Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF **PURE AND APPLIED SCIENCES**

DIPLOMA IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY
(DIMBT 11M)

ABT 2302 : PROTEIN AND ENZYMES

SPECIAL/SUPPLEMENTARY: EXAMINATIONS

SERIES: OCTOBER 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this paper
-   *Answer booklet*
This paper consists of *FIVE* questions.
Answer Question **ONE (compulsory)** and any other **TWO** questions
This paper consists of 2 PRINTED pages

Question ONE

a) Define the following term :
   (i)   Irreversible inhibitors   **(2marks)**
   (ii) Amino group   **(2marks)**
   (iii) Polar aminoacid   **(2marks)**
   (iv) Alpha (π) helix   **(2marks)**

b) Describe the following term:-
   (i)   Vanderwaal forces   **(3marks)**
   (ii) Enzyme kinetic constant   **(3marks)**
   (iii) Enzyme specificity   **(3marks)**

c) Elaborate on the following term:-
   (i)   Tertiary protein structure   **(3marks)**
   (ii) Protein synthesis inhibitors   **(3marks)**
   (iii) Gel filtration   **(3marks)**

d) Define the following enzymes
   (i)   Ligase   **(2marks)**
   (ii) Oxidoreductase   **(2marks)**

Question TWO

Describe the following techniques of protein purification

   (i)   Affinity chromatography   **(3marks)**
   (ii) Ion exchange chromatography   **(3marks)**
   (iii) Hydrophobic interaction   chromatography   **(3marks)**
   (iv) Revered phase chromatography   **(3marks)**
   (v)   Gel Filtration   **(3marks)**

Question THREE

Discuss the applications of protein   **(15marks)**

Question FOUR

Elaborate on the following under protein
   (i)   Force controlling protein structure   **(8marks)**
   (ii) Protein folding   **(7marks)**

Question FIVE

Discuss the following factors affecting enzymatic activities
   (i)   Substrate concentration   **(3marks)**
   (ii) Debaturation   **(3marks)**
   (iii) Allosteric inhibitors   **(3marks)**
   (iv) Competitive inhibitors   **(3marks)**

(v)   pH   **(3marks)**