



**UNIVERSITY OF ESWATINI**

**SUPPLEMENTARY EXAMINATION PAPER**

**PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR THREE**

**COURSE CODE: CP305**

**TITLE OF PAPER: CROP PHYSIOLOGY**

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

**INSTRUCTIONS: ANSWER ALL QUESTIONS**

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CHIEF INVIGILATOR**

**QUESTION 1**

Compare and contrast the fundamental differences between the use of light as a developmental signal versus use of light during photosynthesis in plants.

[20 marks]

**QUESTION 2**

Define and describe the role of five (5) "tropisms" or "tropic responses" in plants.

[20 marks]

**QUESTION 3**

(a) Distinguish between insufficiency and deficiency of a nutrient element in plants?

[10 marks]

(b) Why is it important to examine or understand both nutrient ratios and nutrient concentrations in plants?

[10 marks]

**QUESTION 4**

(a) In the review of 'plant structure and function' it was observed that plants must be able to continually obtain nutrients that are 'finite' and 'dilute'. Describe how plants are designed for collecting finite and dilute nutrients in the environment.

[10 marks]

(b) Compare and contrast the light compensation point and the CO<sub>2</sub> compensation point.

[10 marks]

**QUESTION 5**

State a phrase or term (s) that correctly describes the statement that follows

- a) \_\_\_\_\_ Ratio between the total leaf area to the total respiring plant tissues
- b) \_\_\_\_\_ Mineral element that is largely transported by diffusion to the root
- c) \_\_\_\_\_ Hormone action is sometimes mediated by this substance
- d) \_\_\_\_\_ When leaf water potentials drop due to water deficits, turgor is insufficient to drive this process
- e) \_\_\_\_\_ description of a plant's life cycle from seed to seed

- f) \_\_\_\_\_ primary osmotic agent, especially for opening guard cell in the morning
- g) \_\_\_\_\_ Plants depend on transpiration and xylem movement for a supply of this mineral nutrient
- h) \_\_\_\_\_ Light response that lead to lateral growth giving shoots and roots of plants recognizable architecture
- i) \_\_\_\_\_ Application of water soluble solid fertilizer or liquid fertilizer through an irrigation system
- j) \_\_\_\_\_ Hollow cells that consist only of cell wall