

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
EDUCATION (SCIENCE) BACHELOR OF SCIENCE. BACHELOR OF
SCIENCE (BIOLOGY)

ZOOL 301: ANIMAL EVOLUTION AND SYSTEMATICS

STREAMS: B.ED (Sc), BSc, BSc (BIO)

TIME: 2 HOURS

DAY/DATE: FRIDAY 25/04/2025

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS

- Answer all Questions in Section A and any Two questions in section B

Section A (30 marks)

Q1. i) Explain what the theories of evolution listed below advocate for (3 marks)

- Catastrophism theory
- Biochemical theory
- Use and Disuse theory

ii) Describe potassium-argon dating process (3 marks)

Q2. Illustrate using diagrams the differences between polyphyletic, paraphyletic and monophyletic groups as used in animal systematics (6 marks)

Q3. a) Give two examples each, of animals that arose during the following eras (3 marks)

- Mesozoic
- Cenozoic
- Palaeozoic

b) Describe three theories that explain continental distribution of animals (3 marks)

Q4. Discuss the phrase “Survival for the Fittest” by reference to the peppered moth, *Biston betularia*, (6 marks)

- Q5. a) Describe the evolutionary similarities between birds and reptiles (3 marks)
b) Explain briefly isolation mechanisms that can lead to speciation (3 marks)

SECTION B (40 MARKS)

- Q6. Illustrate and explain the vertebrate cladogram (20 marks)
Q7. Elaborate on the evolution of man (20 marks)
Q8. Discuss “Divergent Evolution” in animals. Use examples to illustrate your answer (20 marks)

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