Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF PURE AND APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF TECHNOLOGY IN INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY

BTMBT

SBT 2443 : GENETIC ENGINEERING II

SPECIAL/SUPPLEMENTARY EXAMINATION

OCTOBER 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **FIVE** questions
Answer question **ONE** (compulsory) and any other **TWO** questions

Question ONE

a) Define the following terms:

(i) RNA interference **(2marks)**

(ii) Strine-Detgano sequences **(2marks)**

(iii) CODIS **(2marks)**

(iv) Genetic engineering **(2marks)**

(v) Antibiotics

b) State the main use of products of site-specific mutagenesis **(2marks)**

c) List TWO factors that determine efficiency of homologous recombination **(2marks)**

d) List THREE major types of transgenic plants that have been produced through recombinant DNA technology **(3marks)**

e) Highlight the main interlaces between biotechnology and genetic engineering's

(4marks)

f) Highlight the degree of genetic variation that is the basis for forensic analysis among humans **(4marks)**

g) Citing specific examples state the hey source of genes utilized in developing transgenic plants resistant to viruses **(4marks)**

h) State the main application of y-chromosome analysis **(1mark)**

Question TWO

a) Discuss cover of sickle cell disease by homologous recombination **(12marks)**

b) Explain the key distractions between forward and reverse genetics **(8marks)**

Question THREE

a) Explain how PCR technology has impacted HIV/AIDs management **(12marks)**

b) Describe chemical mutagenesis using specific mutagens as examples **(8marks)**

Question FOUR

Highlight the complexities of inheritance patterns and outcomes which pose challenge to tracing of defects with reasonable certainly **(20marks)**

Question FIVE

a) Describe two DNA-based techniques you may employ to trace family relationships

(10marks)

b) Describe applications of transpose –based signature-tagged mutagenesis in research

(10marks)