



# **SOUTH EASTERN KENYA UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2016/2017**

### **SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGY**

#### **SBL304: EVOLUTIONARY BIOLOGY**

**DATE: 12<sup>TH</sup> APRIL, 2017      TIME: 1.30-3.30 P.M**

#### **INSTRUCTIONS TO CANDIDATES**

- (a) Answer ALL the Questions in Section A**
  - (b) Answer ANY TWO Questions in Section B**
  - (c) Illustrate your answers with well labeled diagrams where appropriate**
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#### **SECTION A (30 Marks)**

1. State three principles of natural selection.(**3 Marks**)
  2. Giving an example for each case, distinguish between convergent and adaptive evolution.  
(**4 Marks**)
  3. Briefly describe three forms of allopatric speciation.(**3 Marks**)
  4. Outline three possible effects of natural selection on the average phenotype of a population. (**3 Marks**)
  5. Describe the contribution of Ernst Mayr to modern evolutionary principles.(**3 Marks**)
  6. What is the evolutionary significance of the antlers in male forest deers? (**3 Marks**)
  7. Explain three types of species concepts. (**3 Marks**)
  8. Distinguish between hybrid sterility and hybrid breakdown. (**2 Marks**)
  9. Briefly explain the fundamental tenets of Kimura's neutral theory, and its implications on the evolutionary theory.(**3 Marks**)
  10. Give three limitations of bipedalism in humans.(**3 Marks**)
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**SECTION B (70 Marks)**

11. Discuss the weaknesses of the Darwin's theory of organic evolution. **(20 Marks)**
12. Discuss the various assumptions of Hardy Weinberg law and compare each assumption to actual situations in nature. **(20 Marks)**
13. Discuss the main distinguishing features of humans in comparison to other primates. **(20 Marks)**
14. Sexual selection is considered a "special case" of natural selection. Discuss with reference to natural examples the evolutionary significance of this phenomenon. **(20 Marks)**