



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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MAIN EXAMINATION

JANUARY – APRIL 2017 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF BIOLOGY

REGULAR PROGRAMME

BIO 307: COMPARATIVE ANIMAL PHYSIOLOGY

Date: April 2017

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

- Q1. a) Define the term respiration and give two reasons why the process is important in animals **(2 marks)**
- b) Summarize the cycles of inhalation and exhalation in bird ventilation **(4 marks)**
- c) Briefly explain the role of brain in thermoregulation. Also include an illustration of a negative feedback mechanism involving regulation of temperature **(6 marks)**
- d i) Differentiate between adaptation, acclimatization and acclimation **(3 marks)**
ii) Give reasons why each is important in living organisms **(3marks)**
- e) Briefly describe the three components involved in all homeostatic control systems **(6marks)**
- f) Describe the three types of ventilation strategies and give an example in each case **(6 marks)**
- Q2. Write short notes on the following
- Respiratory pigments
 - Working of sodium –Potassium pump

- iii) Osmoregulation in insects
 - iv) Regulation of sodium ions in blood **(20 marks)**
- Q3. a) Compare the circulatory physiology in arthropods, annelids, fish and birds **(8 marks)**
- b) Describe named reproductive hormones in males and females with reference to where they are produced and the role they play. **(12marks)**
- Q4. Account for respiration in aquatic vertebrates and insects **(20 marks)**
- Q5. Describe the process of urine formation in mammals with reference to the steps involved, where they occur and the substances involved in each step **(20 marks)**

END