

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER 2006

**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) Write an essay on microbial virulence factors. (12 marks)
- b) How do the following soluble mediators of the non specific immune system act to protect the human body from invading microorganisms?
  - (i) The complement system. (5 marks)
  - (ii) Lymphokines (4 marks)
  - (iii) Interferons (4 marks)

**[Total Marks = 25]**

**QUESTION 2**

- a) Explain the following:
  - (i) True pathogens (4 marks)
  - (ii) Opportunistic pathogens. (4 marks)
  - (iii) Virulence (4 marks)
- b) Explain the pathogenicities of two human bacterial pathogens of your choice. (13 marks)

**[Total Marks = 25]**

**QUESTION 3**

- a) What is an infectious unit of a virus? (2 marks)
- b) Are we safe when we are exposed to cigarette smoke? Elaborate. (5 marks)
- c) Discuss the statement "Cancer is a growth disease of cells". (18 marks)

**[Total Marks = 25]**

**QUESTION 4**

- a) Briefly describe the following:
  - (i) Complete antigen (3 marks)
  - (ii) Partial antigen (3 marks)
  - (iii) Incomplete antigen (3 marks)
- b) Illustrate the role of IgE during an anaphylactic type I hypersensitivity in humans. (5 marks)
- c)
  - (i) What is cellular immunity? (3 marks)
  - (ii) Cite some examples that can demonstrate the concepts of graft acceptance or rejection. (4 marks)
- d) Explain how T cells react against viruses inside cells. (4 marks)

**[Total Marks = 25]**

**QUESTION 5**

Write an essay on the following:

- (a) Viral pathogenesis (12.5 marks)
- (b) Virus-cell interactions(12.5 marks)

**[Total Marks = 25]**

**QUESTION 6**

- a) Draw and explain the structure of a monomeric antibody. (5 marks)
- b) Use a flow chart to illustrate the origin of the cells of the immune system. (5 marks)
- c) Write an essay on the following:
  - (i) T cells and their functions (7.5 marks)
  - (ii) B cells and their functions. (7.5 marks)

**[Total Marks = 25]**