



(Knowledge for Development)

KIBABII UNIVERSITY
UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR

FOURTH YEAR 1ST SEMESTER
MAIN EXAMINATIONS

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

COURSE CODE: SAB 432

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

DATE: 15TH JULY 2021

TIME: 2PM – 4 PM

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)

- 1) Briefly explain the below development stages of maturity. (4 Marks)
- a) Horticultural maturity
 - b) Physiological maturity
 - c) Commercial maturity
 - d) Harvest Maturity
- 2) Explain why vegetables are harvested at harvest maturity stage (3 Marks).
- 3) Kindly elaborate the key maturity indices for various crops given in the table below. (2 Marks).

Crop	Maturity indices
Potato, onion and garlic	
Yams, bean and ginger	
Watermelon	
Broccoli	

- 4) Outline the merits and demerits of the methods used in harvesting of vegetables and fruits. (3 marks)
- 5) Please elaborate the below statements;
- a) Postharvest quality also depends on the tools used for harvesting fresh produce. (2 Marks)
 - b) 'Harvesting time also affects quality' (2 Marks)

QUESTION TWO = 20 MARKS

2. a) Explain two factors that may lead to overfilling of the 50 kg sack limit set by the government of Kenya during packaging of potatoes (4 Marks)
- b) Highlight the eight important packaging requirements that must be fulfilled according

to Wills et.al (16 Marks)

QUESTION THREE = 20 MARKS

3. a) Elaborate the below types of storage for fresh produce(4 Marks)

Controlled atmosphere (CA)

Hypobaric storage

b) In reference to the 3(a) above, types of storage elaborate the **THREE** basic requirements needed (6 Marks)

c) Explain how the factors below influence quality of fresh produce. (4 Marks)

Road condition and duration of transportation

Pattern of Loading

d) List three key DO'S and three DONT'S for storage of fresh produce (3 Marks).

QUESTION FOUR = 20 MARKS

4. a) Explain the main difference between natural drying and artificial drying subsystems. (2 Marks)

b) Define 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 grains include. (10 Marks)

QUESTION FIVE = 20 MARKS

5. 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).