JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES

3rd YEAR 2nd SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE:	**SBI 3321**
COURSE TITLE:	**EVOLUTIONARY BIOLOGY**
EXAM VENUE:	**STREAM: (BIO)**
DATE:	**EXAM SESSION:**
TIME: 2 HOURS	

Instructions:

1. **Answer ALL questions in Section A and Any two questions in Section B**
2. **Candidates are advised not to write on question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1) Natural selection and genetic drift are the two major mechanisms driving the process of evolution. Explain. (3 marks)
2) With examples distinguish between co-evolution and co-operation. (3 marks)
3) Distinguish between allopatric, sympatric, and parapatric mechanisms of speciation. (3 marks)
4) Briefly explain three evidence that support the theory of evolution. (3 marks)
5) Briefly explain why small populations of organisms often have low genetic variation. (3 marks)
6) Briefly explain the role of extinction in evolution and state two factors that drive the process. (3 marks)
7) Explain the difference between the evolution of biological entities and metaphorical evolution of human culture such as language. (3 marks)
8) Explain any three principles that govern evolution of genes at the molecular level
9) Briefly explain how phylogenetic studies have revolutionarised systematics and taxonomy in evolutionary perspective. (3 marks)
10) Briefly explain the social and cultural responses to evolutionary theory. (3 marks)

SECTION B: ESSAY QUESTIONSS (40 Marks)

11) Discuss the application of evolution. (20 marks)
12) Discuss the main forms of pre-zygotic and post-zygotic isolation mechanisms and how they contribute to speciation or extinction of species. (20 marks)
13) With aid of an evolutionary tree, discuss the evolution of life from the simple to more complex forms. (20 marks)
14) Giving examples, advance a critical analysis of evolutionary thoughts from ancient times to the current understanding of the process. (20 marks)