

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER: MAY 2011

TITLE OF PAPER: CRYPTOGAMIC BOTANY

COURSE CODE: B201

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

PTO

SECTION A (BACTERIA)

Answer **one** question from this section.

Question 1

- (a) Explain any five methods of asexual reproduction in bacteria, citing an example for each method. (5 marks)
- (b) When and how do bacteria produce endospores? (5 marks)
- (c) Discuss the structure and functions of the bacterial cell membrane (10 marks)
- (d) What is the structure and composition of peptidoglycan? (5 marks)

[Total = 25 marks]

Question 2

Discuss the various methods in which bacteria can acquire donor DNA which will result in genetic recombination. (25 marks)

[Total = 25 marks]

PTO

SECTION B (FUNGI)

Answer **one** question from this section.

Question 3

- (a) Explain conidiogenesis in true fungi. Cite examples and illustrate your answer. (5 marks)
- (b) Draw and label the various stages in the life cycle of *Rhizopus*. (5 marks)
- (c) Write brief notes on the physical features and the economic importance of **three** of the following Zygomycotina orders.
- (i) Glomales, (5 marks)
 - (ii) Zoopagales, (5 marks)
 - (iii) Entomophthorales, (5 marks)
 - (iv) Mucorales. (5 marks)

[Total = 25 marks]

Question 4

- (a) Prepare and fully label a possible evolutionary tree of the downy mildew. (6 marks)
- (b) Explain some of the changes that could have occurred in the biology of these fungi as they evolved. (4 marks)
- (c) Draw and fully label the various stages in the life cycle of *Albugo*. (10 marks)
- (d) Draw and label the spore bearing structure of **two** of the following:
- (i) *Basidiophora*, (2½ marks)
 - (ii) *Bremia*, (2½ marks)
 - (iii) *Phytophthora*. (2½ marks)

[Total = 25 marks]

SECTION C (ALGAE)

Answer **one** question from this section.

Question 5

- (a) Discuss the economic importance of algae. (5 marks)
- (b) Explain how the various vegetative forms observed in Chlorophyta have arisen from a chlamydomonad ancestor. (20 marks)
- [Total = 25 marks]**

Question 6

- (a) Draw a possible evolutionary tree of the various orders of Phaeophyta. (5 marks)
- (b) Explain the alternation of generations in
(i) isogeneratae, (4 marks)
(ii) heterogeneratae. (6 marks)
- (c) Explain the various types of oogonia development observed in the fucales. (10 marks)
- [Total = 25 marks]**

PTO

SECTION D (BRYOPHYTES)

Answer one question from this section.

Question 7

Discuss the biology of liverworts as exemplified by *Marchantia*. (25marks)

[Total = 25 marks]

Question 8

(a) Discuss the life cycle of *Mnium*. (20 marks)

(b) What is the economic importance of bryophytes? (5 marks)

[Total = 25 marks]

END OF QUESTION PAPER