

**UNIVERSITY OF SWAZILAND**

**SUPPLEMENTARY EXAMINATION PAPER**

**PROGRAMMES: BACHELOR OF SCIENCE DEGREE YEAR 3 IN AGRICULTURAL EDUCATION, AGRONOMY AND HORTICULTURE**

**COURSE CODE: CP 305**

**TITLE OF PAPER: CROP PHYSIOLOGY**

**TIME ALLOWED: TWO (2) HOURS**

**INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS.**

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## QUESTION 1

(a) (i) What is the primary precursor for auxin biosynthesis? [3]

(ii) Where is auxin synthesized in the plant? [4]

(b) (i) How does auxin contribute to the formation and maintenance of the root apical meristem? [9]

(ii) What is the role of cytokinin? [9]

## QUESTION 2

(a) What is the importance of the water potential concept in plant physiology? [9]

(b) What are the components of water potential? [16]

## QUESTION 3

Compare and contrast the fundamental differences between the use of light as a developmental signal versus light-harvesting during photosynthesis. [25]

## QUESTION 4

(a) Which form of phytochrome is the physiologically active form? Justify your answer.

[10]

(b) Is the photoconversion of phytochrome from one form to another ever 100 percent? Explain your answer. [15]

## QUESTION 5

(a) Explain the concepts of source and sink in phloem transport. [12]

(b) (i) What is an essential element? [4]

(ii) How many have been identified? [3]

(iii) What is the difference between an essential element and a beneficial one? Provide an example of each. [6]

## QUESTION 6

(a) Is it correct that the main function of aerobic respiration is the production of ATP? Explain your answer. [16]

(b) What are the respective contributions of glycolysis and oxidative phosphorylation to the cellular ATP pool? [9]