

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAM PAPER: JULY 2016

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

- a) Draw a generalised bacterial growth curve. Explain all the phases. (10 marks)
- b) How does the location of a plasmid in relation to chromosomal DNA affect the outcome of the following conjugations:
- (i) $F^+ \times F^-$ (5 marks)
 - (ii) $Hfr \times F^-$ (5 marks)

[TOTAL MARKS = 25]

Question 2

- a) Draw and fully label a Gram-negative bacterial cell wall. (10 marks)
- b) Prepare a table to show the composition of Gram-negative and Gram-positive walls. (5 marks)
- c) Discuss the form and functions of bacterial cell membrane. (10 marks)

[TOTAL MARKS = 25]

SECTION B (FUNGI)

Answer one question from this section

Question 3

a) Sexual spores are used a lot in fungal classification. Explain how the following sexual spores are formed.

(i) Zygospre, (5 marks)

(ii) Ascospore. (5 marks)

b) How have sexual structures of the ascomycotina been used in grouping these fungi to their classes? (10 marks)

[TOTAL MARKS = 25]

Question 4

a) What are the characteristics of fungi? (5 marks)

b) Illustrate, define and differentiate the following structures:

(i). Perithecium vs. pycnidium, (5 marks)

(ii). Sporodochium vs. coremium. (5 marks)

c) Write about "Fungi as potential biological control agents". Cite examples from as many groups as possible. (10 marks)

[TOTAL MARKS = 25]

SECTION C (ALGAE)

Answer one question from this section

Question 5

- a) Discuss a possible evolution of vegetative forms in Chlorophyceae. (15 marks)
- b) Explain the macrandrous and nannandrous sexual reproductive processes in *Oedogonium*. Illustrate your answer. (15 marks)

TOTAL MARKS = 25]

Question 6

- a) Discuss the range of vegetative structures or forms observed in algae. (10 marks)
- b) List the characteristics of the following divisions of algae: Chlorophyta, Phaeophyta and Rhodophyta. (15 marks)

[TOTAL MARKS = 25]

SECTION D (BRYOPHYTES)

Answer one question from this section

Question 7

- a) Prepare a table to compare thallophytes with bryophytes. (10 marks)
- b) Draw and label the sporophyte of *Anthoceros*. (10 marks)
- c) Why would you consider hornworts to be more advanced than liverworts?

(5 marks)

[TOTAL MARKS = 25]

Question 8

Discuss advances in the evolution of mosses from liverworts and hornworts. Illustrate key structures.

(25 marks)

[TOTAL MARKS = 25]

END OF EXAM PAPER