



UNIVERSITY OF ESWATINI
FINAL EXAMINATION PAPER
2019

PROGRAMME: B.SC.

COURSE CODE: ABE408

TITLE OF PAPER: CROP PROCESSING AND STORAGE

ALLOWED TIME: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: CALCULATOR.

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO OTHER QUESTIONS

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THE CHIEF INVIGILATOR

SECTION ONE: COMPULSORY QUESTION

QUESTION ONE

- a) Give four reasons why high temperature is undesirable for most stored agricultural products. (8 marks)
- b) What are the key drivers that encourages the practise of crop processing and storage. (8 marks)
- c)
 - i) Calculate the moisture shrink when drying peanuts from 12 percent to 10 percent moisture content (6 marks)
 - ii) If a farmer has harvested 150 tonnes of peanuts at 12 percent moisture, what would be the weight after drying to 10 percent moisture. (6 marks)
- d) Discuss clearly the implication of the following statement, “the upper limit of relative humidity for sowing seed is 40% whereas the lower limit of relative humidity for tubers is 80%”. (4 marks)
- e) Discuss four possible ways you could do to control rice weevils in order to minimize damage. (6 marks)

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SECTION II: ANSWER ANY TWO QUESTIONS**QUESTION TWO**

- a) With the aid of neat schematic representations, explain the principle of operation of the following artificial dryers;
- i) Counter flow (5 marks)
 - ii) Concurrent flow (5 marks)
 - iii) Mixed flow (5 marks)
- b) Discuss three factors that are responsible for causing damage to sowing seeds, stating clearly how each factor is implicated. (6 marks)
- c) One alternative method of storing tubers is to leave them on the ground particularly during the dry season. Discuss three disadvantages of such a technique. (3 marks)
- d) Insect pest control of grains sometimes require physical, chemical and biological means. Discuss two ways on how each is applied. (6 marks)

QUESTION THREE

- a) A farmer harvest 10 tonnes of maize at a moisture content of 18% and stored it in an open storage for three weeks. When shelling the maize he realized that he had only 8.8 tonnes left. At what moisture content was the maize at shelling? (8 marks)
- b) What happens to an agricultural product when the relative humidity of the drying air is lower than the equilibrium relative humidity that corresponds with the moisture content of the product? (3 marks)
- c) Give two reasons why respiration is a problem in food storage. (4 marks)
- d) Name five possible methods of storing seeds and or grains. (5 marks)
- e) Discuss five hazards associated with produce quality that are easily perceived and identified by consumers. (10 marks)

QUESTION FOUR

- a) Discuss five key attributes of a storage material. (5 marks)
- b)
 - i) Define what is meant by ripening process. (4 marks)
 - ii) What is the aim of post-harvest technology. (4 marks)
 - iii) What are the five characteristics of fruit ripening. (10 marks)
- c) Explain why temperature and moisture content of an agricultural product are inversely proportional to each other. (4 marks)
- d) Name the three principles of post harvest management of fresh fruit and vegetables. (3 marks)