



## **MASENO UNIVERSITY**

### **UNIVERSITY EXAMINATIONS 2013/2014**

FOURTH YEAR FIRST SEMESTER EXAMINATIONS FOR THE  
DEGREE OF BACHELOR OF SCIENCE IN MEDICAL  
BIOTECHNOLOGY AND BACHELOR IN MEDICAL  
LABORATORY SCIENCE WITH INFORMATION TECHNOLOGY  
(MAIN CAMPUS)

#### **PMT 415: MOLECULAR DIAGNOSTICS AND IMMUNOTECHNOLOGY**

*Date: 22<sup>nd</sup> November, 2013*

*Time: 8.30 - 10.30 a.m.*

---

#### **INSTRUCTIONS:**

- **Attempt ALL questions in SECTION A and ANY TWO questions in SECTION B.**
- **Illustrate your answers with suitable diagrams wherever necessary.**

PMT 415: MOLECULAR DIAGNOSTICS AND IMMUNOTECHNOLOGY

BSC IN MEDICAL BIOTECHNOLOGY AND BSC IN MEDICAL LABORATORY SCIENCE

INSTRUCTIONS

This examination consists of two sections: A and B.

Attempt all the questions in Section A and any two questions from Section B.

Illustrate your answers with suitable diagrams wherever necessary.

SECTION A –Compulsory (40 marks)

Attempt all the eight (8) questions. Each question carries 5 marks

1. Describe the *Ouchterlony* technique and its uses.
2. Differentiate between Western blotting and Northern blotting.
3. Explain the principles of radioimmuno assays and give their advantages and disadvantages.
4. Explain the principles and uses of WIDAL test.
5. Give the principles of immunofluorescence and differentiate between direct and indirect immunofluorescence assays, and the advantage and disadvantage of each.
6. Give an account of the principles and uses of ELISPOT technique.
7. Define the following:
  - (a) Affinity
  - (b) Avidity
  - (c) Cross-reactivity
  - (d) Adjuvant
8. Give five uses of monoclonal antibodies in biomedical practice.

SECTION B (30 marks)

Instructions

Attempt any **two** questions from this section. All questions carry equal marks (15 each).

9. Write an essay on enzyme linked immunosorbent assay (ELISA) and its many uses.
10. Discuss techniques for evaluation of cellular responses.
11. Discuss the principles and applications of flow cytometry in biomedical research and practice.