



MAASAI MARA UNIVERSITY

SPECIAL/ SUPPLIMENTARY EXAMINATIONS

2020/2021

THIRD YEAR FIRST SEMESTER

**SCHOOL OF EDUCATION
BACHELOR OF EDUCATION**

COURSE CODE: ECI3119

**COURSE TITLE: SPECIAL METHODS IN
BIOLOGY**

DATE:

TIME:

INSTRUCTIONS TO CANDIDATES

*This paper consists of **THREE** printed pages. Please turn over.*

Answer Question **ONE** and any other **two** questions

QUESTION ONE (Compulsory)

- a) Give five points on how a teacher can use the topic “external structures of a leaf” to develop observation skills in learners. **(10 Marks)**
- b) A student observed that the leaves of a plant growing in a dark room were turning yellow.
- i. Formulate a research question that could lead to a successful investigation of the observed phenomenon. **(2marks)**
 - ii. Formulate a hypothesis a testable hypothesis for the study. **(2 Marks)**
 - iii. Design an experiment to be used by the student to gather evidence in order to except or reject the hypothesis in question **(bii)** above. **(4 Marks)**
 - iv. Explain the meaning of control experiment and briefly discuss the control experiment was set up in question **(biii)** above. **(2 Marks)**
 - v. Identify 3 variables that must be kept constant in this experiment for the results to be reliable. **(6 Marks)**
- c) Discuss three features of the Constructivist learning theory and how they have influenced teaching of biology. **(6 Marks)**

QUESTION TWO

- a) Discuss six reasons why it is not advisable for a teacher use lecture method only in teaching of biology. **(12 Marks)**
- b) Suggest 4 ways in which a teacher that has opted to use lecture method in teaching biology can ensure maximum learning takes place. **(10 Marks)**

QUESTION THREE

- a) Explain five things that a biology teacher should undertake before a practical lesson starts. **(10 Marks)**

- b) Discuss five reasons why experiments are considered to be important in teaching of biology. **(10 Marks)**

QUESTION FOUR

- a) Identify the five stages of inquiry-based lesson cycle proposed by Biological Science Curriculum Study (BSCS). **(10 Mark)**
- b) Design a lesson plan for teaching a form two topic “factor affecting rate photosynthesis in plant” by showing the expected outcomes, learner and teacher activities for all the stages of lesson development. **(10 Marks)**

QUESTION FIVE

- a) Discuss five reason why a biology teacher should improvise some materials for teaching biology. **(10 Marks)**
- b) Identify the five key information that should be captured in a laboratory inventory and usage record. **(10 Marks)**