



# THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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**MAIN EXAMINATION**

**AUGUST - DECEMBER 2015 TRIMESTER**

**FACULTY OF SCIENCE**

**DEPARTMENT OF BIOLOGY**

**REGULAR PROGRAMME**

**BIO 204: ANIMAL ANATOMY AND PHYSIOLOGY**

**Date: DECEMBER 2015**

**Duration: 3 Hours**

**INSTRUCTIONS: Answer Question ONE and ANY other THREE Questions**

- Q1. a) Differentiate between the following terms
- i Menstrual and estrous cycle.
  - ii Parthenogenesis and hermaphroditism. **(2 marks)**
- b) i What is the role of calcium ions ( $\text{Ca}^{2+}$ ) during muscle contraction. **(1 mark)**
- ii Explain the sliding filament theory. **(4 marks)**
- c) State the various valves and their relevance to blood circulation. **(5 marks)**
- d) Explain the role of brain in thermoregulation. **(5 marks)**
- e) How are insulin and glucagon involved in blood glucose regulation. **(5 marks)**
- f) i What organs form the upper and the lower respiratory systems in humans. **(4 marks)**

ii Explain THREE functions of epithelial tissue in named animals. **(6 marks)**

iii What are the sensors, controllers and effectors of homeostasis. **(3 marks)**

Q2. Account for excretion of metabolic waste products in vertebrates and invertebrates. **(20 marks)**

Q3. Describe the role of kidney in osmoregulation. **(20 marks)**

Q4. Compare ventilation strategies across aquatic and terrestrial animals. **(20 marks)**

Q5. "The anatomy and physiology of the digestive system dictates the feeding mechanisms in animals" Discuss this sentence citing examples. **(20 marks)**

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