

UNIVERSITY OF ESWATINI
FINAL EXAMINATION PAPER: DECEMBER 2018

- TITLE OF PAPER: CRYPTOGAMIC BOTANY
COURSE CODE: B201/BIO241
TIME ALLOWED: 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 DDIAGRAMS 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) With the help of diagrams, compare Gram negative and Gram positive cell walls in terms of:
- (i) Structure, (10marks)
 - (ii) Chemical composition, (5 marks)
- b) Explain, using diagrams, the sequence of events in generalised transduction. (10 marks)

[TOTAL MARKS = 25]

QUESTION 2

- a) What is a plasmid and what does it code for? (5 marks)
- b) Explain and illustrate the sequence of events in an Hfr x F⁻ cross. (10 marks)
- c) Differentiate between an Hfr and a recombinant. Illustrate your answer. (5 marks)
- d) Differentiate between a prophage and a transducing phage. Illustrate your answer. (5 marks)

[TOTAL MARKS = 25]

PTO
SECTION B (FUNGI)

Answer **one** question from this section

QUESTION 3

- a) Draw a labelled schematic diagram of an evolutionary tree that explains the various genera of peronosporales. (10 marks)
- b) Differentiate between the following fruiting structures using well labelled diagrams and brief explanations:
- (i) An Acervulus and a pustule, (5 marks)
 - (ii) A perithecium and a pycnidium. (5 marks)

[TOTAL MARKS = 25]

QUESTION 4

- a) Give at least five characteristics of fungi. (5 marks)
- b) Draw and fully label the life cycle of *Rhizopus stolonifer*. (10 marks)
- c) Explain how morphology of the ascocarp is used in identifying genera of powdery mildews. Use diagrams to illustrate the ornamentations. (10 marks)

[TOTAL MARKS = 25]

SECTION C (ALGAE)

Answer **one** question from this section.

QUESTION 5

- a) Discuss five major criteria which have been used in the classification of algae. Cite examples to enhance your answer. (10 marks)
- b) Prepare a table to compare the characteristics of the following:
(i) Chrysophyta,
(ii) Xanthophyta,
(iii) Bacillamophyta. (15 marks)

[TOTAL MARKS = 25]

QUESTION 6

- a) Draw a schematic diagram of the evolutionary tree of the orders of chlorophyceae. (10 marks)
- b) Discuss the range of form observed in the chlorophyceae. Cite named examples. (10 marks)
- c) Draw a labelled diagram of the nucle of *Chara*. (5 marks)

[TOTAL MARKS = 25]

PTO

SECTION D (BRYOPHYTES)

Answer one question from this section

QUESTION 7

- a) Draw and label the sporophytes of
- (i) *Mnium* (5 marks)
 - (ii) *Anthoceros* (5 marks)
 - (iii) *Marchantia* (5 marks)
- b) Explain the changes in the biology of bryophytes (from liverworts to mosses) that have made them better adapted for terrestrial life. (10 marks)

[TOTAL MARKS=25]

QUESTION 8

- a) Discuss the life cycle of *Mnium*. Use labelled diagrams to illustrate all stages. (15 marks)
- b) Tabulate the differences and similarities between thallophytes and bryophytes. (10 marks)

[TOTAL MARKS = 25]

END OF EXAMINATION PAPER