

CHUKA

UNIVERSITY



UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
SCIENCE IN HORTICULTURE**

HORT 325: PLANT BIOTECHNOLOGY

STREAMS: B. Sc. HORT

TIME: 2 HOURS

DAY/DATE: TUESDAY 09/04/2024

11.30 A.M. – 1.30 P.M.

INSTRUCTION

- **Label your answer clearly**
- **Don't mix up answers**
- **Answer all questions in section A and any two in section B**

SECTION A

1. a) Define the following term as used in plant biotechnology
 - i) Biotechnology (1 mark)
 - ii) Gel electrophoresis (1 mark)
 - iii) PCR (1 mark)
 - iv) Primer (1 mark)b) State general characteristics of a good vector which can be used as a vehicle to transfer the piece of DNA attached to it. (4 marks)
2. Highlight the basic components of a culture media used for invitro cultivation of plant cells. (5 marks)
3. List different components of PCR master mix. (7 marks)
4. Give a detailed account of Vector-mediated or indirect gene transfer as a method of gene. (10 marks)

SECTION B

5. a) State the key features about the DNA molecule. (10 marks)
b) State different reasons which may lead to the use of molecular markers. (10 marks)
 6. a) State the different applications of biotechnology in agriculture. (8 marks)
b) Discuss specialized structures found in the Plant cells. (12 marks)
 7. Discuss the impacts of biotechnology on food and nutrition in developing countries. (20 marks)
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