



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

**BACHELOR OF TECHNOLOGY IN MICROBIOLOGY AND
BIOTECHNOLOGY**

ABT 4308: PROTEINS AND ENZYMES II

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: 12 May 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose No questions. Attempt Choose instruction.

Do not write on the question paper.

Question ONE

- Highlight the difference between uni-substrate and bi-substrate enzyme catalyzed reactions (4mks)
- Describe the use of serum enzymes in medical diagnostics (3mks)
- Outline different mechanisms of controlling the quantity of an enzyme in a metabolic reaction (4mks)
- Highlight any three different models that represent enzyme-substrate binding (6mks)
- Describe the role of a 3-dimensional cleft in an enzyme active site (6mks)
- Highlight four industrial application of enzyme inhibitors (4mks)
- Illustrate the difference between competitive and non competitive inhibitions (3mks)

Question TWO

- Outline the properties affecting binding of a substrate to the enzyme (15mks)
- Highlight the specificity of an enzyme active site (5mks)

Question THREE

Discuss the role of the following in catalysis

- a) Prosthetic Groups (6mks)
- b) Cofactors (5mks)
- c) Coenzymes (4mks)
- d) Ping-pong reaction mechanism (5mks)

Question FOUR

Discuss the role of the following in controlling the quantity of enzyme in a metabolic reaction

- a) Rate of synthesis and degradation (5mks)
- b) Induction (5mks)
- c) Repression (5mks)
- d) Substrate and coenzyme concentration (5mks)

Question FIVE

Using illustrations, outline different forms of reversible enzyme inhibition (20mks)