



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

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

3rd YEAR FIRST SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE:	SBI 3315
COURSE TITLE:	IMMUNOLOGY
EXAM VENUE:	STREAM: (BSC BIO)
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. Briefly explain three features of innate immunity. (3 marks)
2. Draw and label the structure of a lymph node. (3 marks)
3. Outline three differences between a primary antibody response and secondary antibody response. (3 marks)
4. Outline three properties of an immunogens that enhance their immunogenicity. (3 marks)
5. List three approaches to designing vaccines, and for each, give an example. (3 marks)
6. Briefly describe the effector mechanism of Th17 cells. (3 marks)
7. Give any three (3) immune evasion mechanisms employed by microbes. (3 marks)
8. Explain the following terms and, for each, give an example: (3 marks)
 - a. Antigen presenting cell
 - b. Costimulatory molecule
 - c. Primary immunodeficiency
9. Outline three properties of cytokines, with examples. (3 marks)
10. Briefly describe mechanism of type I hypersensitivity reaction. (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Describe the structure and biological function of Major Histocompatibility Complex (MHC) molecules. (20 marks)
12.
 - a. Describe the sequence of events leading to migration of phagocytes to sites of infection. (10 marks)
 - b. Describe the mechanism involved in killing of microbes by phagocytes. (10 marks)
13. Describe the pathways of complement activation. (20 marks)
14. Describe the structure and function of the major immunoglobulin isotypes.(20 marks)