



**RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES**

**B.Sc. (General) Degree in Applied Sciences
Third Year – Semester I Examination – June/July 2018**

BOT 3203 – POSTHARVEST TECHNOLOGY OF THE PLANT PRODUCTS

Time: Two (02) hours

This question paper consists of sections A and B. Answer ALL questions in sections A and B.

For official use Only					
Marks					
Question 1	Question 2	Question 3	Question 4	Question 5	Total

Section A: Structured Essay Questions (30 minutes)

Answer all sections only in the space provided.

1. a) Give **five** (05) compositional changes that may occur in harvested fruits during storage.

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(05 marks)

- b) List **three** (03) undesirable effects of respiration in harvested commodities.

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(03 marks)

- c) Give **two** (02) differences related to the ripening physiology in climacteric and non climacteric fruit.

(02 marks)

d) List **three** (03) desirable changes regulated by ethylene in ripening dessert fruits.

(03 marks)

e) Name **three** (03) anti-ethylene compounds used in postharvest handling of fresh horticultural produce.

(03 marks)

f) Give **four** (04) factors that may induce 'stress ethylene' production in plants.

(04 marks)

g) Name **five** (05) climacteric dessert fruits.

(05 marks)

h) Suggest **three** (03) methods that can be used to reduce transpiration of fresh produce during storage.

(03 marks)

i) Name the most abundant organic acid found in the following fruits.

Fruit

Most abundant organic acid

Apple

Banana
Strawberry

(03 marks)

- j) Name the main volatile compounds responsible for the characteristic aroma of following fruit /vegetable.

<u>Fruit/ vegetable</u>	<u>Volatile compound</u>
Banana
Cabbage
Lemon

(03 marks)

- k) Give **three** (03) beneficial effects of low temperature storage that lead to longer shelf life of fruits.

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(03 marks)

- l) List **three** (03) advantages of 'Manual harvesting' against 'Mechanical harvesting' of fruits.

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(03 marks)

Total: (40 marks)

2. a) List **four** (04) benefits of packaging of fresh produce during handling.

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(04 marks)

- b) Name a packaging material that can be used to create Modified Atmosphere (MA) condition during storage of leafy vegetables.

..... (01 mark)

- c) Explain how Modified Atmosphere Packaging (MAP) affects the shelf life of leafy vegetables.

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(06 marks)

- d) What is the difference between MAP and 'Controlled Atmosphere Packaging' (CAP)?

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(02 marks)

- e) List **five** (05) types of packaging material (natural/synthetic) used for packaging fresh fruit/vegetables.

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(05 marks)

- f) Why is field packaging preferred for some commodities?

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(02 marks)

Index No:

- g) Give the most frequently used maturity index for harvesting of the following commodities.

<u>Commodity</u>	<u>Maturity index</u>	
Cabbage	
Tomato	
Mango	
Banana	
Carrot	(05 marks)

- h) Give **four** (04) measures that can be taken to minimize losses encounter during long distance transportation of fresh fruit and vegetables.

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(04 marks)

- i) What are the **three** (03) most important factors that have to be considered in the storage environment of fresh fruits?

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(03 marks)

- j) Give **three** (03) examples for postharvest growth / development processes that may occur during long term storage of fruit and vegetables.

<u>Commodity</u>	<u>Growth / development process</u>
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(06 marks)

- k) Name **two** (02) fruit ripening inducer compounds used in Sri Lanka.

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(02 marks)

(Total: 40 marks)

Section B : Essay questions (90 minutes)

Answer all questions

3. Citing suitable examples, give an account on special treatments that may be given to fresh fruit and vegetables during pack house operations. Explain how each of the treatments contributes to improving the postharvest keeping quality of fresh produce.
(50 marks)
4. 'Preharvest management of the crop significantly affects the postharvest quality of mango fruit.' Discuss this statement.
(50 marks)
5.
 - a) What is meant by 'enzymatic browning' in fresh fruits and vegetables?
 - b) Describe the methods used to minimize the enzymatic browning in minimally processed fruit/vegetables.
(50 marks)

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