



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY**

**SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION  
SCIENCE WITH IT/BACHELOR OF BIOLOGICAL SCIENCES**

**THIRD YEAR SCOND SEMESTER 2019/2020 ACADEMIC YEAR**

**MAIN CAMPUS - REGULAR**

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**COURSE CODE: SBI 3321**

**COURSE TITLE: EVOLUTIONARY BIOLOGY**

**EXAM VENUE: STREAM: (BSC)**

**DATE:1/12/20**

**EXAM SESSION: 9-12 NOON**

**TIME: 3 HOURS**

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**Instructions:**

- 1. Answer ALL questions in Section A and Any two selected in Section B**
- 2. Candidates are advised to write on the text editor provided, or to write on a foolscap, scan and upload alongside the question.**
- 3. Candidates must ensure that they submit their work by clicking 'FINISH AND SUBMIT ATTEMPT' button at the end.**

**SECTION A: Short Answer Questions (30 marks)**

1. Describe two major themes of Darwin's theory of natural selection. (3 marks)
2. Describe three properties of a chemical aggregate on its way to becoming a living cell. (3 marks)
3. Distinguish between the telophase of male and female meiosis. (3 marks)
4. Describe two evolutionary advantages and one disadvantages of sexual reproduction. (3 marks)
5. Describe how artificial selection is evidence of evolution. (3 marks)
6. Illustrate the behaviour of chromosomes in a test cross between an individual with  $SySy$  genotype and another with a similar genotype. (3 marks)
7. Describe three secrets of Mendel's success. (3 marks)
8. Using diagrams, distinguish between disruptive and stabilizing selection. (3 marks)
9. Describe two determinants of sexual selection. (3 marks)
10. Describe three ecological interactions that are drivers for coevolution. (3 marks)

**SECTION B: Essay Questions (40 marks)**

11. Discuss how reproductive isolation mechanisms lead to speciation. (20 marks)
12. Describe the reproductive cycle of a eukaryotic cell pointing out the most important phases of the cycle. (20 marks)
13. Discuss patterns in macroevolution. (20 marks)
14. Discuss the mechanisms of microevolution. (20 marks)