

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

HORT 807: PLANT CELL, ORGAN AND TISSUE CULTURE

STREAMS:

TIME: 3 HOURS

DAY/DATE: THURSDAY 15/07/2021

8.30 A.M – 11.30

A.M

INSTRUCTIONS:

Answer all questions in section A and two in section B

SECTION A (20 MARKS) ANSWER ALL QUESTIONS

1. (a) Describe protoplast culture as a field in plant tissue culture and state its main uses.
[5marks]
- (b) Explain the functions of and similarities between mitochondria and chloroplasts.
[5 marks]
2. (a) Describe five methods of enhancing asepsis conditions in a tissue culture laboratory.
[5 marks]
- (b) Describe the role of plant growth regulators in tissue culture media and explain the three fundamental abilities of plants.
[5 marks]

SECTION B (40 MARKS) ANSWER TWO QUESTIONS

5. (a) Describe the use of macro and micronutrients in tissue culture media and suggest remedies for excess ammonium concentrations.
[8 marks]

(b) Describe the sources of carbon during culture and the benefits of autoclaved media.

[12 marks]

6. (a) Explain the unifying culture requirements in both animals and plants tissues.

[5 marks]

(b) Discuss haploid plant production through tissue culture techniques. [15 marks]

7. Describe the importance of using the meristem tip in the tissue culture process and explain the steps you would follow in banana tissue micro-propagation. [20 marks]
