MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

FOURTH YEAR SUPPLEMENTARY/SPECIAL EXAMINATION FOR BACHELOR OF SCIENCE IN BIOLOGY

SZL 408: APPLIED IMMUNOLOGY

DATE: 10/3/2023 **TIME: 8.30 – 10.30 AM**

INSTRUCTIONS

1. Answer 1 (compulsory) and **any two** questions
2. Use clean well labelled diagrams wherever appropriate.

QUESTION ONE (30 MARKS)

a) Ouline mtheods used to determine MHC supertypes (3 Marks)

b) Illustrate the process of Immuno- fluorescence staining technique (3marks)

c) Describe the contributions of Coons in the immunological based diagnostics (3marks)

d) Illustrate the genetic structure of the antibody (3 marks)

e) Sequentially describe the process of deletional joining using P-Nucleotide addition (3marks)

f) Describe the significance of the constant fragment of the antibody (3marks)

g) Describe two methods of vaccine productions (3 marks)

h) Outline the process of gene therapy technique in disease prevention (3marks)

i) Describe any THREE types of vaccines (3marks)

j) Illustrate the process of direct ELISA technique (3marks)

QUESTION TWO (20 MARKS)

Describe an immunological procedure that you can use to identify two strains of viruses. (20 marks)

QUESTION THREE (20 MARKS)

Using Flow cytometry technique discuss how you can confirm the infections cause by parasite Y that expresses antigen X. (20 marks)

QUESTION FOUR (20 MARKS)

Discusses MHC class I restricted antigen presentation and processing (20 Marks)

QUESTION FIVE (20 MARKS)

Discuss the immunogenetics of antibodies biosynthesis (20 marks)