



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR
BACHELOR OF SCIENCE (AGRICULTURAL EDUCATION AND EXTENSION)

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF SCIENCE IN BIOLOGY

SZL 304: EVOLUTIONARY BIOLOGY

DATE: 23/9/2019

TIME: 2.00-4.00 PM

Instructions

1. Answer Question 1 (**compulsory**) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A –COMPULSORY: (30 MARKS)

1.
 - a) Outline the limitations of fossils as evidence of evolution (3 marks)
 - b) Using a suitable example explain the term homologous structures (3 marks)
 - c) Outline three features of the special creation theory (3 marks)
 - d) Explain the term population (3 marks)
 - e) Briefly explain how speciation occurs (3 marks)
 - f) Explain the meaning of co-evolution (3 marks)
 - g) List 3 factors that influence a populations gene pool (3 marks)
 - h) Explain how migration results in evolution (3 marks)
 - i) Briefly explain the term artificial selection (3 marks)
 - j) Discuss the following phrase “giraffes necks became longer from stretching to reach higher heights for food.” (3 marks)

SECTION B: (40 MARKS) ANSWER ANY TWO QUESTIONS

2. Describe the Hardy-Weinberg assumptions in relation to the features of a natural Population (20 marks)
3. a) Discuss the main elements of natural selection according to Charles Darwin (10 marks)
- b) Using appropriate examples explain stabilizing and disruptive selection (10 marks)
4. a) Discuss the theory of chemical evolution (16 marks)
- b) Describe microevolution (4 marks)
5. a) Discuss the study of the peppered moth in evolution (10 marks)
- b) Discuss the following pieces of evidence of evolution (10 marks)