

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER: MAY 2012

TITLE OF PAPER: MICROBIOLOGY AND IMMUNOLOGY

COURSE CODE: B404

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

QUESTION 1

- (a) Explain the various methods employed in typing bacteria. (10 marks)
(b) Write an essay on virus-cell interactions. (15 marks)

[TOTAL MARKS = 25]

QUESTION 2

Write an essay on *Escherichia coli* in terms of its important properties, pathogenesis, and disease prevention.

[TOTAL MARKS = 25]

QUESTION 3

- a) Demonstrate that the cells of the immune system originate from the bone marrow stem cell. (5 marks)
b) Write an essay on:
i) B cells (8 marks)
ii) T cells (7 marks)
c) Explain the concept of immune defects. (5 marks)

[TOTAL MARKS = 25]

QUESTION 4

- a) Draw a well labeled diagram of a monomeric antibody. (4 marks)
b) Explain how the soluble mediators of non specific immune system act to protect the body from invading microorganisms. (16 marks)
c) Name the classes of immunoglobulins. (5 marks)

[TOTAL MARKS = 25]

QUESTION 5

Explain the following:

- a) Viral pathogenesis (12.5 marks)
b) Malignant transformation by tumor viruses. (12.5 marks)

[TOTAL MARKS = 25]

[PLEASE TURN OVER]

QUESTION 6

- a) Demonstrate that specific immunity arises from the cooperation of lymphocytes and macrophages. (4 marks)
- b) Briefly describe the following:
- (i) complete antigen (3 marks)
 - (ii) incomplete antigen (3 marks)
 - (iii) partial antigen (3 marks)
- c) What is an anaphylaxis? Elaborate. (5 marks)
- d) Define the term "cellular immunity" (3 marks)
- e) Explain how T cells react against viruses inside cells. (4 marks)

[TOTAL MARKS = 25]

[END OF QUESTION PAPER]