



(Knowledge for Development)

KIBABII UNIVERSITY
UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER
MAIN EXAMINATIONS

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE
AND BIOTECHNOLOGY**

COURSE CODE: ABI 322
COURSE TITLE: CELL, TISSUE AND ORGAN CULTURE
DATE: 26TH APRIL 2023 **TIME: 9 – 11 AM**

INSTRUCTIONS TO CANDIDATES

Answer Question ONE and any other TWO Questions.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

QUESTION ONE

- a. List two chemicals used in the sterilization of explants **(2 marks)**
- b. Highlight the contribution of the following scientists
 - i. Haberlandt **(2 marks)**
 - ii. Murashige and Skoog **(2 marks)**
- c. Define the following terms
 - i. Organ culture **(2Marks)**
 - ii. Ex-plant **(2Marks)**
 - iii. Cell culture **(2Marks)**
 - iv. Totipotency **(2Marks)**
 - v. Embryogenesis **(2Marks)**
- d. Outline the advantages and limitations of primary cultures **(4 marks)**
- e. Explain the importance of growth regulators in tissue culture medium **(4 marks)**
- f. Outline the major constituents of most plant tissue culture Media **(4 marks)**
- g. List specific advantages of clonal propagation **(2 marks)**

QUESTION TWO

Explain practical applications of tissue culture in plant breeding **(20 marks)**

QUESTION THREE

Discuss the rationale for the composition of a tissue culture medium **(20 marks)**

QUESTION FOUR

Describe the applications of cell culture in product development and tissue repair **(20 marks)**

QUESTION FIVE

Briefly Explain the following terms.

- i. Filter sterilization **(4 marks)**
- ii. Embryonic stem cells **(4 marks)**
- iii. Neoplastic tissue **(4 marks)**
- iv. Continuous cell lines **(4 marks)**