

UNIVERSITY OF ESWATINI  
FINAL EXAMINATION PAPER: DECEMBER 2019

TITLE OF PAPER: MODERN TRENDS IN BIOLOGY I  
COURSE CODE: BIO411  
TIME ALLOWED: THREE HOURS

- INSTRUCTIONS:
1. THIS PAPER IS DIVIDED INTO TWO SECTIONS.
  2. USE SEPARATE ANSWER BOOKLETS FOR EACH SECTION.
  3. ANSWER A TOTAL OF FOUR QUESTIONS, CHOOSING TWO QUESTIONS FROM EACH SECTION.
  4. EACH QUESTION CARRIES TWENTY FIVE (25) MARKS.
  5. ILLUSTRATE YOUR ANSWER 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

[PLEASE TURN OVER]

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**SECTION A**

Answer TWO questions from this section.

**Question 1**

Explain the major reasons for the emergence and re-emergence of new infectious diseases of humans. Discuss the methods that are available for identifying and controlling these diseases.

**[TOTAL MARKS=25]**

**Question 2**

If you are employed by the Eswatini Water Services Corporation, explain how you would ensure microbiologically or otherwise that the water bodies in a certain area are healthy to utilize. What criteria or standards would you use to make your conclusions?

**[TOTAL MARKS=25]**

**Question 3**

Determine the role of industrial microbiology in the socio-economic development of the Kingdom of Eswatini.

**[TOTAL MARKS=25]**

**SECTION B**

Answer TWO questions from this section.

**Question 4**

Discuss the different phytoremediation technologies.

**[TOTAL MARKS=25]**

**Question 5**

Discuss the potential use of phytoremediation technology in environmental restoration in the Kingdom of Eswatini.

**[TOTAL MARKS=25]**

**Question 6**

Discuss the use of vascular plant species richness and bio-indication as proxy to biodiversity monitoring.

**[Total marks =25]**