MACHAKOS UNIVERSITY

University Examinations 2017/2018

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

THIRD YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE IN BIOLOGY

SZL304: EVOLUTIONARY BIOLOGY

DATE:6/12/2017 **TIME: 11.00-1.00 PM**

INSTRUCTIONS

1. Anwer Question one (**compulsory**) ffrom section A and **<u>any two</u>** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A (30 MARKS) ANSWER ALL THE QUESTIONS

1. a) Explain the meaning of the term micro-evolution (3 marks)
   b) Explain the effect of migration on a populations gene pool (3 marks)
   c) Outline the assumptions of the hardy weinberg principle (3 marks)
   d) Explain how the reducing environment gave rise to living organisms (3 marks)
   e) List 3 characterists that distinguish modern humans from apes (3 marks)
   f) Explain three ways in which fossils are preserved (3 marks)
   g) Explain three ways of premating isolation mechanisms (3 marks)
   h) Outline the reasons for the unreliability of fossil records (3 marks)
   i) Explain the case study of the peppered moth in natural selection (3 marks)
   j) Outline 3 forms of selection (3 marks)

SECTION B (40 MARKS) ANSWER ANY TWO QUESTIONS

2. Discuss the evolution of modern humans starting with the evolution of apes. (20 marks)
3. Describe the main features of Darwin's theory of evolution. (20 marks)
4. Discuss the mechanisms of micro-evolution. (20 marks)
5. In a certain population 84% of the people can roll their tongues, while the remaining 16% cannot. Using the Hardy- Weinberg formular, determine how many people are heterozygous and how many are homozygous for tongue rolling. Let letter R represent the gene for tongue rolling and r for inability to roll the tongue. (20 marks)