



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
SCIENCE (BIOLOGY)

SBT 204: PTERIDOPHYTES AND BRYOPHYTES

DATE: 8/8/2016

TIME: 11.00-1.00 PM

INSTRUCTIONS:

Answer question 1 (compulsory) and any other two questions

QUESTION ONE (COMPULSORY)

- a) Outline features that distinguish Hornworts from other groups of bryophytes (3 marks)
- b) Differentiate the following structures found in bryophytes:
 - i. Elaters (1 mark)
 - ii. Pseudo-elaters (1 mark)
 - iii. Peristome (1 mark)
- c) In which ways do Pteridophytes differ from the more primitive Lycopytes and the higher plant groups? (3 marks)
- d) Give a brief outline of the vegetative structure of Equisetum morphology (3 marks)
 - i. Briefly, describe the growth pattern of Protonema into a mature gametophytic plant body (3 marks)

- ii. Describe the process of asexual reproduction in the Division Marchantiophyta (3 marks)
- iii. Briefly describe any two types of sporangia found in Pteridophytes (3 marks)
- iv. Give a brief review of the somatic structure of the genus *Psilotum* (3 marks)
- v. Briefly, explain the evolutionary and fossil existence of Bryophytes and Pteridophytes (3 marks)
- vi. State three major characteristics of the Division Lycopodophyta (3 marks)

SECTION B (40 MARKS)

QUESTION TWO

With examples in each case, discuss the distinguishing features between the following two types of life cycles:

- (a) Homosporous life cycle (10 marks)
- (b) Heterosporous life cycle (10 marks)

QUESTION THREE

Discuss the sporophytic and gametophytic generations of Pteridophyta (20 marks)

QUESTION FOUR

- (a) Discuss the challenges facing conservation of tropical bryophytes and pteridophytes (10 marks)
- (b) Explain how the challenges in (a) above can be mitigated? (10 marks)

QUESTION FIVE

Discuss the various life and growth forms found in mosses (20 marks)