

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER: 2013

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

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)

(c) 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) *Chara*.

(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