MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

BACHELOR OF SCIENCE IN BIOLOGY

BACHELOR OF EDUCATION (SCIENCE)

SZL 200: VERTEBRATE ZOOLOGY

DATE: 8/5/2019 **TIME: 2.00-4.00 PM**

INSTRUCTIONS
Answer question one and any other two questions

SECTION A

QUESTION ONE (30 MARKS) (COMPULSORY)

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

QUESTION TWO (20 MARKS)

Describe how lizards are functionally and structurally adapted to life in their habitat

QUESTION THREE (20 MARKS)

Describe the evolution of the following vertebrate operating systems

a) Circulatory system (10 marks)

b) Respiratory system (10 marks)

QUESTION FOUR (20 MARKS)

Describe

a) Reproductive adaptations in mammals (10 marks)

b) Feeding adaptations in birds (10 marks)

QUESTION FIVE (20 MARKS)

Discuss factors that have contributed to the success of elasmobranchs