



# **MASENO UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2017/2018**

### **FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF MASTER OF SCIENCE IN BOTANY (MICROBIOLOGY AND PLANT PATHOLOGY)**

#### **MAIN CAMPUS**

#### **SBT 804: APPLIED ECOLOGY**

Date: 20<sup>th</sup> February, 2018

Time: 8.30 - 11.30am

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#### **INSTRUCTIONS:**

- Answer ALL Questions in Section A and any other THREE from Section B.



**SECTION A: ANSWER ALL QUESTIONS IN SECTION A (30 MARKS)**

1. Discuss the functional groups of the microorganisms in the biogeochemical nitrogen cycle, showing the oxidation state and uptake of negative ions.

(15 marks)

2. Discuss the critical and contemporary issues in the evolution strategy types of Grime (C-S-R model) and facilitation tolerance model of Connell and Slatyer in the survival of the plants.

(15 marks)

**SECTION B: Answer THREE Essay questions (30 Marks)**

3. Discuss the island biogeography steady-state theory according to Preston, MacArthur and Wilson.
4. Discuss the fact that the existence of trophic levels is doubtful and questioned, giving examples.

(10 marks)

(10 marks)

5. Discuss the significances of Simpson's diversity index and diversity index of Shannon and Weaver in ecological studies (10 marks)
6. Critique pyramid of biomass and pyramid of energy and their applicability in ecological studies. (10 marks)
7. Describe the methods of studying succession in the plants. (10 marks)