



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2011/2012
FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE
SZL 202: COMPARATIVE PHYSIOLOGY

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DATE: Friday 2nd December 2011

TIME: 8.00 a.m- 10.00 a.m

INSTRUCTIONS

Answer ALL questions from Section A and any **ONE** question from Section B.

Within a Section, **ALL** questions carry equal marks.

Illustrate your answers with diagrams and give examples where appropriate.

SECTION A : Answer ALL Questions (40 marks)

1. Explain how antifreeze proteins protect ectotherms from extreme cold, stating the effects of intracellular ice formation.
2. As part of an experiment to determine the distribution of digestive enzymes in the gut of an insect, a student was provided with tissue extract from the midgut, albumin and Biuret reagent.
 - a) Name the class of enzymes whose distribution was to be determined.
 - b) Formulate a hypothesis for the investigation.
 - c) Describe briefly how the presence of the enzyme could be demonstrated.
3. Differentiate between open and closed circulatory systems.
4. Explain the relationship between feeding structures and diet in animals that masticate food before swallowing, giving examples.

5. Describe briefly chemoreception in reptiles.
6. Explain the mechanisms of sexual reproduction in animals.
7. Explain the phases of an action potential.
8. Explain how the cochlear of mammals is specialized for detection and analysis of sound waves.

SECTION B (30 MARKS)

Answer any ONE questions

9. Discuss factors that influence the demand for oxygen in animals.
10. Discuss the role of the mammalian kidney in ionic and water balance.
11. Explain in detail the mechanisms by which endotherms maintain thermal homeostasis in cold environments.