



*(Knowledge for Development)*

# **KIBABII UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2016/2017 ACADEMIC YEAR**

### **SECOND YEAR SECOND SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATION**

**FOR THE DEGREE OF BACHELOR OF SCIENCE BIORESOURCE  
MANAGEMENT AND CONSERVATION**

**COURSE CODE: SBC 226**

**COURSE TITLE: WILDLIFE ECOPHYSIOLOGY**

**DATE: 20/09/2017**


**TIME: 11:30 – 1:30 P.M.**

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#### **INSTRUCTIONS TO CANDIDATES**

Answer Question one (1) and any other two (2) Questions. Question one is compulsory and carries 30 marks, the other Questions carry 20 marks each.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over 

**KIBU OBSERVES ZERO TOLERANCE TO EXAMINATION CHEATING**

1. a) Outline reasons why running/walking is the least efficient mode of locomotion (5 marks)
- b) Explain possible limits to aerobic metabolism in vertebrates. (6 marks)
- c) Explain briefly how birds are adapted to overcome resistance during aerial flight (4 marks)
- d) Outline FIVE factors determining gas ( $O_2$  or  $CO_2$ ) diffusion from Fick's Law (5 marks)
- e) Distinguish between physiological and structural adaptations. Give a relevant example in each case (5 marks)
- f) Explain why halophytes are found in water yet they are described as being physiologically dry. (5 marks)
2. a) Describe FIVE mechanisms through which animals respond to changing environmental conditions (10 marks)
- b) Explain how precipitation affects distribution of terrestrial herbivores (5 marks)
- c) Explain the meaning of each of the following terms: (5 marks)
  - i. Poikilotherms;
  - ii. Co-evolution;
  - iii. Stenohaline;
  - iv. Acclimation;
  - v. Osmoconformers
3. a) Describe how desert animals are adapted to conserve water in their bodies (9 marks)
- b) Explain briefly TWO types of nephrons found in mammalian avian kidney (5 marks)
- c) Differentiate between phenotypic plasticity and phenotypic flexibility (6 marks)
4. a) Describe FIVE factors affecting the amount of oxygen dissolved in water (10 marks)
- b) Explain FOUR mechanisms of ventilation in amphibians (10 marks)
5. a) Describe FIVE factors affecting oxygen affinity in mammals (10 marks)
- b) Discuss the process of osmoregulation in freshwater animals (10 marks)