



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

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

3rd YEAR 2nd SEMESTER 2018/2019 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE: SBI 3324

COURSE TITLE: HISTORY AND PHILOSOPHY OF BIOLOGY

EXAM VENUE: BIO LAB STREAM (BIO)

DATE: 26/04/2019 EXAM SESSION: 3.00-5.00PM

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. Explain the term scientific methods and outline its importance in biology. (3 marks)
2. Outline three pieces of evidence showing that Arab natural philosophers merely transmitted knowledge from the ancient Greeks to the western world. (3 marks)
3. Explain how Andreas Vesalius (1514- 1564) used art to transform the study of anatomy. (3 marks)
4. Describe the problematic approach to studying the history of biology. (3 marks)
5. Give a brief account of ancient Egyptian medical practices recorded in the Edwin-Smith papyrus. (3 marks)
6. Write short notes on: (3 marks)
 - a. Natural theology
 - b. Spontaneous generation
 - c. Noumena
7. Describe how cell biology incorporates ways in which the ideas of matter, energy and organization into distinctive concepts in biology. (3 marks)
8. Give a brief account of the liberating influence of travel and voyages in the growth of renaissance biology. (3 marks)
9. Outline John Ray (1627-1705) contribution to zoological taxonomy. (3 marks)
10. Outline three factors that transformed the intellectual environment during enlightenment era. (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11.
 - a. Give an account of Ernst Haeckel's biogenetic law epitomized in the phrase "ontology recapitulates phylogeny". (10 marks)
 - b. Explain the influence of *naturphilosophie* on the biogenetic law. (10 marks)
12. Discuss how the work of the following non-biologists contributed to the growth of biology:
 - a. Galileo Galilei (1564-1642) (5 marks)
 - b. Nicolaus Copernicus (1473-1543). (5 marks)
 - c. Tycho Brahe (1546-1601) (5 marks)
 - d. Isaac Newton (1642-1727) (5 marks)

13. The fact that a scientific idea is radical and mathematical (mechanistic) does not always mean it is the true. Explain this statement with reference to Rene Descartes' works in biology. (20 marks)
14. Discuss the contribution of Alexandrian era library and museum in the growth of biology. (20 marks)

JOOUST OBSERVES ZERO TOLERANCE TO EXAM CHEATING