



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 4402 GENETIC ENGINEERING II

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2HOURS

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

- Highlight any 2 challenges associated with DNA vaccines (4 mks)
- Outline the structure of human insulin (6 mks)
- Explain limitations of expressing mammalian genes in bacterial cells (6 mks)
- Define the following
 - Transgene (2 mks)
 - Genetically modified organisms (2 mks)
 - Whole genome sequencing (2 mks)
- Name any 4 traits that have been targeted for possible for crop plant improvement through genetic engineering (4 mks)
- Describe any 4 limitations of somatic hybridization (4 mks)

Question TWO

Discuss the following risks associated with transgenic plants

- Allergenicity
- Antibiotic Resistance

Question THREE

Discuss the advantages of DNA vaccines (20 mks)

Question FOUR

Discuss the development of transgenic plants using the following Ti-based plasmids

- a) Cointegration (8 mks)
- b) Binary vector system (12 mks)

Question FIVE

Describe the practical application of somatic hybridization (20 mks)