

## UNIVERSITY EXAMINATIONS

**1<sup>ST</sup> SEMESTER 2022/2023 ACADEMIC YEAR**

**THIRD YEAR EXAMINATION FOR THE DEGREE OF  
BACHELOR OF SCIENCE (BIOMED)**

**ZOOL 313: ANIMAL SYSTEMATICS AND EVOLUTION**

***STREAM: R***

***TIME: 2 HRS***

***DAY: TUESDAY [8.30AM – 10.30AM]***

***DATE: 13/12/2022***

**THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES**

**PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.**

**INSTRUCTION: -**

- i. Answer ALL questions in Section A and ANY TWO question in Section B
- ii. Illustrate your answers with diagrams where applicable

**SECTION A: 40 MARKS****QUESTION ONE**

Differentiate between the following: -

(4 marks)

- (a) Cladogenesis and anagenesis
- (b) Absolute and relative dating

**QUESTION TWO**

Briefly explain Special Creation Theory on the origin of life.

(6 marks)

**QUESTION THREE**

Describe the series of experiments by which the following scientist counteracted the spontaneous generation theory

- (a) Louis Pasteur (1861) (4 marks)
- (b) Lazzaro Spallanzani (1765) (4 marks)

**QUESTION FOUR**

Explain the significance of the following characteristics in examining animals as a source of evidence of evolution: -

- (a) Embryological characteristics
- (b) Ribosomal RNA (4 marks)

**QUESTION FIVE**

Animals are distributed in space and time based on their adaptation

- (a) Outline the features that determine bathymetric the distribution of species. (2 marks)
- (b) Explain four categories by which animal are distributed (4 marks)

**QUESTION SIX**

- (a) Distinguish between the following giving relevant examples in each case;

Homologous structures and analogous structures. (4 marks)

- (b) Explain four (4) steps of natural selection and what happens in each stage

(8 marks)



**SECTION B: 30 MARKS**

**QUESTION SEVEN**

Illustrate the sequence of primate evolution from the mesozoic era to the emergence of hominids.  
(15 marks)

**QUESTION EIGHT**

- (a) Discuss any FIVE isolating mechanisms that lead to speciation. (10 marks)
- (b) Outline the features of adaptive radiation as method by which new species are formed.  
(5 marks)

**QUESTION NINE**

- (a) Discuss Lamarck's theory of organic evolution highlighting aspects of his theory that have been falsified (7 marks)
- (b) Describe evolution according to Charles Darwin on the formation of new species in comparison to Neo Darwin Synthetic theory. (8 marks)

