TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BTMB

ABT 4406: RECENT ADVANCES IN INDUSTRIAL BIOTECHNOLOGY

END OF SEMESTER EXAMINATION

PAPER 1

SERIES: APRIL 2016

TIME: 2HOURS

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. Attemptquestion ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

a. Define the following terms.
   i. Biosensor 1 mark
   ii. Forensic science 1 mark

b. State the merits of antisense technology. 4 marks

c. Distinguish between 1st and 2nd generation biofuels. 6 marks

d. Differentiate the Frye and Daubert standards. 4 marks

e. Describe electrochemical transducers. 6 marks

f. Explain the use of nanoparticles in chemical catalysis. 8 marks

Question TWO

Giving examples where necessary, explain the types of physical evidence in crime scene. 20 marks

Question THREE

Explain the possible applications of nanoparticles in the following area.

a. Uniform material. 12 marks

b. Construction 8 marks

Question FOUR

a. Using illustrations, distinguish the antisense and RNAi techniques. 7 marks

b. Discuss the use of CRISPR technology in creating disease models in organisms. 13 marks

Question FIVE

a. Using illustrations, explain how killing of specific cells is used to carry out gene therapy. 12 marks

b. Describe optical transducers used in biosensors. 8 marks