JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL, PHYSICAL, MATHEMATICS AND ACTURIAL SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES

3rdYEAR 1st SEMESTER 2022/2023 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE:	**SBB1309**
COURSE TITLE:	**IMMUNOLOGY**
EXAM VENUE:	**STREAM: (BSC)**
DATE: 15/12/2022	**EXAM SESSION: 15.00-17.00PM**
TIME: 2 HOURS	

Instructions:

1. **Answer ALL questions in Section A and Any two questions in Section B**

2. **Candidates are advised not to write on question paper**

3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. Outline two differences between classical and lectin complement pathways

    (3 marks)

2. "Macrophages have distinct specializations in different tissues". Giving examples, explain this statement   (3 marks)

3. Explain the role hematopoietins in hematopoiesis citing examples   (3marks)

4. Explain how innate immunity remains effective despite rapid evolution of microbes

    (3 marks)

5. Outline three characteristics of adaptive immunity   (3 marks)

6. Outline the capture and display of microbial antigens   (3 marks)

7. State six properties of immunogen that contribute to immunogenicity   (3 marks)

8. Outline the steps involved in the recruitment of phagocytes to sites of infection and tissue damage   (3 marks)

9. Explain the mechanisms of killing of infected cells by Natural Killer Cells (3 marks)

10. Explain the difference between central and peripheral immune tolerance   (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Discuss tissues of the immune system   (20 marks)

12. Describe the properties of MHC genes and proteins with relevant examples

    (20 marks)

13. Describe antibody mediated effector functions   (20 marks)

14. Giving examples, describe hypersensitivity reactions   (20 marks)