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: 26/9/2019 **TIME:8.30-10.30 AM**

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)