



(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

(MMUST)

UNIVERSITY EXAMINATIONS

2023/2024 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER EXAMINATIONS

FOR THE DEGREE

OF

BACHELOR OF EDUCATION (SCIENCE)

MAIN EXAM

COURSE CODE: ESM 321

COURSE TITLE: BIOLOGY EDUCATION

DATE: 13/12/2023

TIME: 3:00 -5:00 PM

INSTRUCIONS TO CANDIDATES

Question 1 is Compulsory and carries 25 marks. Answer ANY OTHER three Questions each carrying 15 marks

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

1. a) Using examples define the following terms as used in teaching and learning of Biology in secondary schools

i) Teaching technique (2marks)

ii) Teaching strategy (2marks)

b) Biology teacher is expected to be privy to his/her students' characters. Describe any three characteristics demonstrated by students in a biology class. (6marks)

c) Explain any five reasons for lesson planning (5 marks)

d).Outline any five key educational implications of Constructivism Theory of learning (5 marks)

e) Differentiate between an experiment and a demonstration as instructional techniques in biology. (2 marks)

f) State any three objectives of using project approach in teaching biology (3 marks)

2. a) Biology educator provides professional guidance with regards to how scientists study the natural world. Discuss the relevance of the Four main stages in scientific method (10 marks)

b) Discuss any five bottlenecks to the achievement of 8.4.4 biology objectives in secondary schools in Kenya (5marks)

3. a) Describe any five factors to be considered by a biology teacher in choosing an effective teaching technique for his/her lesson (5 marks)

b) Biology is considered to be a science. Using any five illustrations justify the statement. (10 marks)

4. a) Nutrition in Plants is taught in form two biology. Based on CBC, draw a one week scheme of work. (10 marks)

b) Describe any five learning activities that may facilitate answering the key inquiry question: "What are the conditions necessary for photosynthesis?" (5 marks)

5.a) Assuming you are an external examiner for a biology exam paper, describe any five factors you will consider to evaluate its quality (10 marks)

b) State any five objectives to be achieved in using experiment as a teaching technique (5 marks)