



**UNIVERSITY OF ESWATINI  
FINAL EXAMINATION PAPER  
2020**

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****(40 Marks)**

- a) Give four reasons why high temperature is undesirable for most stored agricultural products. (8 marks)
- b) Discuss five key drivers that encourage or contribute to the practise of crop processing and storage. (10 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) Explain with the help of two examples in each case what is meant by climacteric and non-climacteric crops. (10 marks)

**SECTION II: ANSWER ANY TWO QUESTIONS****QUESTION TWO****(30 Marks)**

- 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) 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. (6 marks)
- c) Insect pest controls of grains sometimes require physical, chemical and biological means. Discuss two ways on how each is applied. (9 marks)

**QUESTION THREE****(30 Marks)**

- 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? (6 marks)
- b) Explain 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? (4 marks)
- c) Discuss five possible methods of storing seeds and or grains and state what precautionary measures need to be taken for each method. (10 marks)
- d) Discuss five hazards associated with produce quality that are easily perceived and identified by consumers. (10 marks)

**QUESTION FOUR**

**(30 Marks)**

- a) Discuss five key attributes that are necessary in the design of a maize crib. (5 marks)
  
- b)
  - i) Define what is meant by the crop ripening process. (2 marks)
  
  - iii) What are the five characteristics of fruit ripening? (5 marks)
  
- c) Discuss three effects of chilling injury to root and tuber crops. (6 marks)
  
- d) Discuss four types of insect feeding mechanisms. (8 marks)
  
- e) What is the difference between primary and secondary pests? (4 marks)