

UNIVERSITY OF ESWATINI
MAIN EXAMINATION PAPER 2018/2019

- TITLE OF PAPER:** VERTEBRATE ZOOLOGY
- COURSE CODE:** BIO242 (B302)
- TIME ALLOWED:** THREE (3) HOURS
- INSTRUCTIONS:**
1. SECTION A IS COMPULSORY. ANSWER ALL QUESTIONS IN THIS SECTION.
 2. ANSWER ANY ONE QUESTION FROM SECTION B.
 3. ILLUSTRATE YOUR ANSWERS WITH LARGE AND CLEARLY LABELED DIAGRAMS WHERE APPROPRIATE.

SPECIAL REQUIREMENTS:

NONE

**THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN
GRANTED BY THE INVIGILATORS**

SECTION A

(Answer all the questions in this section)

Question 1

Single word answers (if more than one word appears then that answer will immediately be given a “zero”).

- A. How many extinct orders of reptiles are there?
- B. What type of jaw articulation do lungfish have?
- C. Do the Anapsida have a carapace?
- D. How many extra cervical vertebrae (compared with the typical mammal) are there in the neck of a giraffe?
- E. Do salamanders have a fully divided atrium (into left and right sides)?
- F. What major vessel carries blood from the lungs to the heart in crocodiles?
- G. Do ostriches have two functional ovaries?
- H. Does the caecilian have bone in its skeleton?
- I. Are any birds ovoviviparous?
- J. Is the proventriculus found in the duck-billed platypus?
- K. Does the alligator-snapping turtle have a diaphragm?
- L. Is the puffadder *Bitis arietans* viviparous?
- M. Does the pelvic girdle of *Tiktaalik* attach to the sacral vertebra?
- N. How many middle ear ossicles does a penguin have?
- O. What Order do the stem-reptiles belong to?

[15 marks]

Question 2

These two questions (**2A** and **2B**) should be answered by way of sketches or diagrams, with a minimum of writing (except for labels).

2A. Using fully labelled drawings, depict the ears of a typical amphibian and a rodent. Make sure to include all components of the ear.

[20 marks]

2B. Draw fully labelled diagrams of the urogenital systems of the following two vertebrates: a lizard and a rodent.

[20 marks]

Question 3

These questions should be answered by, at most, a short paragraph (i.e. short answers).
Five (5) marks per question. There is no need to present any diagrams.

3A. Explain how blood circulates through the heart of a salamander.

3B. What is the difference between the diet of a lamprey and a hagfish?

3C. Describe the evolutionary history of the ear opening in mammals. Make sure to link it back to the earliest vertebrates.

3D. Describe the mode of locomotion in a typical dolphin.

[20 marks]

SECTION B

(Answer any one out of the two questions in this section)

Question 4

Write an essay on the diversity and life histories of the Chondrichthyes.

[25 marks]

Question 5

Describe the process of flight in birds. Make sure to explain how various groups of birds achieve lift and forward propulsion. Include diagrams to illustrate your answer.

[25 marks]