



# MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

FOURTH YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

BACHELOR OF EDUCATION (SPECIAL NEEDS EDUCATION)

BACHELOR OF EDUCATION (SCIENCE)

AGR 412: POST HARVEST TECHNOLOGY

DATE: 26/7/2019

TIME: 11.00-1.00 PM

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**INSTRUCTION TO CANDIDATES: Answer *ALL* questions from Section A and any other *TWO* from Section B:**

**SECTION A: COMPULSORY: (30 MARKS)**

**QUESTION ONE**

- a) Explain the term chilling injury (2 marks).
- b) Discuss the chilling injury symptoms that translate to postharvest losses (10 marks).
- c) With the aid of relevant graphical illustrations explain the **TWO** methods used to create modified atmosphere conditions (5 marks).
- d) Outline the requirements for the plastic films used for MAP of fresh produce (5 marks).
- e) Discuss the need for proper temperature management in postharvest handling of agricultural commodities (8 marks).

**SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS)**

**QUESTION TWO (20 MARKS)**

- (a) Define the term ‘postharvest loss’ **(1 Mark).**
- (b) Discuss the postharvest technology procedures that may be used to reduce postharvest losses **(9 Marks).**
- (c) Explain the biological factors that are involved in the deterioration of harvested agricultural commodities **(10 Marks).**

**QUESTION THREE (20 MARKS)**

- (a) Name and define the **TWO** measurements that may be used to assess the quality of harvested agricultural commodities **(2 Marks)**
- (b) Describe the various methods used to assess the quality of harvested agricultural commodities **(9 Marks)**
- (c) Discuss the factors that affect the quality of harvested agricultural commodities **(9 Marks)**

**QUESTION FOUR (20 MARKS)**

- (a) Discuss the fundamental objectives and functions of harvest aids **(9 Marks).**
- (b) Describe hydrocooling as a method used for cooling harvested horticultural commodities clearly outlining the merits and demerits method **(6 Marks).**
- (c) Outline the factors that affect the rate of cooling of harvested agricultural commodities **(5 Marks).**

**QUESTION FIVE (20 MARKS)**

- (a) Explain the role of water in harvested perishable commodities **(6 marks).**
- (b) Discuss the various methods used to control water loss during postharvest handling of perishable commodities **(14 marks).**