explain how ecosystems are categorised using the three criterion functions and in each of the cases give examples (5 marks)
6. Define the following ecological species and give examples of organisms that falls under each case; (5 marks)
 - a) Keystone species
 - b) Umbrella species
 - c) Foundation species
 - d) Indicator species
 - e) Flagship species
7. Explain how plant allelopathy affects the distribution of plant species. (5 marks)
8. Distinguish between Simpson Index and Shannon Weiner Index as measures of plant diversity (5 marks)

SECTION B (ESSAY QUESTIONS, 30 MARKS)

9. Describe the various Plant defences against herbivory or host-plant resistance (HPR) evolved by plants which improves their survival and reproduction by reducing the impact of herbivores. (15 marks)
10. Describe how weather and climate influences the global distribution of vegetation. (15 marks)
11. Describe the variations in gross primary production and net primary production between plant communities in the tropics and temperate regions. (15 marks)