

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]