



UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

2ND SEMESTER 2011/2012

PROGRAMME: B.Sc. IN AGRICULTURAL EDUCATION YEAR 3

B.Sc. IN AGRONOMY YEAR 3

B.Sc. IN HORTICULTURE YEAR 3

COURSE CODE: CP 305

TITLE OF PAPER: CROP PHYSIOLOGY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY
THE CHIEF INVIGILATOR**

COURSE CODE: CP 305 (M) 2011/2012

QUESTION 1

A. Explain the various phenomena (found in plants): osmosis, plasmolysis and imbibition. (10 Marks)

B. Describe the mass flow mechanism of phloem transport and supplement this description with the requisite details of anatomy and plant water potential. (20 Marks)

[25 Marks]

QUESTION 2

A. Define what you understand by harvest index of a crop. (5 Marks)

B. Discuss briefly the source for this index generally and specifically with respect to cereals using data in Table 1.

Table 1: Percentage distribution of various parameters to final grain yield (after Thorne)

	Barley	Awnless wheat
Ear photosynthesis	79	24
Respiration (day)	-24	-28
Respiration (night)	-10	-11
Net ear photosynthesis	45	-15
Import from flag leaf and leaf sheath	55	115
Total growth	100	100

Indicate how the net ear photosynthesis and the total growth values were derived? (20 Marks)

[25 Marks]

QUESTION 3

A. Outline three general areas in which growth regulators may exert their effects and give an example of how each may affect plant growth and development. (15 Marks)

B. Describe how temperature and pH may affect the anticipated results in each area given in (A) above. (10 Marks)

[25 Marks]

COURSE CODE: CP 305 (M) 2011/2012

QUESTION 4

What is after ripening of seeds? What is the current working concept regarding the mechanism of this process?

[25 Marks]

QUESTION 5

A. What do you understand by the “light” and “dark” reactions in photosynthesis?

(10 Marks)

B. Distinguish between C3, C4 and CAM plants? (15 Marks)

[25 Marks]