# Technical University of Mombasa

***Faculty of Applied and Health Sciences***

DEPARTMENT OF **PURE AND APPLIED SCIENCES**

DIPLOMA IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY
(DIMBT 10M )

## ABT 2305: INDUSTRIAL FERMENTATION

**SPECIAL/SUPPLEMENTARY:** EXAMINATIONS

**SERIES:** February 2013

**TIME:** 2 HOURS

**INSTRUCTIONS:**

You should have the following for this paper

- *Answer booklet*

This paper consists of ***FIVE*** questions.
Answer Question **ONE (compulsory)** and any other **TWO** questions
*This paper consists of **2 PRINTED** pages*

**Question ONE**

a) List THREE factors that are important for selection of industrial strains for lactic acid production. **(3marks)**
b) Name any SIX types of food produced through fermentation **(3marks)**
c) State TWO advantages of the fed-batch culture over the batch culture. **(2marks)**
d) Distinguish between solid state and submerged fermentation **(4marks)**
e) State the characteristics of probiotics as proposed by FAO/WHO **(4marks)**
f) Explain how nutrient repression can be overcome in enzyme production **(4marks)**
g) State the advantages of producing SCP over conventional crops for use as food and feed. **(5marks)**
h) Use a diagram to show the fermentation profile of penicillin. **(5marks)**

**Question TWO**

a) Describe TWO methods that are used for enzyme purification **(6marks)**
b) Describe the following methods of cultivating microbial cultures
   (i) Batch **(3marks)**
   (ii) Feb-batch **(3marks)**
   (iii) Continuous **(3marks)**

**Question THREE**

Describe;
i) The steps in the production of bacterial vaccines **(5marks)**
ii) The industrial production of cyanocobalamine **(10marks)**

**Question FOUR**

a) Discuss induction as one of the biochemical fundamentals that influence the production of enzymes **(7marks)**
b) Outline the disadvantages of microbial insecticides **(8marks)**

**Question FIVE**

a) List the steps for the production of bacterial biomass **(5marks)**
b) Discuss the advantages of microbial insecticides. **(10marks)**