

CHUKA



UNIVERSITY

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**EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF MASTER OF SCIENCE
IN AGROECOLOGY AND CLIMATE CHANGE.**

AECC 811: ECOPHYSIOLOGY OF CROP PRODUCTION

STREAMS: MSC. AECC (Y1S1)

TIME: 3 HOURS

DAY/DATE: FRIDAY 13/12/2024

8.30 A.M. – 11.30 A.M.

INSTRUCTIONS:

- **Answer ALL questions in Section A and any other Two questions in Section B**

SECTION A (TOTAL 20 marks)

- 1a. Discuss in details cyclic and non-cyclic photophosphorylation (10 marks)
- b. Elaborate on how the harvest index is calculated in maize (10 marks)

SECTION B (TOTAL 40 marks)

2. a) Calculate the Crop Growth Rate from following data:
-Dry weight of beans at $t_1 = 200 \text{ g m}^{-2}$ (W_1), Dry weight of groundnut at $t_2 = 300 \text{ g m}^{-2}$ (W_2), Time interval of sampling ($t_2 - t_1$) = 10 days (10 marks)
- (b) Describe the steps of calculation of crop nutrient requirement (10 marks)
3. a) Discuss the effects of temperature stress on plants highlighting key processes affected (10 marks)
- (b) Elaborate on water absorption by plants and the factors that affect it (10 marks)

4. Discuss the various stages of photosynthesis and the final products (20 marks)

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