



MACHAKOS UNIVERSITY

University Examinations 2022/2023 academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

SZL307 : FUNDAMENTALS OF IMMUNOLOGY

DATE:

TIME:

INSTRUCTIONS

1. Answer Question 1 (**compulsory**) and **any other two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Describe the structure of agranulocytes (3 marks)
- b) Identify and describe a laboratory procedure for determining anaemia in man (3 marks)
- c) Explain the importance of determining differential counts in a patient (3 marks)
- d) Explain any three physical mechanisms of blocking pathogenic infections (3 marks)
- e) Distinguish between the light and heavy chains in an immunoglobulin (3 marks)
- f) Explain why a dog may not get infected after eating meat that has been condemned for human consumption following inspection of a carcass (3 marks)
- g) Explain the “alternative pathway” as a body defense mechanism (3 marks)
- h) Use an example to define an allergic response (3 marks)
- i) Explain how the human body defends itself against infections by viruses. (3 marks)
- j) Explain why Antibodies are specific to reacting with particular antigens (3 marks)

QUESTION TWO (20 MARKS)

Discuss the immune system of the mammalian body

QUESTION THREE (20 MARKS)

- a) Discuss the forces that characterize an antigen-antibody interaction (10 marks)
- b) Discuss the bonding inherent in an antibody molecule (10 marks)

QUESTION FOUR (20 MARKS)

Discuss the ABO blood group system and its relationship to transplantation in man.

QUESTION FIVE (20 MARKS)

Discuss xenotransplantation and the issues involved in its application in man.