



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MATHEMATICS & PHYSICS

UNIVERSITY EXAMINATION FOR:

BTAP

AAB 4240 : BIOLOGY FOR PHYSICISTS PAPER TWO

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Pick Date Sep 2018

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) Explain the process of anaerobic respiration in the human muscle cells (4 marks)
- b) Differentiate between prokaryotes and eukaryotes (4 marks)
- c) State four properties of muscle tissue (4 marks)
- d) With illustrations highlight facilitated diffusion as a method of passive transport (4 marks)
- e) State four ways through which thermogenesis occurs (4 marks)
- f) Explain the fluid mosaic model of plasma membrane (4 marks)
- g) Plant cells do not burst when immersed in distilled water. Explain (3 marks)
- h) The use of anabolic steroids to enhance athletic performance is dangerous. Explain (3 marks)

Question TWO

Discuss how the cell membranes of excitable tissues

- i. Develop and maintain a membrane potential (5 marks)
- ii. Propagate an action potential. (15 marks)

Question THREE

- (i) Describe the different types of muscle movements (15 marks)
- (ii) Discuss what happens to the muscles when a weight lifter becomes sedentary (5 marks)

Question FOUR

Discuss five applications of various biophysical techniques (20 marks)

Question FIVE

- (i) Discuss the process of cell signaling (15 marks)
- (ii) Illustrate an example of a cytoplasmic response to the signal (5 marks)