



*(Knowledge for Development)*

**KIBABII UNIVERSITY**  
**UNIVERSITY EXAMINATIONS**  
**2020/2021 ACADEMIC YEAR**

**FOURTH YEAR**  
**SPECIAL/SUPPLEMENTARY EXAMINATIONS**

**FOR THE DEGREE OF BACHELOR OF SCIENCE AGRICULTURE AND  
BIOTECHNOLOGY**

**COURSE CODE: SAB 432**

**COURSE TITLE: POST HARVEST PHYSIOLOGY AND  
TECHNOLOGY**

**DATE: 11<sup>TH</sup> JANUARY 2022**

**TIME: 11 – 1 PM**

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**INSTRUCTIONS TO CANDIDATES**

Answer Question ONE and any other TWO Questions.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

**QUESTION ONE = 30 MARKS (Compulsory)**

- a) Briefly explain the difference in horticultural and harvest maturity in vegetables (4 Marks)
- b) Explain why vegetables are harvested at harvest maturity stage (3 Marks).
- c) Explain the influence of temperature on the shelf life of fruits. (2 Marks).
- d) Express the moisture content on the wet-weight basis and the dry-weight basis for a product that weighs 150.0 kgs when wet, and after drying weighs 80.0kgs. (3 marks)
- e) Highlight the advantages of wax application on fruits (4 Marks)
- f) Explain the development of the abscission layer during fruit maturity (4 Marks).
- g) Briefly describe how Total Soluble Solids or Brix is used in measurement of fruit maturity (5 Marks)
- h) Explain the three main group of factors affecting the drying efficiency of grains (5 Marks)

**QUESTION TWO = 20 MARKS**

- a) Explain the motivation behind the government imposing a ban on stacking potatoes in more than 50 Kg sacks (4 Marks)
- b) Outline the eight important packaging requirements must fulfill according to Wills et.al.

(16 Marks)

**QUESTION THREE = 20 MARKS**

- a) Explain why water is an important factor in maintaining postharvest quality of both vegetables and fruits (4 Marks)
- b) Outline the importance of sorting and grading in the post harvest quality management of fruits and vegetables (6 Marks)
- c) Explain the main objectives of storage of a typical perishable fruit in relation to demand and supply (10 Marks).

#### **QUESTION FOUR = 20 MARKS**

- a) Explain the main advantages of natural drying over artificial drying systems ( 2 Marks)
- b) Two basic mechanisms involved in the drying process (2 Marks)
  
- c) Drying of grains in thin layers where each and every kernel is fully exposed to the drying air can be represented in the below function:

$$MR = f(T, h, t)$$

State and elaborate the parameters in the above function (6 marks)

- d) Explain the key desirable properties of high-quality maize to commercial miller (10 Marks)

#### **QUESTION FIVE = 20 MARKS**

Post Harvest losses in developing countries constitute more than 50% of the harvested crop. In the last few years adoption of Solar-Powered Cold Chain Technology that can be used for the processing, transport, and storage of harvested food has increased. Focusing on one perishable crop discuss the adoption of the technology, merits, demerits and future opportunities. (20 Marks).