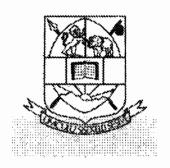
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UNIVERSITY OF SWAZILAND SUPPLEMENTARY EXAMINATION PAPER

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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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 35° C and 26° C 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)

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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)