



**TECHNICAL UNIVERSITY OF MOMBASA**

---

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

**UNIVERSITY EXAMINATION FOR:**

**BACHELOR OF TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND**

**BIOTECHNOLOGY**

**ABT 4407: PROTEINS FOR DIAGNOSIS**

**END OF SEMESTER EXAMINATION**

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

**DATE: Pick Date May 2016**

**Instructions to Candidates**

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

---

**Question ONE**

- (a) State the TWO variations of enzyme immunoassay. (2 marks)
- (b) Outline advances in the use of antibody as an immunoassay reagent. (4 marks)
- (c) State the use of the following enzymes in diagnosis;
  - (i) Alkaline phosphatase
  - (ii) Acetylcholinesterase. (2 marks)
- (d) Identify enzymes used in determination of the following;
  - (i) L-arginine levels in plasma and urine
  - (ii) Ascorbic acid in fluids. (2 marks)

- (e) Name FOUR indications of urea nitrogen in diagnosis. (4 marks)
- (f) Explain how blood glucose levels can be assayed. (4 marks)
- (g) Give FOUR disadvantages of using radioimmunoassay technique. (4 marks)
- (h) State FOUR advantages of using enzyme immunoassay technique. (4 marks)
- (i) Based on differences in physiochemical properties, name the FOUR classes of lipoproteins and state the lipid they transport. (4 marks)

#### **Question TWO**

- (a) Explain the latex-based immunological assay of hCG in pregnancy. (10 marks)
- (b) Discuss the factors affecting antigen-antibody reactions. (10 marks)

#### **Question THREE**

- (a) Describe the Western blot technique in assaying HIV antibody in a test sample. (10 marks)
- (b) Explain the principle of immunochromatography as used in membrane-based diagnostic tests. (10 marks)

#### **Question FOUR**

- (a) Explain how serum concentration of cholesterol esters can be estimated. (15 marks)
- (b) Outline methods used in enzyme immobilization. (5 marks)

#### **Question FIVE**

Describe:

- (a) The principle of competitive colorimetric ELISA assay for aflatoxin. (10 marks)
- (b) The advances in immunoassay technology. (10 marks)