



1st SEMESTER 2005/2006

PAGE 1 OF 3

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION

PROGRAMME: BACHELOR OF SCIENCE IN AGRICULTURE YEAR 4 (CROP PRODUCTION, HORTICULTURE OPTIONS) AND BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION YEAR 4.

COURSE CODE: CP 403

TITLE OF PAPER: MICROBIOLOGY

TIME ALLOWED: TWO (2) HOURS

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

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QUESTION 1

- a) Describe the different types of acquired immunity and give an example of each. [10]
- b) Explain different ways in which heat can be used to control microbes. [9]
- c) What are transposons? [3]
- ii) What are plasmids [3]

[25 Marks]**QUESTION 2**

- a) What is meant by:
 - i) Symbiosis? [2]
 - ii) Mutualism? [2]
 - iii) Parasitic? [2]
 - iv) Commensalisms? [2]
- b) Describe the different types of toxins and give two examples of each. [10]
- c) What are interferons? How are they involved in host defense in humans? [7]

[25 Marks]**QUESTION 3**

- a) Draw a diagram of a bacterial cell and explain the functions of each part. [15]
- b) Describe the general properties of the fungal classes ascomycetes and oomycetes [10]

[25 Marks]

QUESTION 4

- a) i) Explain the procedure of Gram staining of bacterial cells used in the laboratory. [5]
 - ii) Describe the different reagents used in this technique and why. [5]
 - iii) Explain the outcome results of this procedure. [5]
 - b) What are CD4 T-cells? How are they used in classifying the progress of HIV infection? [10]
- [25 Marks]

QUESTION 5

Describe the four main functional T cells and explain how they are involved in immunity. [25 Marks]