



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: 2 HOURS

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. Attempt question 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 1 st and 2 nd 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