

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER 2009

TITLE OF PAPER: SPERMATOPHYTA

COURSE CODE: B301

TIME ALLOWED: THREE HOURS

INSTRUCTIONS:

1. ANSWER ANY FOUR QUESTIONS, ONE QUESTION FROM EACH SECTION.
2. EACH QUESTION CARRIES TWENTY FIVE (25) MARKS.
3. ILLUSTRATE YOUR ANSWERS WITH LARGE AND CLEARLY LABELLED DIAGRAMS WHERE APPROPRIATE.

SPECIAL REQUIREMENTS: NONE

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS
BEEN GRANTED BY THE INVIGILATORS

SECTION A
Pteridophytes

QUESTION 1

- (a) With the help of drawings discuss the life cycle of Selaginella.
(20 marks)
- (b) What characteristics of Selaginella put it in division Lepidophyta.
(5 marks)

[TOTAL MARKS = 25]

QUESTION 2

Discuss evolution of the sporophyte among pteridophytes. Use annotated diagrams and named examples to support your answer.

[TOTAL MARKS = 25]

SECTION B
Taxonomy

QUESTION 3

Discuss the flower as a basis of classification of flowering plants.

[TOTAL MARKS = 25]

QUESTION 4

Using illustrations, short notes and named examples, explain how one could identify the following dicotyledonous families:

- (i) Moraceae (Fig family) (5 marks)
- (ii) Meliaceae (Mahogany family) (5 marks)
- (iii) Sterculiaceae (Cocoa family) (5 marks)
- (iv) Convolvulaceae (sweet-potato family) (5 marks)
- (v) Rutaceae (Citrus family) (5 marks)

[TOTAL MARKS = 25]

SECTION C
Gymnosperm/Angiosperm

QUESTION 5

Discuss the following processes in Pinus sp.

- (a) secondary growth of the stem (10 marks)
- (b) maturation of the female gametophyte (5 marks)
- (c) maturation of the male gametophyte (5 marks)
- (d) differentiation of the embryo (5 marks)

[TOTAL MARKS = 25]

QUESTION 6

- (a) Prepare a table to compare gymnosperms with angiosperms (similarities and differences). Consider all generations in their life cycles. (10 marks)
- (b) Prepare a flow chart outlining a generalized life history of an angiosperm. (10 marks)
- (c) Outline the differentiation of the megasporocyte of Lillium and point out how this affects "normal" seed composition. (5 marks)

[TOTAL MARKS = 25]

SECTION D

Anatomy

QUESTION 7

Discuss the structure, distribution and function of sclerenchyma. Illustrate your answer.

[TOTAL MARKS = 25]

QUESTION 8

Parenchyma cells are the most important cells in a plant body. Support or refute this statement.

[TOTAL MARKS = 25]