JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL, PHYSICAL, MATHEMATICS AND ACTURIAL SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE

4th YEAR 1st SEMESTER 2022/2023 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE: **SPB 9403**
COURSE TITLE: **HISTORY AND PHILOSOPHY OF BIOLOGY**

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

DATE: **7/12/2022** **EXAM SESSION: 15.00-17.00PM**

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. Define the following terms (3 marks)
    i. Speciation
    ii. Phylogeny
    iii. Analogy
    iv. Autopolyploidy
    v. Paradigm
    vi. Paleontology
2. Outline the basic steps of the Scientific Method. (3 marks)
3. State limitations of science. (3 marks)
4. Describe at least three discoveries attributable to science in the 19^{th} century
5. Summarize theories of any three major personalities in the History of Science that have contributed to our understanding of science today. (3 marks)
6. Describe modern synthesis. (3 marks)
7. Describe components of a typical experiment to demonstrate the origin of life. (3 marks)
8. Outline your own expectations in the fossil record. (3 marks)
9. Illustrate diagrammatically the past and present life forms from your model concept of origin of life. (3 marks)
10. Relate the processes involved in your model concept of origin of life (Q9.) to a time scale, and provide important references where necessary. (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Discuss the role of genetics in origin of species. (20 marks)
12. Compare the general evidences presented by evolutionists with an alternative or weaknesses of these evidences.
    (20 marks)
13. Discuss the various dating methods support the old world concept and the geological time scale.
    (20 marks)
14. Describe human ancestry and the uniqueness of Homo sapiens. (20 marks)