



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (BIOLOGY)

SZL 307: FUNDAMENTALS OF IMMUNOLOGY

DATE: 16/8/2021

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

Answer Question 1 and any other two questions

Use clear and well labelled diagrams to illustrate your answer as appropriate

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Compare the structure and function of various agranulocytes (3 marks)
- b) Explain the function of the following in an Ig molecule (3 marks)
 - i. ACS
 - ii. HPV region
 - iii. Sulfide bond
- c) Outline the actions that follow activation of the complement pathway (3 marks)
- d) Explain the immunological basis of the pregnancy test strips (3 marks)
- e) Differentiate between an epitope and a paratope (3 marks)
- f) Explain the properties of the short chain of an Ig molecule (3 marks)
- g) Outline the requirements for successful organ transplantation (3 marks)
- h) Explain the roles of any three organs of the immune system (3 marks)
- i) Explain using an example, the non-susceptibility to infection by a pathogen (3 marks)
- j) Characterize an antigen – antibody reaction (3 marks)

QUESTION TWO (20 MARKS)

- a) Discuss the role of blood in the immune system (12 marks)
- b) Discuss the structure of IgM in relation to function (8 marks)

QUESTION THREE (20 MARKS)

- a) Explain immunity to viral infections. (8 marks)
- b) Discuss bonding between an antigen and an antibody (12 marks)

QUESTION FOUR (20 MARKS)

Discuss the types of immunity in man.

QUESTION FIVE (20 MARKS)

Discuss the autoimmune disorders.