TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OF TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY

ABT 4303: FERMENTATION TECHNOLOGY I

END OF SEMESTER EXAMINATION

SUPPLEMENTARY/SPECIAL EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

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) Using a graph, describe the phases of microbial growth (6 marks)

b) Outline the criteria used in the choice of industrially important organisms during the isolation process (6 marks)

c) State the three types of modifications done on a mutant organism having feedback inhibitions/repressors (3 marks)

d) State the objectives of using the best suited medium in large scale fermenters (6 marks)

e) State any five properties of an ideal antifoam (5 marks)

f) Explain the factors considered during scale-up process (4 marks)

Question TWO

Describe the following carbon source in fermenters;

i. Carbohydrates (10 marks)
ii. Oils and fats (10 marks)

Question THREE

Discuss the factors considered when designing a laboratory or pilot-plant experiments for scale-down purposes (20 marks)

Question FOUR

Outline the isolation of an auxotrophic mutant of glutamic acid producing organism, *C. glutamicum* (20 marks)

Question FIVE

Outline the kinetics and applications of batch cultivation (20 marks)