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**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

# University Examinations 2012/2013

**FOURTH YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN HORTICULTURE**

# AFP 2411: POSTHARVEST TECHNOLOGY

**DATE: AUGUST, 2012**  **TIME: 2 HOURS**

**INSTRUCTIONS: Answer ALL Questions in Section A and Any TWO Questions in Section B.**

**SECTION A**

**Question One**

a) Differentiate between:

 i. Relative humidity and humidity ratio.

 ii. Intermodal and porthole containers used in freighting of horticultural produce.

 [6 marks]

b) Given that the dew point and wet bulb temperatures in a cooling room containing Gladiolus flowers is 70C and 90C respectively, using the attached psychrometric chart, estimate the following parameters:

1. Humidity ratio
2. Water vapor pressure
3. Relative humidity
4. Dry bulb temperature [4 marks]

**Question Two**

a) The following organizations are involved in quality standardization of horticultural produce. Briefly explain the objectives of:

i. Good Agricultural Practice (GAP) recommended by Codex Alimentarius Commission? [5 marks]

ii. Fairtrade labeling organization (FLO) [4 marks]

iii. Horticultural Crops Development Authority (HCDA) of Kenya code of conduct.

 [3 marks]

b) i. Define the term sanitary and phytosanitary (SPS) measure. [2 marks]

ii. Explain briefly the GLOBALGAP hygiene standards during harvesting and postharvest handling of horticultural produce. [5 marks]

**Question Three**

a) Describe the physical treatments that can be applied to improve the longevity of cut flowers. [6 marks]

b) During air freight of horticultural produce, mechanical regrigeration system is not recommended and if present must be switched off throughout the entire duration of the flight. Explain the reasons why. How is temperature of the produce then maintained during air freight? [10 marks]

**Question Four**

a) Controlled or modified atmosphere storage are quite useful in extending the postharvest shelf life of horticultural produce, but have a number of limitations. Discuss.

 [10 marks]

b) Describe Five (5) requirements for packaging material used for horticultural produce.

 [5 marks]

**SECTION B**

**Question Five**

a) Define the term “Pest risk analysis” (PRA) and describe the stages of a PRA process in horticultural produce. [14 marks]

b) Discuss four (4) preventive measures that can be taken to minimize or eliminate potential hazards that can arise during postharvest handling of fresh produce. [6 marks]

**Question Six**

a) Discuss the postharvest handling techniques that can be utilized in alleviating chilling injury in horticultural produce. [10 marks]

b) Discuss Four (4) postharvest disorders of cut flowers and foliages; their causes and their remedies. [10 marks]

**Question Seven**

a) Discuss the general operations during postharvest handling of horticultural produce in a typical pack house. [15 marks]

b) Briefly describe 5 factors that determine the choice of transportation mode of horticultural produce. [5 marks]