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

ORDINARY 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) Outline the properties of useful industrial microorganisms (4 marks)

b) Illustrate the generalized schematic representation of a typical fermentation process (6 marks)

c) Explain the quality control check for preserved stock cultures (4 marks)

d) Outline the approaches used in the isolation of resistant mutant industrial microorganisms (4 marks)

e) State the advantages of the following;

i. Continuous sterilization over batch sterilization (3 marks)

ii. Batch sterilization over continuous sterilization (3 marks)

f) Explain the three stages of computer function in a fermentation process (6 marks)

Question TWO

a) Explain the criteria for the choice of a recovery process for a product (8 marks)
b) Describe the stages involved in the recovery of product from a harvested fermentation broth (12 marks)

Question THREE

a) Explain the foaming process in microbiological applications (10 marks)
b) Outline the recognized five patterns of foaming in a fermentation process (5 marks)
c) Explain the three methods of solving excessive foaming in fermenters (5 marks)

Question FOUR

Describe the following microbial culture preservation methods;

a) Dried cultures (10 marks)
b) Lyophilization (10 marks)

Question FIVE

Using the kinetic description of microbial culture growth, describe the behavior of a culture in relation to its metabolites (20 marks)