Examination

Examination	Section	Part	Question Number
Food Technology	3		28

Date

10/11/11

Number of booklets used for this question: 1/2

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.**

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a) Deterioration and spoilage in fruit can be caused by physical damage through bruising which will accelerate deterioration due to the cell wall damage. Also microbiological organisms such as viruses, moulds, bacteria and fungi can cause spoilage. Enzyme activity increases the ripening and can lead to the overripening of the fruit, which would cause fruit to become soft and inedible.

b)

- Name
- Quantity
- Use-by date
- Name and address of manufacturer
- Barcode
- Nutritional panel
- Ingredients list
- Country of origin
- Batch number

The product must have the measurement of the food. There can be more than the stated amount or it can be exact, however there cannot be less than the stated amount. The batch number must be placed on to allow for food product recall if there was a risk

of contamination or other risks associated with the quality of the product.

There must be a nutritional panel to inform consumers of the nutritional content of the food, allowing more informed decisions on the purchasing of the food product.

An ingredients list must be included from largest component to the smallest component, so that individuals with food allergies or intolerances can be sure of the product contents.

A use-by date must be included to avoid a risk of food poisoning or other sickness due to unsafe food.

A name and address of the manufacturer must be included so that consumers can provide feedback, queries and complaints that they may have.

A barcode is needed in order to identify each product.

The country of origin must be placed and it must be real as false statement may lead to prosecution.

A name must be included to help identify the product.

Additional writing space on back page.

c) Drying (dehydration can be used. This involves the removal of water to levels of 6-7%. Microbial growth and activity can occur at a level of 12-13%. Vaccuum drying can be used where a vacuum sucks up the moisture of the product. Salting can be used as the water concentration increases and this reduces the amount of available moisture for micro-organisms to grow in. The product is then sealed in order to prevent the re-entering of microorganisms. Drying prevents condensation which produces a humid environment which is favourable to microorganisms. Vacuum sealing excludes any air that most micro-organisms need in order to survive. However caution must be taken for Clostridium botulinum as this can survive in anaerobic conditions. Drying increases the shelf-life of the fruit, allowing foods to be consumed at anytime of the year.

Addition of chemicals can also be used. Lemonjuice or vinegar can be used to decrease the pH of the fruit, making it more acidic. Most micro-organisms cannot survive at a pH less than 4.2. Acidic environments can denature

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enzymes which could increase the ripening and thus the deterioration of the fruit. An acidic environment destroys micro-organisms. The addition of sugar decreases the amount of water available for micro organisms to grow and survive. This kills the micro-organisms as most are incapable of surviving without water.

Examples of fruits that use dehydration include mangoes, apricots, prunes, grapes and bananas. Examples of fruits that use addition of chemicals are strawberries, apricots and blueberries. Preservation processes allow fruits to be kept at room temperature, or in the case of products such as jam in the refrigerator once opened. It allows an increased shelf-life of around a year and allows fruits to be available all year round.