



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF PURE AND APPLIED SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE IN COMMUNITY HEALTH
BSCH

AAB 4110 : HUMAN ANATOMY AND PHYSIOLOGY II

SEMESTER : EXAMINATION

APRIL 2014 SERIES

2 HOURS

Instructions to candidates:

This paper consists of **FIVE** questions

Answer question **ONE** (compulsory) and any other **TWO** questions

QUESTION ONE

- a) Draw a labelled diagram of a neuro-muscular junction. (4 marks)
- b) Explain the roles of the following components in muscles;
- (i) Ca^{2+} (3 marks)
 - (ii) ATP (2 marks)
 - (iii) Sarcoplasmic reticulum (2 marks)
- c) Explain the effect of insulin in the metabolism of glucose (2 marks)
- d) Explain the physiological effects of the following hormones;
- (i) TSH (2 marks)
 - (ii) Cortisol (2 marks)

- (iii) Oxytocin (2 marks)
- e) (i) Differentiate between nervous and endocrine co-ordination. (6 marks)
- (ii) Draw the structure of a bipolar neuron (4 marks)
- (iii) Define the term extracellular digestion (1 mark)

QUESTION TWO

- a) (i) Name the hormones that function in digestion. (4 marks)
- (ii) State their site of synthesis and their target organs. (8 marks)
- b) (i) Name the muscles that play a role in ventilation. (2 marks)
- (ii) Compare the muscular motions involved in inhalation with those involved in exhalation (6 marks)

QUESTION THREE

- a) (i) Draw a nephron and label all of its segments. (8 marks)
- (ii) Indicate where Na^+ is actively transported and where it diffuses in the nephron. (4 marks)
- b) Explain the role of ADH and aldosterone in osmoregulation by the kidneys. (4 marks)
- c) Discuss the functions of the testes in the human reproductive system. (4 marks)

QUESTION FOUR

Discuss the digestion of carbohydrates in humans. (20 marks)

QUESTION FIVE

- a) Discuss the differences between the somatic and autonomic nervous system. (6 marks)
- b) Describe the process of muscle contraction. (14 marks)