

UNIVERSITY EXAMINATIONS

FIRST SEMESTER 2025/2026 ACADEMIC YEAR

**THIRD YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF BIOMEDICAL SCIENCE AND
TECHNOLOGY**

BMED 315: FUNDAMENTALS OF ENZYMOLOGY

STREAM: R

TIME: 2 HRS

DAY: THURSDAY [8.30 – 10.30 A.M]

DATE: 05/02/2026

THIS QUESTION PAPER CONSISTS OF TWO (2) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

Instructions

Answer **ALL** questions in section A and any **TWO** questions in section B

SECTION A (40 marks)**QUESTION ONE**

State the enzyme inhibitors used for treatment of for glaucoma, gout, coagulation, herpes and peptic ulcers (5 Marks)

QUESTION TWO

Citing specific examples of each, differentiate between a group and absolute enzyme specificity (4 Marks)

QUESTION THREE

Outline the classification of enzymes according to the Enzyme Commission (6 Marks)

QUESTION FOUR

Outline the enzymatic function of five metal cofactors (5 Marks)

QUESTION FIVE

Illustrate the Fischer's lock-and key hypothesis enzyme-substrate interaction (5 Marks)

QUESTION SIX

Show the Lineweaver-Burk equation and define all the kinetic parameters (5 Marks)

QUESTION SEVEN

Using diisopropylphosphofluoridate (DIPF) as an example, explain how irreversible inhibition occurs (5 Marks)

QUESTION EIGHT

List the amino acids that are involved in acid-base catalysis (5 Marks)

SECTION B (30 marks)**QUESTION NINE**

Discuss reversible covalent modification as a mode of enzyme regulation (15 Marks)

QUESTION TEN

Write an essay on the factors that affect enzyme catalysed reactions (15 Marks)

QUESTION ELEVEN

Discuss the physicochemical nature of catalysis of chymotrypsin (15 Marks)