KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF EDUCATION SCIENCE
SECOND SEMESTER 2022/2023
(JUNE - SEPTEMBER, 2022)

BOTA 361: PLANT ECOLOGY

STREAM: Y3 S2 **TIME: 2 HOURS**

DAY: TUESDAY, 12.00 PM – 2.00 PM **DATE: 13/09/2022**

INSTRUCTIONS:

1. ***Do not write anything on this question paper.***
2. ***Answer all questions in section A and any TWO in section B.***

SECTION A: ANSWER ALL QUESTIONS (40 MARKS)

1. Differentiate between the following terms as applied in plant ecology
   a) Population and Community. (2 marks)
   b) Food web and food chain. (2 marks)
   c) Trophic level and ecological pyramid. (2 marks)
2. Evaluate the interactions between *Ficus aurea* and its host plant. (5 marks).
3. Distinguish between 2:1 and 1:1 clays in terms of soil structure. (6 marks)
4. Explain adaptation trends of Afroalpine communities to drought. (5 marks)
5. List and explain three eco-climatic zones. (6 marks)
6. Briefly discuss the adaptations of mangroves to high salinity. (5 marks)
7. Explain the impacts of Pastoralism on East Africa grasslands. (3 marks)
8. Explain the adaptations of plants in the Tundura biome. (4 marks)

SECTION B: ANSWER ANY TWO QUESTIONS (30 MARKS)

11. Discuss symbiotic density dependent and density independent factors regulating plant population growth. (15 marks)
12. Discuss the types of East African wetlands and effects of seasonal flooding (15 marks)
13. The data below was collected from a mangrove forest using a belt transect measuring 60m by 5m, which had been sub-divided into 6 quadrants measuring 10m by 5m.

Quadrant number	**Species**	**Number of individuals**	**Basal area of each individual (cm)**
1	*Rhizophora mucronata*	2	10
2	*Avicennia marina*	2	5
2	*Ceiops tagal*	1	10
3	*Ceiops tagal*	1	5
4	*Ceiops tagal*	1	20
5	*Avicennia marina*	3	10
6	*Rhizophora mucronata*	1	10

Calculate the density (individuals/ha) and the Importance value of *Avicennia marina* (15 marks)