



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY**  
**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**  
**DEPARTMENT OF BIOLOGICAL SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN**  
**BIOLOGICAL SCIENCES**  
**2<sup>ND</sup> YEAR 2<sup>ND</sup> SEMESTER 2016/2017 ACADEMIC YEAR**  
**MAIN CAMPUS-REGULAR**

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**COURSE CODE: SBI 3212**

**COURSE TITLE: ANIMAL PHYSIOLOGY**

**EXAM VENUE:**

**STREAM: (BIO)**

**DATE:**

**EXAM SESSION:**

**TIME: 2 HOURS**

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**INSTRUCTIONS:**

- 1. Answer ALL questions in Section A and any Two (2) questions in Section B.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

## **SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)**

1. Define the following terms:
  - a. System (1 mark)
  - b. Extracellular fluid (1 mark)
  - c. Tissue (1 mark)
2. Explain why homeostasis is considered to be the central theme in physiological studies. (3 marks)
3. Briefly describe the role of lungs in acid-base homeostasis in mammals. (3 marks)
4. State any three functions of the lymphatic system. (3 marks)
5. Outline three functions of the skeletal system. (3 marks)
6. Briefly describe enterohepatic circulation. (3 marks)
7. State four ways by which animals exchange heat with the surroundings. (3 marks)
8. Distinguish between plasma and serum. (3 marks)
9. Briefly describe starch digestion in the small intestine of mammals. (3 marks)
10. Briefly explore, giving examples, the concept of positive feedback mechanism. (3 marks)

## **SECTION B: ESSAY QUESTIONS (40 MARKS)**

11. Describe in detail the process of muscle contraction following the arrival of a nervous signal at the sarcolemma. (20 marks)
12. Explore the general functions of blood. (20 marks)
13.
  - a. Give four digestive tract secretions and explain the significance of the secretions in the digestive process. (10 marks)
  - b. Describe fermentative digestion of proteins in the rumen. (10 marks)
14. Examine the mammalian respiratory system under the following headings:
  - a. Functional organization. (10 marks)
  - b. Gaseous exchange between alveolus and blood. (10 marks)