TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

MASTER OF SCIENCE IN BIOTECHNOLOGY

ABT 5112: INDUSTRIAL MICROBIAL BIOTECHNOLOGY

SPECIAL/ SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 3 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 **SIX** Questions. Attempt any FOUR questions.
Do not write on the question paper.

Question ONE

Describe the following microbial preservation methods;

a) Storage in low temperature liquid or vapor phase nitrogen (8 marks)
b) Lyophilization (8 marks)
c) L-drying (5 marks)
d) Storage in distilled water (4 marks)

Question TWO

Describe;

a) The characteristics of important microorganism for industrial use (10 marks)

b) The criteria for the choice of raw materials used in industrial media (15 marks)

Question THREE

Discuss the methods used for derangement of the metabolic control of primary metabolites (25 marks)

Question FOUR

a) Describe the production of single cell proteins from high energy sources (18 marks)

b) Outline;

i) The advantages of large scale single cell protein production over the conventional food production (4 marks)

ii) Technical problems associated with single cell protein production than conventional food production (3 marks)

Question FIVE

a) Describe the stages in the industrial manufacture of cheese (15 marks)

a. Explain the factors that affect the leavening action of yeast (10 marks)

Question SIX

Describe;

a) Explain the conditions and requirements needed for the production of glutamic acid by wild-type bacteria (10 marks)

b) Describe the two main extraction methods of an amino acid from the fermentation filtrate (7 marks)

c) Outline some of the industrial uses of amino acids (8 marks)