



TECHNICAL UNIVERSITY OF MOMBASA

School of Applied and Health Sciences
DEPARTMENT OF PURE AND APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:
BACHELOR OF TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND
BIOTECHNOLOGY

ABT 4207: PROTEIN AND ENZYME I
END OF SEMESTER EXAMINATION

SERIES: December 2024 SERIES

TIME: 2 HOURS

DATE: DECEMBER 2024

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) Highlight the different linkages/bonds used in the formation of tertiary structure of proteins (6 marks)
- b) Describe the effect of V_{max} , K_m , and Lineweaver-Burke plot in competitive inhibition (6 marks)
- c) Outline the general features of the active sites (6 marks)
- d) List the type of catalytic mechanisms employed by enzymes (6 marks)
- e) Use a suitable example to demonstrate the activities of zymogens and proproteins (6 marks)

Question TWO

Describe the characteristics of allosteric effects in haemoglobin protein

(20 marks)

Question THREE

Discuss any ten biological roles of enzymes in our daily life

(20 marks)

Question FOUR

Discuss irreversible inhibition under the following category;

- i) Group-specific reagents (5 marks)
- ii) Affinity labels (7 marks)
- iii) Suicide inhibitors (8 marks)

Question FIVE

Explain the role of following in regulating metabolic reactions

- a) Synthesis and degradation of enzymes (10 marks)
- b) Induction (5 marks)
- c) Repression (5 marks)