

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER 2007/2008

TITLE OF PAPER CRYPTOGAMIC BOTANY

COURSE CODE: B201

TIME ALLOWED: THREE HOURS

INSTRUCTIONS: 1. ANSWER 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

Bacteria

QUESTION 1

- (a) Differentiate between prokaryotes and eukaryotes by explaining:
- (i) the structure and composition of the mucopeptide strengthening bacterial walls. (10 marks)
 - (ii) the structure of bacterial chromosomal material. (5 marks)
- (b) Discuss phage mediated genetic recombination in bacteria. Illustrate your answer. (10 marks)

[TOTAL MARKS = 25]

QUESTION 2

Briefly discuss the following:

- (a) the structure and function of the cytoplasmic membrane and mesosome. (5 marks)
- (b) a generalized bacterial growth curve and its interpretation. (10 marks)
- (c) the mice experiments of Griffith 1928 and the explanations of Avery, *et.al.* 1944. (10 marks)

[TOTAL MARKS = 25]

SECTION B

Fungi

QUESTION 3

- (a) Prepare a dichotomous key one would use in classifying a fungus to its class. (15 marks)
- (b) How would you identify the following:
- (i) Rhizopus stolonifer
 - (ii) Zygorhynchus
 - (iii) Phycomyces
 - (iv) Phytophthora
 - (v) Albugo
- Illustrate your answer. (10 marks)

[TOTAL MARKS = 25]

QUESTION 4

- (a) Prepare an evolutionary tree and draw the fructifications of representative genera of downy mildews. (15 marks)
- (b) Draw the life cycle of Phytophthora infestans. (10 marks)

[TOTAL MARKS = 25]

SECTION C

Algae

QUESTION 5

Discuss the range of vegetative structures observed in algae. Illustrate your answer and cite examples.

[TOTAL MARKS = 25]

QUESTION 6

Discuss the criteria that have been successfully used to group algae into divisions. For each criterion prepare a table to show how each group comes out.

[TOTAL MARKS = 25]

SECTION D

Bryophytes

QUESTION 7

Discuss the biology of Mnium, a bryophyte. Illustrate your answer.

[TOTAL MARKS = 25]

QUESTION 8

Use well annotated diagrams to discuss the life history of Polypodium, a pteridophyte.

[TOTAL MARKS = 25]