

UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER 2006

TITLE OF PAPER: PLANT PHYSIOLOGY

COURSE CODE: B 402

TIME ALLOWED: THREE HOURS

INSTRUCTIONS:

- 1 ANSWER ANY FOUR (4) QUESTIONS.
- 2 EACH QUESTION CARRIES TWENTY FIVE (25) MARKS.
- 3 ILLUSTRATE YOUR ANSWERS WITH LARGE AND CLEARLY LABELLED DIAGRAMS WHERE APPROPRIATE.

SPECIAL REQUIREMENTS:

**CANDIDATES MAY BRING THEIR CALCULATORS
GRAPH PAPER TO BE PROVIDED ON REQUEST**

**THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN
GRANTED BY THE INVIGILATORS**

QUESTION ONE

Discuss the root-soil environment and its value for plant physiology on the following aspects:

[a]. the soil profile in the rhizosphere [16 Marks]

[b]. the root activity in the rhizosphere [9 Marks]

[Total: 25 Marks]

QUESTION TWO

Discuss the concepts of stomatal physiology in relation to transpiration and environmental factors.

[25 Marks]

QUESTION THREE

Describe the transport process in the symplast taking note of the types of mobile solutes

[a]. within the root tissues [12 Marks]

[b]. within the leaf tissues [13 Marks]

[Total: 25 Marks]

QUESTION FOUR

Discuss the functions of the following mineral nutrients in higher plants and indicate any deficiency symptoms they may have: [a] Potassium [15 Marks]

[b] Magnesium [10 Marks]

[Total: 25 Marks]

QUESTION FIVE

Write an essay on 'The Possible Mechanisms of Drought Resistance in Higher Plants'.

[25 Marks]

QUESTION SIX

Discuss the role of the following phytohormones in seed plants:-

[a] auxins [13 Marks]

[b] gibberellins [12 Marks]

[Total: 25 Marks]

TOTAL MARKS: 100