**UNIVERSITY OF KABIANGA**

**UNIVERSITY EXAMINATIONS**

**2017/2018 ACADEMIC YEAR**

**SECOND YEAR FIRST SEMESTER EXAMINATION**

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY**

**COURSE CODE: BIO 207**

**COURSE TITLE: COMPARATIVE BIOCHEMISTRY**

**DATE: 8/2/2018**

**TIME: 9.00 A.M- 12.00 NOON**

**INSTRUCTIONS TO CANDIDATES:**

Answer **ALL** Questions in **section A** and any other **TWO** in **section B.**

**SECTION A**

1. a. Briefly explain how migratory birds are able to travel long distance without frequently stopping to eat. (2 marks)

b. Explain how the ventriculus functions in the breakdown of food in avians. (5 marks)

c. In the same avians, explain which site or organ the digested food is transported after absorption in the capillary system. (1 mark)

2. a. Briefly explain how microorganisms in the rumen benefit from ruminants. (3 marks)

b. The abomasum secretes and proteolytic enzymes, state three important functions this chamber performs. (3 marks)

c. Explain why specialized herbivores (ruminants) display enormous rates of gluconeogenesis. (2 marks)

3. a. Explain how fish excrete ammonia by demonstrating the reaction involved. (4 marks)

b. Explain why fish do not use the urea cycle to excrete ammonia, yet it is less toxic. (2 marks)

c. State the **two** major amino acids found in fish. (2 marks)

4. a. State and describe the **three** main fibres found in skeletal muscle. (6 marks)

b. Briefly contrast muscle contraction between the red and white muscle fibres. (2 marks)

5. a. Give 5 general differences between ruminant and non-ruminant digestion. (5 marks)

b. Explain how a man would generate energy for an enduring exercise such as a marathon and the type of muscle fibres involved. (3 marks)

**SECTION B**

6. Give detailed explanation of amino acid metabolism by comparing and contrasting this process between fish and insects. (15 marks)

7. Discuss the glucose-alanine cycle, clearly indicating the sites in which it takes place, the enzymes involved and its importance. (15 marks)

8. Discuss fish metabolism during swimming. (15 marks)