



OFFICE OF THE DEPUTY PRINCIPAL  
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

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# UNIVERSITY EXAMINATIONS

## 2021 /2022 ACADEMIC YEAR

### SECOND YEAR SECOND SEMESTER MAIN EXAMINATION

## FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE

COURSE CODE: CIM 221

COURSE TITLE: BIOLOGY EDUCATION I

DATE: 30/5/2022

TIME: 9:00AM-12:00PM

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### INSTRUCTIONS TO CANDIDATES

SEE INSIDE

THIS PAPER CONSISTS OF THREE PRINTED PAGES

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**REGULAR- MAIN EXAM**

**CIM 221: BIOLOGY EDUCATION I**

**STREAM: BED (SCIENCE)**

**DURATION: 3 Hours**

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**INSTRUCTIONS TO CANDIDATES**

*Answer Question ONE and any other TWO questions.*

*Do not write on the question paper.*

**Question One (30 MARKS)**

a) Explain the meaning of the following terms:

- i) Science education. (2 Marks)
- ii) Philosophy of education. (2 Marks)
- iii) Psychology of education. (2 Marks)

b) Outline any SEVEN science process skills developed in secondary school learners by their biology teachers during the teaching and learning of biology. (7 Marks)

c) Identify FIVE distinguishing features of the “nature of science”. (5 Marks)

d) Explain the FOUR stages of human development as described by J.Piaget's Theory of Intellectual Development. (8 Marks)

e) Give the functions of each of the following laboratory apparatus: (4 Marks)

- i)Microscope
- ii)Teste tube
- iii)Beaker
- iv)Forceps

**Question Two (20MARKS)**

a) Highlight SEVEN advantages of using practical method of instruction. (7Marks)

b) Describe how a biology teacher should conduct demonstration, when teaching biology. (6Marks)

c) Describe any SEVEN characteristics of project method in teaching Biology. (7Marks)

**Question Three (20MARKS)**

a). Explain the stages of human development as described in the J. Piaget's Intellectual Development Theory. (10Marks)

b) Explain how J. Brunner's views apply to the present secondary school learning situation. (5Marks)

c) Describe J.Dewey's Theory of 'Experience and Education' (5Marks)

**Question Four (20MARKS)**

a) Describe FIVE laboratory safety rules applied in secondary schools in Kenya. (10Marks)

b) Explain the relationship between the Behaviorism theory and the acquisition of knowledge, among the learners. (5Marks)

c) Explain the classical conditioning. (5Marks)

**Question Five (20MARKS)**

a) With the use of examples, explain how Psychology of education and Philosophy of education are applied in the teaching and learning of biology. (10Marks)

b) Explain FIVE guiding principles of the education framework. (10Marks)

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