



2nd SEMESTER 2007/2008

PAGE 1 OF 3

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION

**PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR 2 & YEAR 3 (NEW),
BACHELOR OF SCIENCE IN ANIMAL SCIENCE YEAR 2 & YEAR 3
(NEW), BACHELOR OF SCIENCE IN FOOD SCIENCE AND
NUTRITION TECHNOLOGY YEAR 2 & YEAR 3 (NEW), BACHELOR
OF SCIENCE IN HOME ECONOMICS YEAR 2 & YEAR 3 (NEW),
BACHELOR OF SCIENCE IN HOME ECONOMICS EDUCATION YEAR
2 & YEAR 3 (NEW), AND BACHELOR OF SCIENCE IN
HORTICULTURE YEAR 2 & YEAR 3 (NEW)**

COURSE CODE: CP 206

TITLE OF PAPER: MICROBIOLOGY

TIME ALLOWED: TWO (2) HOURS

**INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS
BEGIN EACH QUESTION ON A NEW SHEET**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE
CHIEF INVIGILATOR**

QUESTION 1

- a. Explain how the idea of spontaneous generation came about. (5 marks)
- b. It is possible to purchase the following microorganisms in a retail store. Provide a reason for buying each.
- i) *Saccharomyces* (4 marks)
- ii) *Bacillus thuringiensis* (6 marks)
- c. Name the two differential staining procedures and explain their uses in Microbiology. (10 marks)
- [25 marks]**

QUESTION 2

- a. Genetically, most bacteria are monomorphic, however, environmental conditions can result in pleomorphic bacteria.
- i. Explain what the statement means. (4 marks)
- ii. Give an example of a bacterium that is genetically pleomorphic. (2 marks)
- b. What are the similarities and differences between the cell walls of Gram positive and Gram negative bacteria? (10 marks)
- c. Which microorganisms produce endospores and for what purpose? (5 marks)
- d. What is DNA polymerase? (4 marks)
- [25 marks]**

QUESTION 3

- a. Using diagrams, explain how genetic transfer occur in bacteria. (15 marks)
- b. Explain how heat (in its different forms) can be used to control microbial growth. (10 marks)
- [25 marks]**

QUESTION 4

- a. Use an example to explain the use of genetic engineering in:
- i. therapeutic applications (10 marks)
 - ii. Agricultural applications (10 marks)
- b. What does the acronym ELISA stand for? And briefly explain how the assay is done. (5 marks)

[25 marks]

QUESTION 5

- a. With the aid of a diagram, explain the stages of population growth of microorganisms. (8 marks)
- b. Draw a well-labelled diagram of a mushroom. (8 marks)
- c. Discuss economic importance of algae. (9 marks)

[25 marks]