



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

SBT 309: ADVANCED PLANT ECOLOGY

DATE: 23/4/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS

1. Answer Question one (compulsory) and **any other two** questions
2. Use clean well labelled diagrams wherever appropriate.

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Explain three factors that encompass composition of plant community structure. (3 marks)
- b) Explain how plants specialize and adapt to the changing weather and climatic conditions in order to survive. (3 marks)
- c) Outline three reasons that explain the high plant diversity within lower latitude areas as compared to higher latitude regions. (3 marks)
- d) Distinguish between analytical and synthetic plant characters as used in the study of plant structure and composition. (3 marks)
- e) Distinguish between Simpson's and Shannon's diversity indices (3 marks)
- f) Explain how you can establish a belt transect. (3 marks)
- g) Describe three types of ordination used in ecological analysis (3 marks)
- h) Explain how interspecies interactions can shape a plant community (3 marks)
- i) Distinguish between direct and indirect gradient analysis. (3 marks)
- j) Briefly explain three types of symbiosis (3 marks)

QUESTION TWO (20 MARKS)

Discuss why the structure of a community is the result of many interacting factors.

QUESTION THREE (20 MARKS)

- a) Discuss the various sampling methods that can be used to measure the distribution of a vegetation species in an ecosystem (12 marks)
- b) Explain adaptations of plants to nutrient cycling (8 marks)

QUESTION FOUR (20 MARKS)

Describe qualitative and quantitative characters of plant community

QUESTION FIVE (20 MARKS)

Discuss inter- species interactions in an ecosystem