



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF PURE AND APPLIED SCIENCES

DIPLOMA IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY
(DIMBT 11M)

ABT 2304 : GENETIC ENGINEERING II

SEMESTER: EXAMINATIONS

SERIES: DECEMBER 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) Define the following terms
 - (i) Gene expression (1mark)
 - (ii) Plasmid (1mark)
 - (iii) DNA sequencing (1mark)
 - (iv) Vaccine (1mark)
 - (v) Gene knockout (1mark)
- b) Outline the steps involved in the production of recombinant vaccines (4marks)
- c) Describe the structure of Insulin (4marks)
- d) Outline the processes used to introduce foreign DNA in plants (5marks)
- e) State the objectives of gene transfer in animals (5marks)
- f) Outline the components required for manufacturing recombinant DNA molecules (3marks)
- g) List examples of cloning vectors (4marks)

Question TWO

- a) Describe the synthesis of insulin from the genetic code (5marks)
- b) Discuss the manufacturing of insulin (10marks)

Question THREE

Discuss the risks /concerns of genetic engineering in plants under the following:

- (i) Human health concerns (4marks)
- (ii) Environmental concerns (11marks)

Question FOUR

Discuss the application of recombinant DNA technology (15marks)

Question FIVE

- (a) Describe the production of a transgenic plant (7marks)
- (b) Outline the application of transgenic plants (8marks)