MACHAKOS UNIVERSITY

University Examinations 2017/2018

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION(SCIENCE)

BACHELOR OF SCIENCE (BIOLOGY)

SBT 309: ADVANCED PLANT ECOLOGY

DATE: 11/12/2017 **TIME: 2.00-4.00 PM**

INSTRUCTIONS

1. Anwer Question one (**compulsory**) from section A and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A

1. a) Outline effects of environmental factors on plants (3 marks)

   b) Discuss mechanisms that would allow species that consume the same resources to co-exist. (3 marks)

   c) Define an ecological community? Explain ways of quantifying the diversity of a community. (3 marks)

   d) Explain how productivity might increase with diversity (3 marks)

   e) State factors that determine the rate at which species distributions respond to climate change (3 marks)

   f) Discuss the relationship between diversity and community structure and function (3 marks)

   g) Describe the analytic characteristics of plant communities (3 marks)

   h) State the life history traits that affect r and K (3 marks)

i) Describe different vegetation sampling methods (3 marks)

j) Differentiate between direct and indirect gradient analysis (3 marks)

SECTION B

2. Discuss how species interactions between organisms affect the distribution of plants (20 marks)

3. Contrast the fundamental and the realized niche. which one of these would be affected by a competitor and in what way would a competitor change this niche? (20 marks)

4. Describe the the advantages of indirect gradient analysis over direct gradient analysis (20 marks)

5. Draw a graph of logistic population growth (abundance vs time) and explain how parameters r and K affect the shape of this graph (20 marks)