



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN
BIOLOGICAL SCIENCE**

4TH YEAR 2ND SEMESTER 2018/2019 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE: SBI 3421
COURSE TITLE: ENVIRONMENTAL PHYSIOLOGY
EXAM VENUE: BIO LAB STREAM: (BIO)
DATE: 26/04/2019 EXAM SESSION: 9.00-11.00AM
TIME: 2 HOURS

Instructions:

- 1. Answer ALL questions in Section A and Any two questions in Section B**
 - 2. Candidates are advised not to write on question paper**
 - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. Outline any three roles of the liver as a homeostatic organ. (3 marks)
2. Explain why spiders excrete guanine as the major nitrogenous waste product. (3 marks)
3. Describe ultrafiltration in the Kidney nephron. (3 marks)
4. Describe diapause in insects. (3 marks)
5. Explain how animals regulate a rise in blood glucose concentration. (3 marks)
6. Outline any three adaptations of plants to marine environments. (3 marks)
7. Differentiate euryhaline from Stenohaline animals. (3 marks)
8. Describe the effect of pyrogen production during an infection. (3 marks)
9. Explain what determines the energy cost of an osmoregulator in maintaining the osmotic gradients through active transport. (3 marks)
10. Differentiate between the excretion in plants and animals. (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Discuss the physiology of biological rhythms. (20 marks)
12. Describe the physical adaptations of animals to cold environments. (20 marks)
13. Discuss osmoregulation in marine vertebrates. (20 marks)
14. Describe the excretory products of nitrogen metabolism in animals. (20 marks)