(*Knowledge for Development*)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2020/2021 ACADEMIC YEAR

SECOND YEAR FIRST SEMESTER MAIN EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF EDUCATION

COURSE CODE: **SBT 301**

COURSE TITLE: **PLANT ECOLOGY**

DATE: Wednesday 14th July, 2021. **TIME:** 2:00 – 4:00 p.m.

INSTRUCTIONS TO CANDIDATES

Answer Question one (1) and any other two (2) Questions. Question one is compulsory and carries 30 marks, the other Questions carry (20 marks) each.

TIME: 2 Hours

This paper consists of 3 printed pages. Please Turn Over

Q1 (a) Define the following terms as used in pPlant Ecology

(i) Community
(ii) Ecosystem
(iii) Habitat
(iv) Speciation
(v) Succession (5 marks)

(b) Distinguish between

(i) Alpha and beta diversity
(ii) Flux rate and Turnover rate
(iii) Fundamental niche and realized niche
(iv) Mutualism and Commensalism
(v) Pyramid of numbers and pyramid of biomass (5 marks)

(c) Explain the threats to African marine communities? (5 marks)

(d) What is a trophic level in a community of organisms? (5 marks)

(e) Outline the factors that determine the structure of African grasslands (5 marks)

(f) To assess the vegetation structure of Kakamega forest, a transect measuring 5m x 10m was laid out and divided into 5 equal quadrats from which the following data was obtained:

Species	**Quadrat No.**	**Basal area (cm2)**
Commiphora baluensis	1	10
Commiphora baluensis	1	10
Maerua triphyla	1	20
Maerua triphyla	2	5
Balanites aegypitiaca	2	10
Commiphora baluensis	3	20
Balanites aegypitiaca	4	5
Maerua triphyla	5	10
Maerua triphyla	5	10

(i) Determine the tree density (Individual/ha) of *Maerua triphyla* (1 mark)

(ii) Determine the Importance Value of *Commiphora baluensis* (4 marks)

Q2 Discuss the Darwinian theory of natural selection explaining how it relates to modern concept. (20 marks)

Q3 Discuss the morphological and physiological adaptations of mangroves (20 marks)

Q4 Discuss the carbon biogeochemical cycle. (20 marks)

Q5 Describe Raunkiar's system of plant classification (20 marks)