



UNIVERSITY OF ESWATINI

RESIT EXAMINATION PAPER

PROGRAMME: B. SC. IN AGRONOMY YEAR TWO & YEAR THREE
B. SC. IN AGRICULTURAL EDUCATION YEAR TWO & YEAR THREE
B. SC. IN AGRICULTURAL EXTENSION YEAR TWO & YEAR THREE
B. SC. IN HORTICULTURE YEAR TWO & YEAR THREE

COURSE CODE: CPR203

TITLE OF PAPER: CROP PHYSIOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS

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INVIGILATOR**

QUESTION 1

Describe the use of light for developmental processes versus its use for growth processes in plants. **[25 marks]**

QUESTION 2

- (a) How does water move across a largely hydrophobic plasma membrane? **[6 marks]**
- (b) Describe the 'cohesion-adhesion theory' in relation to water movement in plants. **[13 marks]**
- (b) If the air surrounding a transpiring leaf gets warmer, how will such a change affect the transpiration rate of the leaf? **[6 marks]**

[25 marks]

QUESTION 3

Describe specific situations and mention the hormones involved, for each case below:

- i. Any two hormones that cooperate to promote a response **(10 marks)**
- ii. One hormone that decreases sensitivity of cells (antagonistic) to another hormone **(5 marks)**
- iii. Two hormones act independently and show contrasting effects **(10 marks)**

[25 marks]

QUESTION 4

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

- a) _____ Ratio between the total leaf area (or photosynthesizing tissue) to the total respiring plant tissues (or total plant biomass)
- b) _____ Accumulates in the cytoplasm and organelles to balance the osmotic pressure of ions in the vacuole under water stress
- 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) _____ Deficiency symptoms of this nutrient appear on older tissues because of translocation
- f) _____ Catalyze movement of one type of ion or molecule against its concentration gradient coupled with the movement of a different ion or molecule in the opposite direction
- g) _____ Caused by diurnal changes in production of ethylene
- 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) _____ Plants that rely on high ion uptake to maintain cell turgor when soil water potential is low

[25 marks]