



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

MASTERS OF SCIENCE IN BIOTECHNOLOGY

ABT 5110: MICROBIAL BIOCHEMISTRY & PHYSIOLOGY **SPECIAL/
SUPPLEMENTARY PAPER**

SPECIAL/ SUPPLIMENTARY EXAMINATIONS

SERIES: SEPTEMBER 2018

TIME:3HOURS

DATE:Pick DateSep2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **SIX** Question(s). Attempt any **FOUR** questions.

Do not write on the question paper.

Question ONE

Elaborate processes of Glycolysis, Krebs cycle and electron transport chain in micro-organisms. (25 marks)

Question TWO

Elaborate the biogeochemical cycles of Nitrogen cycle, Carbon cycle and Phosphorus cycle in micro-organism. (25 marks)

Question THREE

Discuss regulation of gene expression in bacteria in the following Operons

- (i) *His Operon*,
- (ii) *Lac Operon* and
- (iii) *Trp Operon*.

Question FOUR

- (a) Describe the strategies used by microbial pathogens to overcome host defenses. (13 marks)
- (b) Describe how the pathogens damage the host. (12 marks)

Question FIVE

Discuss fermentation and production of various acids as anaerobic processes in microorganisms. (25 marks)

Question SIX

Describe the three genetic recombination processes that occur in bacteria. (25 marks)