



TECHNICAL UNIVERSITY OF MOMBASA
FACULTY OF APPLIED AND HEALTH SCIENCES
DEPARTMENT OF PURE & APPLIED SCIENCES
UNIVERSITY EXAMINATION FOR:
BTIMB
ABT4306: DOWNSTREAM PROCESSING
END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date May 2016

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. Differentiate between downstream and upstream processes (5marks)
- b. Highlight five factors to be considered during filtration module selection (5 marks)
- c. Described five advantages ultrafiltration (5 marks)
- d. List five advantages of membrane based separation (5 marks)
- e. Highlight the features of a sonicator (5 marks)
- f. Describe five properties of industrial microorganisms (5 marks)

Question TWO

- a. Describe the tangential flow filtration method (10 marks)
- b. Explain the physical characteristics of a fermentation both (10 marks)

Question THREE

Describe four groups of excipients

(20 marks)

Question FOUR

Describe the freeze drying process

(20 marks)

Question FIVE

Explain the industrial production of Penicillin and its derivatives

(20 marks)