

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER: DECEMBER 2017

TITLE OF PAPER: CRYPTOGAMIC BOTANY

COURSE CODE: BIO241

TIME ALLOWED: THREE HOURS

INSTRUCTIONS:

1. ANSWER ANY FOUR QUESTIONS
2. EACH QUESTION CARRIES TWENTY FIVE (25) MARKS
3. ILLUSTRATE YOUR ANSWERS WITH LARGE AND CLEARLY LABELLED DIAGRAMS WHERE APPROPRIATE

SPECIAL REQUIREMENTS: NONE

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATORS

PTO

**Question 1**

- a) Explain the relationship between characterization and taxonomy of a bacterial strain.

(7 marks)

- b) Discuss the process of biological diversity by referring to the three domains of life.

(18 marks)

**[TOTAL = 25 MARKS]****Question 2**

- a) If the total population (N) of a bacterium at the end of a given period is  $1 \times 2^n$  where

n = number of generations, show that  $n = 3.3 (\log_{10} N - \log_{10} N_0)$ . (6 marks)

- b) Show that  $F^+ \times F^- = F^+$  (6 marks)

- c) Show that  $Hfr \times F^- = F^-$  (7 marks)

- d) Illustrate the process of transformation in bacteria. (6 marks)

**[TOTAL = 25 MARKS]****Question 3**

- a) Explain the processes of "conidiogenesis" in fungi. (11 marks)

- b) Explain the difference between a facultative necrotroph and an obligate necrotroph.

(4 marks)

- c) Draw a typical life cycle of a plasmodiophoromycete.

(10 marks)

**[TOTAL = 25 MARKS]****Question 4**

- a) List the primary classification features in algae. (5 marks)

- b) Outline the methods of reproduction in algae. (8 marks)

- c) Name the type of starch accumulated in each of the divisions of algae. (4 marks)

- d) Discuss the evolution of chlorophyceae. (8 marks)

**[TOTAL = 25 MARKS]****Question 5**

- a) Tabulate the classification of land plants. (10 marks)

- b) Explain how adaptations to life on land distinguish land plants from green algae.

(15 marks)

**[TOTAL = 25 MARKS]****Question 6**

- a) Classify fungi based on their group, common name and their features. (12 marks)

- b) Explain the importance of mycorrhizal associations. (13 marks)

**[TOTAL = 25 MARKS]****END OF QUESTION PAPER**