



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF **PURE AND APPLIED SCIENCES**

DIPLOMA IN TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND
BIOTECHNOLOGY
(DIMBT 11M)

ABT 2303 : GENETIC ENGINEERING I

SPECIAL/SUPPLEMENTARY: EXAMINATIONS

SERIES: OCTOBER 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 3 PRINTED pages

Question ONE

- a) Describe the genetic material of viruses (4marks)
- b) State the difference between genetic and somatic mutation (2marks)
- c) Define the following terminologies :
 - (i) Operon (1mark)
 - (ii) Hybridization probe (2marks)
 - (iii) Reassortment (2marks)
 - (iv) Translocation (1mark)
 - (v) Transfection (1mark)
- d) Outline FIVE properties of transposable genetic elements (5marks)
- e) State the difference between insertion sequences and transposons (4marks)
- f) State FOUR properties of cloning vectors (4marks)
- g) Outline types of gene mutations (4marks)

Question TWO

Discuss the various Thymine dimmer repair mechanisms (15marks)

Question THREE

Discuss restriction enzymes (15marks)

Question FOUR

Discuss the processes of DNA transfer in Bacteria:-

- (i) Transformation (5marks)
- (ii) Conjugation (5marks)
- (iii) Transduction (5marks)

Question FIVE

Discuss the mechanism of conjugation of the F-factor plasmid (F-plasmid) (15marks)