Examination

Food Technology	Section	Part	Question Number
	3		28

Date

10/11/11.	Number of booklets used for this question	1

Instructions

- Write your Centre Number and Student Number at the top of this page.
- In the boxes provided write the name and date of this examination, and the number(s) of the question(s) attempted in this booklet.
- If you have not attempted the question, you must still hand in the Writing Booklet, with the words 'NOT ATTEMPTED' written clearly on the front cover.
- Write using black or blue pen. (Black pen is recommended.)
- You may ask for an extra Writing Booklet if you need more space.
- **You may NOT take any Writing Booklets, used or unused, from the examination room.**

Start here.

a) There are 5 main causes of deterioration - spoilage in fruit.

1. Physical Damage → this is the bruising or denting of fruit that causes it to deteriorate & spoil, which may be caused by dropping fruit, pressure during transportation, etc.

2. Enzyme Activity → Ripening of fruit, which may result in enzymatic browning and therefore the spoilage of fruit.

3. Microbial Activity → the growth of bacteria, yeasts or moulds that causes fruit to deteriorate & therefore isn't safe for consumption.

4. Rodent Activity → such as rats or mice that may chew on fruit, therefore causing it to spoil.

5. Environment → hot temperatures, humidity, and water availability may cause deterioration in fruit. For example in high temps, enzyme activity increases, therefore fruit will ripen & spoil quicker than in cooler temps.

b) Labelling Requirements are controlled by FSANZ - Food Standards Australia New Zealand, which are an ~~indepent~~ independant NGO that advise the federal government on laws & legislation. The labelling requirements of

preserved fruit include: Name/description of food product, Country of origin, Use by/best before date, Information for allergy sufferers, storage instructions, Net weight/volume, Ingredient List, Nutrition Information Panel and product Recall information. These are the legislative requirements for the labelling of preserved fruit, to ensure consumers understand nutritional content, and appropriate storage to prevent deterioration r spoilage. As a result, consumers are at less risk of food spoilage or food poisoning, as they are provided with information to understand the nature of the product, how it is best stored for optimum product, and when the product should be used by. The fruit is less likely to be contaminated r cause food spoilage/poisoning if the consumer understands the legislative requirements on the labelling of preserved fruit.

c) The preservation process of COOLING can be used to extend the shelf life of fruit. This involves storage below 4°C to ensure the product is not in the "Danger Zone" (4-60°C). For example stored in a refrigerator. This will extend the shelf life of the fruit by slowing down enzyme activity. At cooler temperatures (below 4°C), enzymes

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gradually become less active, and may even become inactive or dormant in the fruit. This will slow down the ripening process of fruit as enzymes struggle to produce ethylene gas as they ripen. ~~Chilling~~ The process of chilling ultimately creates a less favourable environment for micro-organisms such as bacteria or moulds to grow, and immediately begins to slow enzyme activity in the fruit. As a result, the fruit should last up to 5 days longer than non-chilled fruit, and will be preserved to have an extended shelf life.

The preservation process of dehydration involves reducing the moisture content of the fruit to around 5-6%. This may be done through sun-drying, which evaporates the water ~~v~~ moisture from the fruit to increase its solid concentration. Enzymes require correct moisture levels to survive, therefore dehydrating the fruit means that enzymes become inactive and do not ripen near as fast. Dehydration extends the shelf life significantly as the environment is now unfavourable for enzymes or micro-organisms to survive in. Eg banana chips or dried plums - which become prunes.

Dehydration ultimately preserves the fruit, allowing it to be stored at room temperature for an extended period of time, without the risk of active enzymes that cause fruit to spoil or deteriorate.

You may ask for an extra Writing Booklet if you need more space.