

UNIVERSITY OF ESWATINI
RE-SIT EXAMINATION PAPER: 2018/2019

TITLE OF PAPER: INTRODUCTORY BOTANY

COURSE CODE: BIO 101

TIME ALLOWED: THREE HOURS

- INSTRUCTIONS:
1. THIS PAPER IS DIVIDED INTO TWO SECTIONS.
 2. ANSWER 2 QUESTIONS FROM EACH SECTION IN 2 SEPARATE BOOKLETS
 3. ANSWER QUESTION 1 (COMPULSORY) AND ANY OTHER QUESTION FROM SECTION A
 4. ANSWER ANY TWO QUESTIONS FROM SECTION B
 5. EACH QUESTION CARRIES TWENTY FIVE (25) MARKS
 6. USE CLEARLY LABELLED DIAGRAMS WHERE APPROPRIATE.

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

[PLEASE TURN OVER]

SECTION A

Question 1 (Compulsory)

Explain the role of any five plant cell organelles and explain their roles in the cell.

(25 marks)

Total= [25 Marks]

Question 2

Discuss the primary, secondary, tertiary and quaternary structure of proteins.

(25 marks).

Total= [25 Marks]

Question 3

Describe the fluid mosaic model of plasma membranes, illustrating how the membrane structure is related to its various named functions.

(25 marks)

Total= [25 Marks]

SECTION A (Answer any two questions from this section)

Question 4

- (a) Draw a concisely labelled diagram of a bacterium. (6 marks)
 - (b) State the function(s) of the following: (8 marks)
 - (i) capsule
 - (ii) pilus
 - (iii) endospore
 - (iv) flagellum
 - (v) fimbriae
 - (c) Determine the population of bacteria after four generations when starting with a single cell. (2 marks)
 - (d) What is the “generation time” of a bacterium? (2 marks)
 - (e) Explain the typical growth curve of a bacterium. (7 marks)
- (TOTAL MARKS=25)**

Question 5

- (a) Define what the “resolving power” of microscope is. (2 marks)
- (b) Complete the following table (7 marks)

Objective designation	Ocular lens magnification	Objective lens magnification	Total magnification
Scanning	10	4	
Low power		10	
	10	40	
Oil immersion			100

- (c) Discuss autotrophic bacteria. (5 marks)
 - (d) Discuss the temperature requirements of bacteria (11 marks)
- [TOTAL MARKS=25]**

Question 6

- (a) What is a virus? (5 marks)
- (b) Why viruses are called obligatory intracellular parasites? (1 marks)
- (c) Name and draw the different morphological classes of viruses. (8 marks)
- (d) Briefly explain how the death angel mushroom (*Amanita* spp.) is toxic to humans and how this mode of action compares with that of toxins produced by *Aspergillus* spp.? (3 marks)
- (e) Tabulate the most notorious human diseases caused by which microorganism discuss the relevance of fungi to humans. (8 marks)

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