



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2013/2014

**SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE IN MEDICAL LABORATORY
SCIENCE WITH INFORMATION TECHNOLOGY
(CITY CAMPUS - EVENING)**

PMT 223: BIOCHEMICAL TECHNIQUES I

Date: 14th July, 2014

Time: 5.30 - 7.30 p.m.

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SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF MEDICAL LABORATORY SCIENCE WITH INFORMATION
TECHNOLOGY

KISUMU CITY CAMPUS

Section A: Short answer questions (40 marks)

Instructions

Answer ALL questions. Clarity will be awarded. Each question carries equal value.

1. Give any FOUR reasons why a biochemist would purify a protein (4 marks).
2. Explain the operational layout of a single-beam spectrophotometer (4 marks).
3. Describe how you would interpret laboratory results obtained from competitive ELISA (4 marks).
4. Explain why amino acids are good biological buffers (4 marks).
5. Describe the properties of a good chromatographic matrix (4 marks).
6. Explain any FOUR factors that influence the electrophoretic mobility of proteins (4 marks).
7. Explain the operational principle of High Performance Liquid chromatography (4 marks).
8. Explain the principle of isoelectric focusing technique (4 marks).
9. Describe the practical application of Biuret reaction (4 marks).
10. Explain the applications of microarray technique in medical laboratory (4 marks).

Section B: Essay question (30 marks)

Answer Question 11 and any other ONE question. Clarity will be rewarded. Use illustrations where needed.

11. Derive the Henderson-Hasselbalch equation and explain the practical significance of the equation in a medical laboratory (15 marks).
12. Describe in detail the layout and principle of sandwich ELISA. Give FIVE areas where ELISA can be applied (15 marks).
13. Describe in detail the layout and principle of gel permeation chromatography. Give practical applications of the technique in medical laboratory (15 marks).