



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION
SCIENCE
FOURTH YEAR FIRST SEMESTER 2018/2019 ACADEMIC YEAR
MAIN CAMPUS - REGULAR

COURSE CODE: SZL 401
COURSE TITLE: HISTORY AND PHILOSOPHY OF BIOLOGY
EXAM 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 question paper.**
 - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. Brief explain how Johann Gregor Mendel (1822-1884) social and academic background influenced his science. (3 marks)
2. Briefly discuss the contribution of Rene Descartes in establishing the hypothetico-deductive method of science. (3 marks)
3. “Only when a radical scientific claims are timely can they undermine the consensus viewpoint”. Briefly explain this statement in reference to William Harvey’s ideas on blood circulation. (3 marks)
4. Explain three approaches to the study the history of biology. (3 marks)
5. List three scientific inventions attributed to the Greeks but which have their roots in ancient Egypt. (3 marks)
6. Outline the contributions of Aristotle to the growth of biology. (3 marks)
7. Explain how the work of Marcelo Malpighi illustrates that progress of biology depends on new techniques as well as new ways of thinking. (3 marks)
8. Suggest an experiment to support Frascresco Redi’s conclusion that insects are not spontaneously generated. (3 marks)
9. Explain three factors that influenced Charles Darwin’s theory of natural selection. (3 marks)
10. Write short notes on:
 - a. Mechanism of saltation (1 marks)
 - b. Vitalism (1 marks)
 - c. Synthetic theory of evolution (1 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Discuss the work of Galen (129-216) and its contribution to the growth of biology. (20 marks)
12. Discuss how the the philosophical ideas of David Hume and Emmanuel Kant led to emergence of *naturphilophie* (20 marks)
13. Discuss the contribution of Arabs to the growth of biology during the middle ages. (20 marks)
14. Discuss how the following scientists used art to establish the study of anatomy during renaissance period:
 - a. Leonardo de Vinci (10 marks)
 - b. Andreas Versalius (1514- 1564) (10 marks)