



MAASAI MARA UNIVERSITY

**REGULAR UNIVERSITY EXAMINATION
2019/2020 ACADEMIC YEAR**

**SCHOOL OF SCIENCE AND INFORMATION
SCIENCES**

**FOURTH YEAR FIRST SEMESTER
EXAMINATIONS**

FOR THE DEGREE OF BACHELOR OF SCIENCE

COURSE CODE: BOT 4117

COURSE TITLE: PLANT BIOTECHNOLOGY

DATE: 10TH DECEMBER, 2019

TIME: 1430 - 1630HRS

INSTRUCTIONS TO CANDIDATES

- a) Answer **ALL** questions in section **A** and **any two** questions in section **B**
- b) Illustrate your answers with suitable diagrams and give examples wherever appropriate.

SECTION A: Answer ALL questions in this section. Each question carries 3marks

1. Define the following :-
 - a. Plant Biotechnology (1mark)
 - b. Totipotency (1mark)
 - c. Restriction enzyme (1mark)
2. Differentiate between organogenesis and somatic embryogenesis. (3marks)
3. Explain why composition of medium for the tissue culture is the most important factor in the successful culture of plant cells. (3marks)
4. Explain the basic requirements for successful genetic engineering (3marks)
5. List six properties a vector must possess in order to perform its function. (3marks)
6. What is the function of gel electrophoresis in genetic engineering? (3marks)
7. Describe briefly the potential benefits of GM plants (3marks)
8. State properties desirable for ideal DNA markers. (3marks)
9. Describe any three applications of biotechnology in plants. (3marks)
10. State four essential steps for a rDNA experiment.(3marks)

SECTION B: Answer Any Two Questions Each question carries 20 marks

11. Discuss in detail gene delivery methods in plants. (20 marks)
12. Describe in detail any TWO blotting techniques for hybridization studies. (20 marks)
13. Give a detailed account on enzymes used in Genetic Engineering. (20 marks)
14. Discuss applications of transgenic plants. (20 marks)

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