



# **MASAI MARA UNIVERSITY**

**REGULAR UNIVERSITY EXAMINATIONS  
2019/2020 ACADEMIC YEAR  
FOURTH YEAR FIRST SEMESTER  
EXAMINATIONS  
FOR  
THE DEGREE OF BACHELOR OF SCIENCE**

**COURSE CODE: ZOO 4121**

**COURSE TITLE: ENVIRONMENTAL PHYSIOLOGY**

**DATE: 13<sup>TH</sup> DECEMBER, 2019**

**TIME: 1100-1300HRS**

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## **INSTRUCTIONS**

- (a) Answer ALL questions in Section A and ANY TWO in Section B**  
**(b) Illustrate your answer with well labelled diagrams where appropriate**

**SECTION A (30 marks). Answer all questions**

1. Explain the advantages and disadvantages of using laboratory animals. (3marks)
2. Outline environmental biotic and abiotic factors affecting an organism. (3marks)
3. Distinguish three criteria for regarding a trait as an adaptation. (3marks)
4. Outline the steps involved in gene expression. (3marks)
5. Explain isomerism in relation to amino acid structure. (3marks)
6. Outline three differences and similarities between prokaryotic and eukaryotic cells. (3marks)
7. Explain the concept of resting membrane potential. (3marks)
8. Describe mechanisms of exocytosis and endocytosis. (3marks)
9. Describe briefly the mechanisms used by three named deep sea animals to overcome effects of depth and pressure. (3 marks)
10. Explain three methods of decreasing buoyancy in marine animals. (3marks)

**SECTION B (40 marks) Answer any two questions**

11. Discuss how the aquatic environment presents a richer and more varied environment than that encountered by terrestrial animals. (20 marks)
12. Give an account of osmoregulatory organs and their excretory products. (20 marks)
13. Discuss the life cycle of the hookworm nematode, *Necator americanus*. (20 marks)
14. Write an essay on the low- temperature effects on cells and organisms. (20 marks)

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