



**UNIVERSITY OF SWAZILAND
SUPPLEMENTARY EXAMINATION PAPER**

PROGRAMMES: BSc. Agric. Econ 2, BSc Agric. Econ 3 (Diploma Holders)

COURSE CODE: ABE 208

TITLE OF PAPER: POST-HARVEST TECHNOLOGY

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: PSYCHROMETRIC CHART

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO OTHER
QUESTIONS

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

QUESTION 1

a. Give a full description of the following methods of determining the moisture content of grain products: **[20 marks]**

- (i) The salt test
- (ii) Oven method
- (iii) Distillation method
- (iv) Use of moisture meters

b. Describe the following factors that cause food produce deterioration during storage:

- (i) Biochemical
- (ii) Physical
- (iii) Biological
- (iv) Technical

[20 Marks]

QUESTION 2

A bin of grain is to be dried with air at a dry-bulb temperature of 43.3°C and an airflow rate of 28.3 m³/min. If the ambient air conditions are 29.4°C dry-bulb and 21.1°C wet bulb, and the average outlet air relative humidity of the air after passing through the grain is 85%,

(i) Determine the amount of sensible heat required per hour to heat the air.

[10 Marks]

(ii) Calculate the amount of moisture removed from the grain per hour.

[10 Marks]

QUESTION 3

a. Name any three storage pests and their control.

[10 Marks]

b. What is the role of respiration in the quality of grain products? What measures or interventions would you recommend to control respiration?

[10 marks]

c. What is the use of psychrometry in crop drying?

[10 marks]

QUESTION 4

- a. Discuss the factors that influence successful application of insecticides. **[10 Marks]**
- b. With the aid of a diagram, describe the structure of a cereal grain of your choice. **[10 Marks]**
- c. What are the critical parameters observed in the construction of a maize crib? **[10 Marks]**

