

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER 2016/2017

- COURSE CODE : B402
- TITLE OF PAPER : PLANT PHYSIOLOGY
- TIME ALLOWED : THREE (3) HOURS
- INSTRUCTIONS :
1. ANSWER ANY FOUR (4) QUESTIONS
  2. EACH QUESTION CARRIES 25 MARKS.
  3. ILLUSTRATE YOUR ANSWERS WITH LARGE AND CLEARLY LABELLED DIAGRAMS WHERE APPROPRIATE

SPECIAL REQUIREMENTS :

CANDIDATES MAY BRING THEIR CALCULATORS. GRAPH PAPER MAY BE PROVIDED ON REQUEST.

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR(S).

QUESTION 1.

Describe the structure of the leaf with particular reference to water resource mobilization and give an account of the mechanism of stomata activity.

[25Marks]

QUESTION 2.

Phytohormones are internal cues for plant growth and development. Describe the possible regulatory effects of Cytokinins (CK) in plant growth and development.

[25 Marks]

QUESTION 3.

[a]. Discuss the significance of TWO essential elements in plants, namely Magnesium and Phosphorus.

[18 Marks]

[b]. Comparatively describe the deficiency symptoms of the TWO mineral nutrients and patterns of their development in plants.

[7 Marks]

QUESTION 4.

With reference to both water and mineral nutrient radial transport in a plant root, compare and contrast the symplast and the apoplast.

[25 Marks]

QUESTION 5.

Give an illustrated account of chloroplast membrane functions during the photosystems [Photosystem 1 and Photosystem 2] in higher plants

[25 Marks]

QUESTION 6.

[a]. Describe the initial process of phloem transport in the areas where organic solutes are synthesized in vascular plants.

[10 Marks]

[b]. Explain the possible mechanism of delivery of organic solutes in the areas where they are needed in the plants.

[15 Marks]

[TOTAL MARKS: 100]