

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER: JULY 2012

TITLE OF PAPER: CRYPTOGAMIC BOTANY

COURSE CODE: B201

TIME ALLOWED: THREE (3) 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 (BACTERIA)

Answer **one** question from this section.

Question 1

Discuss variation in structure and composition of bacterial cell walls. (25 marks)
[Total = 25 marks]

Question 2

(a) Use well-labelled drawings to explain genetic recombination in bacteria where the donor is:

(i) single stranded DNA. (2 marks)

(ii) double stranded DNA. (3 marks)

(b) Use annotated diagrams to explain generalized phage mediated genetic recombination in bacteria. (10 marks)

(c) Draw and label a Gram negative wall. Indicate the approximate dimensions of each part. (10 marks)

[Total = 25 marks]

SECTION B (FUNGI)Answer **one** question from this section.**Question 3**

- (a) Prepare a dichotomous key to help key out division of ascomycotina to its classes. (10 marks)
- (b) Further break down the powdery mildews to their respective genera using a dichotomous key and diagrams. (5 marks)

Define and illustrate the following structures.

- (i) chlamydospores, (2 marks)
- (ii) sclerotia, (2 marks)
- (iii) rhizomorph, (2 marks)
- (iv) pycnidium, (2 marks)
- (v) sporodochium. (2 marks)

[Total = 25 marks]**Question 4**

- (a) Draw and label the life cycle of *Talaromyces/Penicillium*. (10 marks)
- (b) Write brief notes on the physical features and the economic importance of named genera of the following Zygomycotina groups.
- (i) Glomales, (3 marks)
- (ii) Zoopagales, (3 marks)
- (iii) Entomophthorales, (3 marks)
- (iv) Mucorales, (3 marks)
- (v) Trichomycetes. (3 marks)

[Total = 25 marks]

SECTION C (ALGAE)

Answer **one** question from this section.

Question 5

Discuss sexual reproduction in the following genera, using well-labelled illustrations.

(i) *Zygnema*,

(6 marks)

(ii) *Oedogonium*,

(9 marks)

(iii) *Volvox*.

(10 marks)

[Total = 25 marks]

Question 6

Discuss the range of vegetative forms in algae using examples drawn from Chlorophyceae.

(25 marks)

[Total = 25 marks]

SECTION D (BRYOPHYTES)

Answer **one** question from this section.

Question 7

(a) With the help of well-illustrated diagrams, explain spore production and release methods in:

(i) *Marchantia*, (5 marks)

(ii) *Anthoceros*, (5 marks)

(iii) *Mnium*. (5 marks)

(b) Point out the strengths and weaknesses of each method above as a means of reproduction and dissemination of the bryophytes mentioned in Questions 7(a).

(10 marks)

[Total = 25 marks]

Question 8

Use well-illustrated diagrams to discuss the biology of *Mnium*. (25 marks)

[Total = 25 marks]

END OF EXAM PAPER