



# THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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**MAIN EXAMINATION**

**JANUARY – APRIL 2019 TRIMESTER**

**FACULTY OF SCIENCE**

**DEPARTMENT OF BIOLOGY**

**REGULAR PROGRAMME**

**BIO 414: ADVANCED ANIMAL PHYSIOLOGY**

**Date: April 2019**

**Duration: 2 Hours**

**INSTRUCTIONS: Answer Question ONE and any other TWO Questions**

- Q1. a) Outline the role of the following in the ETC **(4Marks)**
- i) FMN
  - ii) RIESKE center
  - iii) Q
  - iv) Cty b
- b) Describe the control of blood carbonic acid concentration through respiratory system **(4Marks)**
- c) Describe the conservation of bicarbonate ions in renal system **(3Marks)**
- d) Explain the role of ADH and Aldosterone hormones in osmoregulation **(2Marks)**
- e) Describe the systory steps of cardiac cycle **(4Marks)**
- f) Explain ultrafiltration at glomerulus of the kidney tubules **(3Marks)**
- g) Describe the role of the following in thermoregulation
- i) Hypothalamus **(3Marks)**
  - ii) Sweating **(2Marks)**
  - iii) Erector pili muscles **(3Marks)**
  - iv) Aestivation **(2Marks)**

- Q2. a) Describe the 3 main buffer systems in invertebrates (9Marks)  
b) Describe the flow of blood through the mammalian heart (11Marks)
- Q3. a) Describe the process of glycolysis in carbohydrate metabolism (15Marks)  
b) Explain the role of the main protein complexes in ETC (5Marks)
- Q4. a) Illustrate a simple reflex arc in invertebrates (12Marks)  
b) Describe the synaptic impulse transmission (8Marks)
- Q5. Describe the sliding filament theory of muscle contraction in invertebrates (20Marks)

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