UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMMES: BACHELOR OF SCIENCE IN AGRONOMY, YEAR 2
BACHELOR OF SCIENCE IN HORTICULTURE, YEAR 2
BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION, YEAR 2

COURSE CODE: CP 205

TITLE OF PAPER: CROP PHYSIOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER A TOTAL OF FOUR [4] QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR.

INSTRUCTIONS: ANSWER ANY FOUR [4] QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

QUESTION 1

Explain the meaning of the following, and give one specific example in each case:

(a) Nastic movement (4 marks + 1 mark for a correct example = 5 marks)

(b) Inhibitors (4 marks + 1 mark for a correct example = 5 marks)

(c) CAM plants (4 marks + 1 mark for a correct example = 5 marks)

(d) Parthenocarpy (4 marks + 1 mark for a correct example = 5 marks)

(e) Photorespiration (4 marks + 1 mark for a correct example = 5 marks)

[Total marks for Question 1 = 25 marks]

QUESTION 2

i. (a) What do you understand by the term, "seed dormancy"? (2 marks)

(b) Explain the significance of dormancy in crop plants, citing specific examples. (5 marks)

(c) LIST four external factors that cause seed dormancy. (4 marks)

(d) LIST four internal factors that cause seed dormancy. (4 marks)

(ii) List and briefly explain five methods of breaking seed dormancy. (10 marks)

[Total marks for Question 2 = 25 marks]

INSTRUCTIONS: ANSWER ANY FOUR [4] QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

QUESTION 3

Discuss two theories that may be used to explain water movement in crop plants. (25 marks)

[Total marks for Question 3 = 25 marks]

QUESTION 4

a. You need ripe bananas for use at a wedding party, but you found only unripe, mature bananas in the market. You have one week to spare. Explain what you would do to make the bananas ready for the party. What would be the major difference between your bananas and the ripe ones that you could have bought in the market? **(5 marks)**

b. You have five mango trees in your homestead. None of the trees flower regularly. However, every other year, each tree flowers profusely, but only bears 10 small fruits that can be harvested. Without using much money, explain how you would make the trees to bear more fruits regularly. **(5 marks)**

c. Because your uncle learnt that you studied Crop physiology, he awards you a E50,000.00-contract in his new Company, "Luyengo Business Enterprises Unlimited". The company wants its clients to see a model *Ixora* hedge as soon as the company premises are open for business. You are to grow a live fence around the perimeter of the company premises within two months, and to make a positive impression on a Government Minister who will be the guest of honour at the ceremony to open the new Company. Explain how you would make the plants to establish quickly and be ready for the opening ceremony. **(5 marks)**

d. Is it possible to grow plants in complete darkness, and still get any yields from such plants? Explain your answer. **(5 marks)**

e. Explain two types of knowledge/skills from the Crop Physiology course that you have acquired, which can assist you to address a specific problem of the village farmer? **(5 marks)**

[Total marks for Question 4 = 25 marks]

INSTRUCTIONS: ANSWER ANY FOUR [4] QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

QUESTION 5

(a) What is an essential element? **(2 marks)**

(b) Describe two main symptoms of phosphorus deficiency in a named cereal crop. **(2 marks)**

(c) Explain why the symptoms described in 5(b) above are observed in a certain part of the plant, and not in other parts. **(2 marks)**

(d) Describe one major symptom of calcium deficiency in a named crop plant. **(2 marks)**

(e) Why is the symptom described in 5(d) above observed in a certain part of the plant? **(2 marks)**

(f) Briefly describe one symptom of iron deficiency in a named crop. **(2 marks)**

(g) What is the symptom of potassium deficiency in cabbage? **(2 marks)**

(h) Excluding iron, name five micronutrients that are considered to be essential to crops. **(5 marks)**

(i) Differentiate between one symptom of nitrogen deficiency and that of potassium deficiency in the same part of a specific crop. **(6 marks)**

[Total marks for Question 5 = 25 marks]