



FIJI NATIONAL UNIVERSITY

College of Agriculture, Fisheries & Forestry

Department of Crop Production

School of Agricultural Sciences

Bachelor of Science in Agriculture and Bachelor of Education in

Agriculture – Year III

Trimester II Final Examination - 2017

HOR: 701 – Post Harvest Management and Value Addition of Fruits and Vegetables

Total Marks: 100

Time Allowed: Three Hours

[An extra ten minutes is allowed for reading this paper]

INSTRUCTIONS

1. This paper consists of 6 pages. Please check your paper is complete.
2. Write your student number on the front page of your **Answer Book**.
3. Write **all** your answers in the **Answer Booklet** provided.
4. If you use extra sheets of paper be sure to show clearly the number of question being answered and to tie each sheet securely in your **Answer Book** at the appropriate place.
5. There are **three** sections in this paper. Sections A and B are compulsory. Note the **choices** in **Section C**.
6. There are **six** question pages in this paper.

SUMMARY OF QUESTIONS

Section	Guidelines	Total Marks	Suggested Time
A	Part 1: Multiple Choice Questions	10	40 minutes
	Part 2: Fill in the Blanks	10	
	Part 3: True and False	10	
	Part 4: Matching	10	
		40 Marks	
B	Short answers Answer all the questions. Each question is worth 5 marks.	30 Marks	50 minutes
C	Long answers Answer only three (3) questions from the following. Answer each question in 300 words. Each question carries 10 marks.	30 Marks	90 minutes

SECTION A

[Compulsory]

[40 marks]

- Answer all four parts in this section.
- Each part is worth 10 marks.

PART .1

MULTIPLE CHOICE

[10 marks]

- A. There are ten multiple-choice questions in this part.
B. All are compulsory.
C. Each question is worth 1 mark.
D. For each question, circle the letter of the best answer on the grid provided in the Answer Booklet.

1. Lycopene is the main colouring compound in
 - a. Apple.
 - b. banana
 - c. Tomato
 - d. Chilli
2. Which of the following is not an application of heat for preservation by drying?
 - a. Sun drying.
 - b. Use of sugar.
 - c. Freeze drying.
 - d. Vacuum drying.
3. Crystallized fruits/vegetables should have TSS not less than
 - a. 65%.
 - b. 62%.
 - c. 70%.
 - d. 64%.
4. Salt in concentration of _____ or above acts as preservative.
 - a. 10%.
 - b. 12%.
 - c. 8%.
 - d. 15%.
5. Which of the following fruit is not suitable for canning?
 - a. Pineapple.
 - b. Guava.
 - c. Mango.
 - d. Lemon.

6. Which of the following is non-climacteric fruit
- Mango.
 - Banana.
 - Grape.
 - None of above.
7. Decision, as to when to start harvesting will depend largely on:
- Weather condition.
 - The taste of market.
 - The flexibility of marketing date.
 - All of above.
8. Fruit becomes soft after ripening mainly due to dissolution of _____ substance in the cell wall.
- Fat.
 - Carbohydrate.
 - Protein.
 - Pectin.
9. Netting is used to judge the maturity of
- Mango.
 - Muskmelon.
 - Citrus.
 - Grape.
10. N- Benzyladenine (10-20) PPM prolongs shelf life of
- Leafy vegetable.
 - Apple.
 - Carrot.
 - Grape.

PART .2

Matching

[10 marks]

- Match the descriptions in List B with the words in List A.
- Write the letter of the description from List B in the space beside the matching word.

List A

List B

- | | |
|---------------------------------------|---|
| _____ 1. Asepsis | a. Removal of micro-organisms. |
| _____ 2. Filtration | b. Keeping out the micro-organisms. |
| _____ 3. Anaerobic condition | c. Killing the micro- organisms. |
| _____ 4. Exposure to high temperature | d. Causes degreening in orange and banana. |
| _____ 5. Jam | e. The fruit jelly in which slices of the fruit or it peel is suspended. |
| _____ 6. Marmalade | f. It is detaching a commodity from the point of origin. |
| _____ 7. Candy | g. Hindering the growth and activity of microorganisms. |
| _____ 8. Ethylene | h. Packaging offers an extensive barrier against corrosion, oxidation and moisture. |
| _____ 9. Harvesting | i. A fruit or vegetable impregnated with cane sugar or glucose syrup and subsequently drained free of syrup and dried. |
| _____ 10. Vaccum | j. A product made by boiling fruit pulp with sufficient sugar to a reasonably thick consistency, firm enough to hold fruit tissues in position. |
| | k. Cymbopogon winterianus |
| | l. Tumeric |

Part.3

True and False

[10 marks]

- Write 'T' if you think that the statement is correct and 'F' if you think it is incorrect.
- Write your answers in the Answer Booklet provided on the right-hand side beside each question number.

- _____ 1. Sun drying is the method in which food is directly exposed to sunlight.
- _____ 2. Minimum damage to commodity is an advantage of machine harvesting.
- _____ 3. Fruits and vegetables are the reservoir of vital nutrients.
- _____ 4. Preservation of fruit and vegetables make them available throughout the year.
- _____ 5. Dehydration is a process where water is added to fruit and vegetables.
- _____ 6. Fruit should not be clipped but pulled.

- _____ 7. Post-harvest management aids in increasing malnutrition.
- _____ 8. Vacuum packaging prevents freezer burn by preventing the food from exposure to the cold, dry air.
- _____ 9. Potassium permagnate and phenyl methyl silicon can be used to absorb ethylene within the packages.
- _____ 10. Low density poly ethylene (LDPE) is a type of flexible plastic films.

Part.4

Fill in the blanks

[10 marks]

- Fill in the blanks with the appropriate word from the list given below to complete the following statements.
- Do NOT use a word more than once.
- Write your answers in the space provided in the Answer Booklet.

freeze drying	25	perishable	high-cost
low-cost	chemical	78	yellow
green	citrus	75	hydration
detrimental	dehydration	lemon	

- 1 In _____ the food is dried by sublimation process.
2. Zero energy cool chamber is a _____ storage structure.
3. The most common change during ripening is the loss of _____ colour.
4. High temperatures are _____ to keeping quality of fruit and vegetables.
5. The minimum juice content is _____ percent in lemon.
6. Total sugar and reducing sugar is _____ method for determination of harvest maturity.
7. Oleocellosis a physical disorder is normally found in _____ group.
8. Wax coating of fruit and vegetables is done to retard respiration, _____ and senescence.
9. Post-harvest management is very important to horticultural crops because of their _____ nature.
10. In normal air the composition of nitrogen is _____ percent.

SECTION. B**[Compulsory]****(30 Marks)****SHORT ANSWERS**

- Answer the following questions.
 - Each question is worth 5 marks.
 - There are 6 questions only.
 - Discussing a point is very important to gain full marks.
1. Analyze the importance and scope of fruit and vegetable processing in Fiji?
 2. Provide information on advantages of fruit and vegetable preservation?
 3. Write short notes on:
 - a. Marmalade
 - b. Pickles
 4. Provide information on the specification for canned fruits?
 5. Use of vinegar in preservation of pickle?
 6. Analyze physiological maturity and horticultural maturity with examples?

Section C**Long Answers****[30 marks]**

- Answer any three (3) questions only.
 - Each question is worth 10 marks.
 - There are 4 questions given.
 - Answer each question in approximately 250-300 words in the Answer Booklet provided.
1. Define harvesting? Provide the important considerations, while preparing for the harvesting.
 2. Analyze in detail about controlled atmosphere packaging?
 3. What do you mean by pre-cooling? Demonstrate in brief, different methods of precooling?
 4. Provide information on different color and respiration rate changes during ripening?

THE END