



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
SPECIAL/SUPPLEMENTARY EXAMINATION**

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Sep 2018

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

- Explain the quality control check for preserved stock cultures (4 marks)
- Outline the approaches used in the isolation of resistant mutant industrial microorganism (4 marks)
- State the objectives of using the best suited medium in large scale fermenters (6 marks)
- Explain the three stages of computer function in a fermentation process (6 marks)
- Outline the properties of useful industrial microorganisms (4 marks)
- With an illustration, describe the phases of microbial growth (6 marks)

Question TWO

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

Question THREE

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

Question FOUR

Describe the following Carbon sources for fermenters;

- a. Carbohydrates (10 marks)
- b. Oils and fats (10 marks)

Question FIVE

Describe the following techniques;

- a. Precipitation (10 marks)
- b. Filtration (10 marks)