



2nd SEMESTER 2007/2008

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UNIVERSITY OF SWAZILAND

SUPPLEMENTARY 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

- a. What do you understand by “a sink” in crop physiology? (3 marks)
- b. Give a specific example of “a sink”. (2 marks)
- c. What do you understand by a source in crop physiology? (3 marks)
- d. Give a specific example of “a source”. (2 marks)
- e. Explain the relationship between source, sink and senescence. (5 marks)
- f. What is skototropism? (3 marks)
- g. What is a clinostat used for? (2 marks)
- h. Name five phytohormones. (5 marks)

[Total number of marks for Question 1 = 25 marks]

QUESTION 2

Giving specific examples, discuss the commercial application of plant-growth substances in Swaziland agriculture.

[Total number of marks for Question 2 = 25 marks]

QUESTION 3

- (a) What is a C₃ plant? (2 marks)
 - (b) Name four crops that are C₃ plants. (2 marks)
 - (c) What is a C₄ plant? (2 marks)
 - (d) Name four crops that are C₄ plants. (2 marks)
 - (e) What is a CAM plant? (2 marks)
 - (f) Name four plants that are CAM plants. (2 marks)
 - (g) What is phototranspiration? (5 marks)
- (ii) With the help of a large labelled diagram, explain what Kranz anatomy is, and point out its physiological importance. (8 marks)

[Total number of marks for Question 3 = 25 marks]

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

QUESTION 4

- (a) What is the difference between transpiration and evapotranspiration? (5 marks)
- (b) What is the significance of transpiration in agriculture? (5 marks)
- (c) Explain the dilemma of terrestrial plants? (5 marks)
- (d) What is the difference between transpiration and guttation? (5 marks)
- (e) What is the difference between dormancy and quiescence? (5 marks)

[Total number of marks for Question 4 = 25 marks]

QUESTION 5

- (a) What is a mobile element? (5 marks)
- (b) Name one example of a mobile element. (2 marks)
- (c) What is an immobile element? (5 marks)
- (d) Name one example of an immobile element. (2 marks)
- (e) Briefly describe two deficiency symptoms of a named essential element that is observed in the vegetative part of the maize plant. (6 marks)
- (f) Describe one deficiency symptom of a named essential micronutrient in a named crop plant. (5 marks)

[Total number of marks for Question 5 = 25 marks]