

UNIVERSITY OF SWAZILAND

FINAL 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) Draw and fully label the two types of bacterial cell walls revealed by the popular differential staining technique. (10 marks)
- b) Prepare a table to show differences in wall composition. (10 marks)
- c) What are the functions of the cell wall in bacteria. (5 marks)

**[TOTAL MARKS = 25]****QUESTION 2**

- a) Using sketches and named examples, explain asexual reproduction methods in bacteria. (10 marks)
- b) Differentiate between a recombinant and an Hfr using annotated diagrams. (5 marks)
- c) Explain how recombination occurs in the conjugation of an Hfr and an F<sup>-</sup> bacterium. Illustrate your answer. (10 marks)

**[TOTAL MARKS = 25]****SECTION B****Fungi****QUESTION 3**

- (a) Discuss the various types of plasmodia found in fungi. Cite examples to enhance your answer. (10 marks)
- (b) Draw the life cycle of Puccinia graminis<sup>S</sup> and then explain how this fungus has ensured its survival in a changing environment. (15 marks)

**[TOTAL MARKS = 25]****QUESTION 4**

- (a) Use diagrams and brief descriptions to distinguish between the following:
- (i) Penicillium from Aspergillus
  - (ii) Rhizopus from Mucor
  - (iii) a pycnidium from a perithecium
  - (iv) an acervulus from a sorus
  - (v) a downy mildew from a powdery mildew (10 marks)
- (b) Using drawings and a dichotomous key show how cleistothecial details are used to identify the genera of powdery mildews. (10 marks)
- (c) Discuss changes you think occurred in the evolution of downy mildews. (5 marks)

**[TOTAL MARKS = 25]**

**SECTION C**

**Algae**

**QUESTION 5**

Using a flow chart and illustrated examples, discuss evolution among the Chlorophyceae.

[TOTAL MARKS = 25]

**QUESTION 6**

(a) Discuss the methods of reproduction amongst the algae. (15 marks)

(b) Discuss the oogamous process in Chara and Oedogonium. (10 marks)

[TOTAL MARKS = 25]

**SECTION D**

**Bryophytes**

**QUESTION 7**

In bryophytes, gametangia are conserved but the sporophytes are variable. Discuss.

[TOTAL MARKS = 25]

**QUESTION 8**

Discuss the biology of Anthoceros, a hornwort. Illustrate your answer.

[TOTAL MARKS = 25]