

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER 2006

TITLE OF PAPER: SPERMATOPHYTA

COURSE CODE: B301

TIME ALLOWED: THREE HOURS

INSTRUCTIONS:

1. ANSWER FOUR QUESTIONS AT LEAST 2 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

Discuss the biology of Lepitophyta using Lycopodium and Selaginella to illustrate variability in the group. **[25 MARKS]**

QUESTION 2

Considering anatomical and physiological features of the gametophyte and the sporophyte explain possible evolutionary changes among the pteridophytes.

[25 MARKS]

SECTION B

Gymnosperms

QUESTION 3

- a) Use well labelled diagrams to explain the development of microspores and the male gametophytes of:
- | | |
|-------------------|-----------|
| (i) <u>Pinus</u> | (8 marks) |
| (ii) <u>Cycas</u> | (8 marks) |
- b) Diagrammatically explain fertilization and development of the embryo in Pinus. (6 marks)
- c) What are the similarities in the development of the archegonium in Pinus and Cycas. (3 marks)

[25 MARKS]

QUESTION 4

Discuss the biology of Pinus. Use illustrations to substantiate your answer.

[25 MARKS]

B. 12/02/06

SECTION C

Taxonomy

QUESTION 5

- a) Draw Besseys evolutionary tree of Angiosperms. (10 marks)
- b) Briefly describe each family as you present each evolutionary line. (15 marks)
- [25 MARKS]**

QUESTION 6

- a) Write an instructional manual that students can use to prepare a good and complete herbarium. (10 marks)
- b) Considering conservation of biodiversity using gene banks nature reserves, botanical gardens etc, identify the unique place of herbarium collections? (15 marks)
- [25 MARKS]**

SECTION D

Anatomy

QUESTION 7

Discuss protection and support in plant tissue systems.

[25 MARKS]

QUESTION 8

Discuss the origin differentiation, maturity and organization of the cells involved in translocation.

[25 MARKS]