



KIBABII UNIVERSITY

**UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR**

**Fourth YEAR second SEMESTER
MAIN EXAMINATIONS**

**FOR THE DEGREE OF
B.SC (agricultural biotechnology)**

COURSE CODE: SAB 416

COURSE TITLE: AGRICULTURAL PROCESSING AND FARM STRUCTURES

DURATION: 2 HOURS

DATE: 10TH NOVEMBER 2020

TIME: 9AM – 11 AM

INSTRUCTIONS TO CANDIDATES

(i) Answer Question 1 (Compulsory) and any other TWO questions

This paper consists of **3** printed pages. Please Turn Over 

KIBU observes ZERO tolerance to examination cheating

QUESTION ONE (COMPULSORY) – 30 MARKS

- a) Define the term food preservation (2marks)
- b) State and explain four causes of food deterioration (8marks)
- c) Briefly explain how dehydration methods enables food preservation (3marks)
- d) State two types of a packing house facility (2marks)
- e) State five factors to consider when planning construction of livestock buildings and structures (5marks)
- f) State three types of silos used the storage of silage (3marks)
- g) Elaborate four factors that determine the size and type of grain store (4marks)
- h) Give three factors that will influence the choice of a fence (3marks)

QUESTION TWO – 20 MARKS

- a. Briefly explain the process of blanching as used in the preservation of vegetables (5marks).
- b. State and explain five ways in which blanching facilitates food preservation. (5marks)
- c. Discuss the pre and post-harvest factors that affect quality in post-harvest shelf life of fruits and vegetables (10 marks)

QUESTION THREE – 20 MARKS

- a. State and explain five features of a spray race (5marks)
- b. State and explain five maintenance practices for cattle dip. (5marks)
- c. What would be an economical diameter and depth of a silo to store sufficient quantity of silage for a herd of 200 dairy cows having an average body weight of 400 kg each? The cows are fed silage for 150 days annually. (10 Marks)

Data:

- Density of silage: 750 kg/m³
- Thickness of silage fed daily: 5 cm
- Feeding rate per cow: 2.5 kg silage per 100 kg body weight
- Assume losses to be 13%

QUESTION FOUR – 20 MARKS

- a) State and explain three strategies that can be used to estimate the capacity requirements of a packing facility **(6 marks)**
- b) State and explain four factors considered while sorting and grading of fruits and vegetables **(4marks)**
- c) Cleaning is one of the key operations in the packing house , state and explain four methods of cleaning fruits and vegetables**(4marks)**
- d) State and explain three reasons why packing house facility should be constructed as close as possible to the production area **(6marks)**

QUESTION FIVE – 20 MARKS

- a. State and explain five construction requirements of a calf pen **(5 marks)**
- b. State and explain five types of poultry housing systems **(5marks)**
- c. Determine suitable dimensions for a slurry manure pit with an access ramp given the following data **(10marks)**
 - Number of animals: 10 dairy cows, 500 kg each
 - Slurry production: 0.11 m³ per day
 - Storage period: 28 days.
 - Maximum slope of access ramp: 15%
 - Assume the to be 0.7 m deep and 7 m long