



MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

SZL 200: VERTEBRATE ZOOLOGY

DATE: 25/7/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS:

Answer Question One And Any Other Two Questions

1.
 - a) Outline (3) characteristics that are common in following organisms: Caecilian, frog, newt
(3 marks)
 - b) Describe three (3) adaptations that enable sharks to stay afloat in their environment
(3 marks)
 - c) Describe three (3) evolutionary developments that occurred in various reptile groups as a result of adaptive radiation
(3 marks)
 - d) Explain how the following systems in birds are adapted to flight
 - i. Respiration (2 marks)
 - ii. Reproduction (2 marks)
 - e) By use of a well labelled diagram **only**, describe the circulatory system of a bony fish
(3 marks)
 - f) Describe
 - i. Feeding in amphioxus (2 marks)

- ii. respiration in sea squirt (2 marks)
- g) Explain the respiratory adaptations in urodels that lack both gills and lungs (3 marks)
- h) Describe how rodents are adapted for feeding in their environment (3 marks)
 - i) Explain:
 - i. Osmo-regulatory adaptations in mammals (2 marks)
 - ii. the effect of climate change on vertebrate evolution (2 marks)

SECTION B: ANSWER ANY OTHER TWO QUESTIONS

- 2. Describe how lizards are functionally and structurally adapted to life in their habitat (20 marks)
- 3. Describe the evolution of the following vertebrate operating systems
 - a) Circulatory system (10 marks)
 - b) Respiratory system (10 marks)
- 4. Describe
 - a) Reproductive adaptations in mammals (10 marks)
 - b) Feeding adaptations in birds (10 marks)
- 5. Discuss factors that have contributed to the success of elasmobranchs (20 marks)