



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MATHEMATICS & PHYSICS

UNIVERSITY EXAMINATION FOR:

BACHELORS OF TECHNOLOGY IN APPLIED PHYSICS

**AAB 4240 : BIOLOGY FOR PHYSICISTS (SPECIAL /
SUPPLEMENTARY)**

END OF SEMESTER EXAMINATION

SERIES: AUGUST 2017

TIME: 2 HOURS

DATE: Pick Date Sep 2017

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; (6 marks)
- i) Osmosis
 - ii) Endoskeleton
 - iii) Transpiration
 - iv) Electric organ
 - v) Autotrophs
 - vi) Systematic circulation
- b) Describe the different classes of joints. (6 marks)
- c) Explain the movement of blood in different parts of the heart. (8 marks)
- d) Outline five applications of robotics in today's world. (10 marks)

Question TWO

- a) Describe the location, parts and function of the inner ear. (12 marks)
- b) Outline the necessary steps in the oxidation of glucose to produce energy in form of ATP. (8 marks)

Question THREE

- a)
 - i) Name three types of transport utilised by biological membranes. (3 marks)
 - ii) Describe bulk transport in the biological membrane. (5 marks)
- b) State the function and effects of abnormal production of the following neurotransmitters;
 - i) dopamine,
 - ii) serotonin,
 - iii) endorphins and
 - iv) norepinephrine. (12 marks)

Question FOUR

- a) State function of five components in a camera found in the eye. (10 marks)
- b) Any five differences between smooth muscles and skeletal muscles. (10 marks)

Question FIVE

List the reactions and enzymes involved in the glycolysis pathway. (20 marks)