

UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER: MAY 2010

TITLE OF PAPER: SPERMATOPHYTA

COURSE CODE: B301

TIME ALLOWED: THREE HOURS

- INSTRUCTIONS:**
- 1. THIS PAPER IS DIVIDED INTO FOUR SECTIONS**
 - 2. ANSWER A TOTAL OF FOUR (4) QUESTIONS, CHOOSING ONE (1) QUESTION FROM EACH SECTION**
 - 3. EACH QUESTION CARRIES TWENTY FIVE (25) MARKS**
 - 4. ILLUSTRATE YOUR ANSWER WITH LARGE AND CLEARLY LABELLED DIAGRAMS WHERE APPROPRIATE**

SPECIAL REQUIREMENTS: NONE

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

SECTION A (PTERIDOPHYTES)

Answer **one** question from this section.

Question 1

(a) Explain secondary body development in a pine stem. (15 marks)

(b) Prepare a table to indicate differences between gymnosperms and angiosperms. (10 marks)

[TOTAL MARKS = 25]

Question 2

(a) Describe and illustrate the life cycles of a pine. Note that the following stages should be clearly explained:

(i) megaspore development,

(ii) microspore development,

(iii) embryo development.

(25 marks)

[TOTAL MARKS = 25]

[PLEASE TURN OVER]

SECTION B (GYMNOSPERMS)

Answer one question from this section.

Question 3

- (a) Write short notes on the following:
- (i) apospory, (15 marks)
 - (ii) apogamy, (15 marks)
 - (iii) the sorus in ferns. (15 marks)
- (b) Discuss evolutionary tendencies among ferns. (10 marks)

[TOTAL MARKS = 25]

Question 4

- (a) Differentiate between eusporangiate and leptosporangiate ferns. (10 marks)
- (b) Describe and illustrate the life cycle of a fern. (15 marks)

[TOTAL MARKS = 25]

[PLEASE TURN OVER]

SECTION C (TAXONOMY)

Answer **one** question from this section.

Question 5

- (a) Write brief notes on the floral characteristics and the economic importance of the following families:
- (i) Poaceae, (15 marks)
 - (ii) Asteraceae, (15 marks)
 - (iii) Malvaceae. (15 marks)
- (b) Explain the Besseyan theory on the evolution of angiosperm families. Prepare the suggested evolutionary tree. (10 marks)

[TOTAL MARKS = 25]

Question 6

- (a) Discuss family Fabaceae and differentiate the component sub-families. (15 marks)
- (b) What other characteristics besides floral ones are also considered in taxonomy? (10 marks)

[TOTAL MARKS = 25]

[PLEASE TURN OVER]

SECTION D (ANATOMY)

Answer **one** question from this section.

Question 7

Write detailed notes on the following cells:

- (a) Parenchyma, (5 marks)
- (b) Sclereids, (10 marks)
- (c) Vessel members. (10 marks)

[TOTAL MARKS = 25]

Question 8

- (a) Explain the development of a dicot embryo from a zygote. (10 marks)
- (b) Discuss the maturation of sieve-tube members. (10 marks)
- (c) Write short notes on collenchyma. (5 marks)

[TOTAL MARKS = 25]

END OF QUESTION PAPER