



**UNIVERSITY OF SWAZILAND
SUPPLEMENTARY EXAMINATION PAPER**

PROGRAMME: BSC AGRIC. ECON., BSC AG.BMgt (3)

COURSE CODE: LUM 208

TITLE OF PAPER: POST-HARVEST TECHNOLOGY

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: NONE

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO
OTHER QUESTIONS.**

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GRANTED BY THE CHIEF INVIGILATOR**

SECTION ONE: COMPULSORY

QUESTION ONE

- (a) Give a schematic presentation of the following dryers;
 - (i) Cross flow (5 Marks)
 - (ii) Counter flow (5 Marks)
 - (iii) Concurrent flow (5 Marks)

- (b) If the dry and wet bulb temperatures of moist air are 35⁰ C and 26⁰C respectively, find the other thermodynamics properties of air from the psychrometric chart provided. (10 Marks)

- (c) What are the nature and principal causes of post-harvest losses? (10 Marks)

- (d) What measures would you take to control the menace of rats (rodents) infestation in stored grain? (5 Marks)

SECTION II: ANSWER ANY TWO QUESTIONS

QUESTION TWO

- (a) With the aid of a diagram, describe the structure of a cereal grain of your choice. (20 Marks)

- (b) Explain briefly the operation of a cyclic refrigeration system. (10 Marks)

QUESTION THREE

(a) Distinguish between the following:

- (i) Equilibrium moisture content and critical moisture content;
- (ii) Physiological maturity and horticultural maturity
- (iii) Bag storage and bulk storage;
- (iv) Contact insecticide and systemic insecticide
- (v) Sieving and sorting.

(15 Marks)

(b) Why is it not advisable to delay drying grain once it has been harvested?

(5 Marks)

(c) Briefly describe the operation of a hammer mill commonly used for size reduction of agricultural materials. What are the pros and cons of this type of mill?

(10 Marks)

QUESTION FOUR

(a) What factors would you consider when applying fumigants in stored grain?

(10 Marks)

(b) Discuss the three general categories of factors that affect drying of crops?

(10 Marks)

(c) You have been invited to give a lecture on safety precautions when applying insecticides. List the points that you would discuss. (10 Marks)