JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

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

RESIT EXAMS 2019/2020 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: SBI 3321

COURSE TITLE: EVOUTIONARY BIOLOGY

VENUE: **STREAM:**

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 the question paper**
3. **Candidates MUST hand in their answer booklets to the invigilator while in the examination room.**

SECTION A: ANSWER ALL THE QUESTIONS (30 MARKS)

SECTION A (40 marks): Answer ALL questions.

1. Define:
   a. Epistasis   (1 Mark)
   b. Mendel's Law of Segregation   (1 Mark)
   c. Pleiotropy   (1 Mark)

2. Describe any three mechanisms of microevolution   (3 Marks)

3. Distinguish between:

   a. the preformationist and epigenetic theories of origins of new organisms. (1 Mark)

   b. Peripatric and sympatric speciation.   (1 Marks)
   c. Gradualism and punctuated equilibrium   (1 Marks)
   d. Deme and gene pool   (1 Marks)

4. Describe any three observations that are evidence of occurrence of evolution (3 Marks)
5. Describe the differences between co-dominance and linkage groups.   (3 Marks)
6. With the help of diagrams, distinguish between stabilizing and directional selection

                                                                        (3 Marks)

7. State three ways through which genetic variability is maintained in natural populations
                                                                        (3 Marks)
8. Describe three secrets of Mendel's success.   (3 Marks)
9. Describe the evolutionary significance of industrial melanism.   (3 Marks)
10. Explain the significance of the process of meiosis   (3 Marks)

SECTION B (40 MARKS): ANSWER ANY TWO QUESTIONS.
11. Discuss how reproductive isolation mechanisms lead to the emergence of a new species
                                                                        (20 Marks)
12. Discuss the process of chemical evolution.   (20 Marks)
13. With the help of diagrams, describe the reproductive cycle of a eukaryotic cell pointing

   out the most important phases of the cycle.   (20 Marks)

14. Discuss mechanisms of macroevolution.   (20 Marks)