**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**P.O. Box 972-60200 – Meru-Kenya.**

**Tel: 020-2069349, 061-2309217. 064-30320 Cell phone: +254 712524293, +254 789151411**

**Fax: 064-30321**

**Website:** [**www.must.ac.ke**](http://www.must.ac.ke) **Email:** **info@must.ac.ke**

**University Examinations 2015/2016**

THIRD YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN PUBLIC HEALTH

**HPP 3302: PRINCIPLES OF IMMUNOLOGY**

 **DATE: AUGUST 2016 TIME: 2HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30MARKS)**

1. Discuss in brief three factors that make an antigen immunogenic. (6 Marks)
2. Briefly differentiate between:
3. Passive immunity and active immunity. (2 Marks)
4. Unideterminant antigens and multideterminant antigens. (2 Marks)
5. Describe effects of Rhesus grouping in a mother with blood group O negative carrying a fetus that is blood group A positive. (6 Marks)
6. What would be the possible solution to question (c) above? (2 Marks)
7. Giving examples, briefly discuss the natural body defense mechanism against diseases.(8 Marks)
8. Briefly describe the following terms used in immunology:
9. Phagocytosis (2 Marks)
10. Self and non-self recognition (2 Marks)

**QUESTION TWO (20 MARKS)**

Giving possible solutions, discuss common challenges of immunization in Kenya. (20 Marks)

**QUESTION THREE (20 MARKS)**

1. Describe the term “acquired immunity” (2 Marks)
2. Giving examples, describe the following types of acquired immunity:
3. Acquired natural immunity (7 Marks)
4. Acquired Artificial immunity (7 Marks)
5. Describe four characteristics of acquired immunity. (4 Marks)

**QUESTION FOUR (20 MARKS)**

All immunogens are antigens but not all antigens are immunogens. Discuss. (20 Marks)