



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations for 2015/2016 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF EDUCATION (SCIENCE)
BACHELOR OF SCIENCE (BIOLOGY)

SBT 201 PLANT FUNCTION

DATE: 1/8/2016

TIME: 2.00-4.00 PM

INSTRUCTIONS:

- The paper consists of **two** sections.
- Section **A** is **compulsory**.
- Answer any **two** questions from section **B**.

SECTION A (COMPULSORY)

1. a) i) Explain the composition of a solution. (2 marks)
ii) What is the tyndall phenomenon. (1 mark)
iii) How does water flux from external medium into vacuoles of plant cells. (2 marks)
- b) i) What is meant by the term eutrophication. (1 mark)
ii) State the two factors that determine the deficiency symptoms for nutrients. (2 marks)
iii) Briefly describe the dark reactions of photosynthesis. (3 marks)

- c) i) Why is respiration important to plants? (3 marks)
ii) Outline the significance of carbohydrates to plants. (3 marks)
iii) How are triglycerides formed? (2 marks)
- d) i) Explain why amino acids and proteins are good buffers. (2 marks)
ii) Give an account of the distribution of enzymes in a plant tissue. (4 marks)
iii) Describe the effect of hormones on plant growth. (5 marks)

SECTION B (ANSWER ANY TWO QUESTIONS)

2. a) Write short notes on types of solutions. (10 marks)
b) Discuss the properties of colloidal suspensions. (10 marks)
3. a) How does mineral elements concentration affect plant growth? (10 marks)
b) Briefly discuss the light reaction of photosynthesis. (10 marks)
4. a) Discuss the external factors that affect respiration. (10 marks)
b) Describe methods used in studying plant nutrition (10 marks)
5. a) Explain how plant enzymes work. (10 marks)
b) Outline the functions of the different classes of endogenous plant hormones. (10 marks)



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FIRST SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF EDUCATION (SCIENCE)

SBT 200: PLANT ECOLOGY

DATE: SCHOOL BASED

TIME:

INSTRUCTIONS:

- The paper consists of **two** sections.
- Section **A** is **compulsory**.
- Answer any **two** questions from section **B**.

SECTION A (COMPULSORY)

1. a) i) What is an ecosystem? (1 mark)
ii) Describe the biotic component of an ecosystem. (3 marks)
iii) Explain the causes of global warming. (2 marks)
- b) i) What are the aspects considered in description of a plant community? (2 marks)
ii) Outline some of the attributes important in plant classification. (2 marks)
iii) Briefly describe the short comings of the life-form classification. (2 marks)
- c) i) Distinguish between the two types of succession. (2 marks)

- ii) State the changes that accompany primary succession. (3 marks)
- iii) Classify ecosystems on the basis of their rate of production. (3 marks)
- d) i) Differentiate between allochthonous and autochthonous materials in biochemical cycles. (2 marks)
- ii) Define the term biogeography. (1 mark)
- iii) Discuss features of upland forests. (3 marks)
- e) i) State two reasons for analyzing plant vegetation. (2 marks)
- ii) Explain the two types of samples an ecologist uses. (2 marks)
- iii) Identify vegetation parameters taken into account during an ecology survey. (2 marks)

SECTION B (ANSWER ANY TWO QUESTIONS)

- 2. a) Write short notes on Ozone layer depletion. (10 marks)
- b) Describe the Clementian sub-components of succession. (10 marks)
- 3. a) Explain the harvest method as a measure of productivity. (10 marks)
- b) Using an illustration discuss the Phosphorus cycle. (10 marks)
- 4. a) Outline the patterns of plant distribution on a global scale. (10 marks)
- b) “Wetlands are complex ecosystems and need to be conserved”. Discuss (10 marks)
- 5. a) Discuss methods used in plotless sampling design. (10 marks)
- b) Explain negative human impact on natural ecosystem. (10 marks)