



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**

**UNIVERSITY EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE
BIOLOGICAL SCIENCES
THIRD YEAR FIRST SEMESTER 2018/2019 ACADEMIC YEAR
MAIN CAMPUS-REGULAR**

COURSE CODE:	SBI 3315
COURSE TITLE:	IMMUNOLOGY
EXAM VENUE...	STREAM: BSC. BIOLOGICAL SCIENCES
DATE:	EXAM SESSION:
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**
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SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. "Hematopoiesis is a tightly regulated process" explain this statement (3 marks)
2. Where are the CDR regions located on an antibody molecule and what are their functions (3 marks)
3. Describe any three properties of the immunogen that contribute to immunogenicity (3 marks)
4. Explain the difference between antibody affinity and avidity. Which of these properties of antibody better reflects its ability to contribute to humoral immune response to invading bacteria? (3 marks)
5. With specific examples, how dendritic cells vary in form and functions (3 marks)
6. Describe how innate immunity remains effective despite the rapid evolution of pathogens (3 marks)
7. Explain the two main mechanisms of CD8 T cell cytotoxicity (3 marks)
8. "Antibodies bound to solid substrates can be detected by the production of colored products". Giving specific examples, explain this phenomena (3 marks)
9. Explain how immune tolerance is established and maintained (3 marks)
10. Outline the roles of the major histocompatibility molecules in immune response (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Giving examples, describe antibody classes and their biological activities (20 marks)
12. Describe the biological consequences of complement activation (20 marks)
13. Using specific examples, describes why hypersensitivity reactions results from excessive responses to non-infectious environmental antigens (20 marks)
14. Discuss why modulating the immune response is often important for improving human health (20 marks)