VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

Victorian Certificate of Education 2012

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

									Letter
Figures									
Words									

FOOD AND TECHNOLOGY

Written examination

Friday 16 November 2012

Reading time: 9.00 am to 9.15 am (15 minutes)
Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

Section	*Number of questions*	*Number of questions to be answered*	*Number of marks*
A	15	15	15
B	6	6	85
			Total 100

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied
- Question and answer book of 19 pages.
- Answer sheet for multiple-choice questions.

Instructions
- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- All written responses must be in English.

At the end of the examination
- Place the answer sheet for multiple-choice questions inside the front cover of this question and answer book.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions

Instructions for Section A

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1, an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Question 1

The process of enzymatic browning occurs when

A. radiant heat is applied to bread.

B. unpeeled bananas are left to overripen.

C. fruit is covered with an acid or sugar syrup.

D. a peeled potato comes into contact with oxygen.

Question 2

Aseptic packaging is a

A. process whereby the food product is packaged, sealed and then sterilised.

B. system that involves removing the air from a package to create a vacuum.

C. system of packaging that changes or modifies the atmosphere of gas inside a package.

D. process whereby the food product and the package are sterilised separately and then brought together in a sterile environment.

Question 3

The constraints in a design brief

A. are always identified during the market research stage.

B. are aspects over which the designer has limited control.

C. are aspects over which the designer has significant control.

D. can discourage the development of creative solutions to a design brief.

Question 4

Mayonnaise is an example of an emulsion.

An emulsion occurs when

A. fat or oil is suspended in a liquid.

B. air is incorporated into a mixture.

C. a smooth and creamy texture is created by whisking food.

D. a liquid changes to a thick mass as a result of adding vinegar.

Question 5

AQIS is the national body responsible for the inspection of imported food, border protection and quarantine.

AQIS stands for

A. Australian Quality and Inspection Service.

B. Australian Quarantine and Isolation Service.

C. Australian Quarantine and Inspection Service.

D. Australian Quarantine and Identification Service.

Question 6

A food intolerance

A. is much less common than a food allergy.

B. can cause an anaphylactic reaction, which may be life threatening.

C. is a response of the immune system to the consumption of a particular food.

D. is a chemical reaction to a particular food but is not a response of the immune system.

Question 7

Bacterial contamination of food can cause food poisoning.

The conditions required for bacterial growth are

A. moisture, cold temperatures, time, food supply, low-acid environment, oxygen.

B. moisture, high temperatures, time, food supply, low-acid environment, oxygen.

C. moisture, warm temperatures, time, food supply, low-acid environment, oxygen.

D. moisture, warm temperatures, time, food supply, high-acid environment, oxygen.

Question 8

The term 'functional properties of food' describes the

A. range of processes used to make food edible and safe to eat.

B. physical properties of food, such as shape, colour and size.

C. original properties of a particular food before it has been prepared and processed.

D. physical and chemical properties of ingredients that impact on food preparation and processing.

Question 9

Two responsibilities of the Victorian Department of Human Services in the case of a food-poisoning incident at a restaurant are to

A. analyse food samples from the restaurant and follow up on closure orders.

B. oversee the food-poisoning incident and analyse any food samples from the restaurant.

C. develop criteria for the approval of food safety auditors and issue closure orders for the restaurant.

D. develop food safety standards based on the principles of Hazard Analysis and Critical Control Points (HACCP) and inspect the restaurant.

Question 10

Which of the following is an example of a nutrition content claim?

A. This food is a good source of dietary fibre.

B. This food is a good source of dietary fibre and can prevent bowel disease.

C. This food is a good source of dietary fibre and can reduce your risk of bowel disease.

D. This food is high in dietary fibre. Healthy diets, high in dietary fibre, can prevent bowel disease.

Question 11

Modified Atmosphere Packaging systems can include

A. shrink packaging, canning and gas packaging.

B. ethylene packaging, reactive packaging and vacuum packaging.

C. barrier-specific packaging, gas packaging and active packaging.

D. vacuum packaging, inactive packaging and gas flushing packaging.

Question 12

Membrane technology is commonly used in the production of milk.

Two types of membrane technology are

A. ultrafiltration and pasteurisation.

B. ultrafiltration and reverse osmosis.

C. reverse osmosis and pasteurisation.

D. ultra-heat treatment and ultrafiltration.

Question 13

A feature of microwave cooking is that the

A. microwaves will penetrate the food to a depth of 6–7 centimetres.

B. Maillard reaction is obvious in foods cooked in a microwave oven.

C. standing time for foods cooked in a microwave oven should be equal to that of the cooking time.

D. foods most suitable for cooking in a microwave oven are those that have a high carbohydrate content.

Question 14

Foodborne illness is an illness caused by

A. consuming foods contaminated by yeasts.

B. a change in the sensory properties of food.

C. the consumption of food contaminated by bacteria.

D. the consumption of food contaminated by enzymes.

Question 15

Crop rotation is a strategy used by many farmers to prevent the degradation of their land.

Crop rotation is a sustainable system as it

A. includes only crops that are suitable for human consumption.

B. includes a legume crop that fixes nitrogen into the soil, improving soil health.

C. allows farmers to alternate grazing of animals with crop planting on an annual basis.

D. allows artificial fertilisers to be used at higher levels, ensuring a more productive crop.

END OF SECTION A

SECTION B

Instructions for Section B

Answer **all** questions in the spaces provided.

Question 1

a. The manufacturer of Yeasty Mite, a yeast-based spread, has increased its product range by introducing a new spread, specially for children, which is called My First Yeasty Mite.

i. Identify the type of product development used by the manufacturer in the development of its spread for children.

_____

ii. Outline **two** reasons why the manufacturer may have chosen to use this type of product development.

_____

_____

1 + 2 = 3 marks

My First Yeasty Mite is specially formulated for children aged one and over. It is a source of iron, enriched with vitamins B_6 and B_{12}, and offers 50 per cent less sodium than the original Yeasty Mite. My First Yeasty Mite is considered a functional food.

b. Explain why My First Yeasty Mite is considered a functional food.

_____

_____

_____

_____

2 marks

My First Yeasty Mite is packaged in a plastic container with a screw-top lid.

c. Identify and describe two purposes of packaging for My First Yeasty Mite.

purpose 1 _____

_____

_____

purpose 2 _____

_____

_____

4 marks

During the development of its new product, the manufacturer of My First Yeasty Mite would have conducted a quantitative analysis of the product.

d. Identify **two** characteristics of My First Yeasty Mite that could have been tested using quantitative analysis.

2 marks

The manufacturer would also have carried out qualitative analysis of the product.

e. Explain the difference between quantitative analysis and qualitative analysis.

2 marks

Question 2

A new cream cheese spread called Light and Cheesy has just been launched onto the snack food market. The spread is enriched with Omega 3 and is lower in fat than regular cream cheese. Light and Cheesy is available in mini tubs, which are ideal for individual serves.

a. Write two criteria for evaluation that could have been used by the manufacturer in the development of the new Light and Cheesy spread. These should be in the form of questions.

criterion 1 _____

_____

criterion 2 _____

_____

2 marks

The first attempt at developing a sample product of its new Light and Cheesy snack food was discarded by the manufacturer at the prototype stage.

b. Explain why a sample product of the Light and Cheesy spread may have been discarded at the prototype stage.

_____

_____

_____

_____

_____

2 marks

The Light and Cheesy spread is produced using innovative technology known as microencapsulation.

c. Explain the process of microencapsulation. Refer to the information in the case study to provide an example of the use of this technology.

_____

_____

_____

_____

_____

2 marks

Microencapsulation has advantages for both consumers and manufacturers.

d. Outline **two** advantages of microencapsulation in food production.

2 marks

The driving forces of social pressures and consumer demands influenced the development of the Light and Cheesy spread.

e. Describe how one of these driving forces would have influenced the development of this product.

2 marks

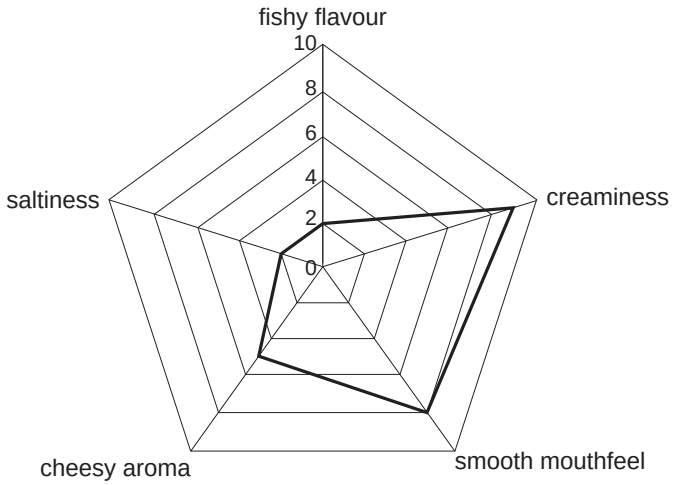
The manufacturer is aiming this product at a niche market.

f. **i.** Explain the meaning of the term 'niche market'.

ii. Identify a niche market for the Light and Cheesy spread.

2 + 1 = 3 marks

The diagram below represents the results of a sensory analysis test undertaken on the Light and Cheesy spread.



g. **i.** Name the sensory analysis test that was used to obtain these results.

_____

ii. Outline one advantage to the manufacturer of using this type of sensory analysis test.

_____

_____

_____

1 + 1 = 2 marks

Question 3

GD Foods is a local food manufacturing company that sells its products both in Australia and overseas. The label of its canned baked beans indicates that the product has been produced according to the Australia New Zealand Food Standards Code.

a. Outline **two** standards, other than food labelling, that the manufacturer of the baked beans would be required to follow as part of the Food Standards Code.

2 marks

Labelling is an important aspect of ensuring a safe food supply.

b. Identify **two** labelling requirements that must be included on the canned baked beans produced by GD Foods.

2 marks

As a food manufacturing company, GD Foods must implement a Hazard Analysis and Critical Control Points (HACCP) system to ensure that its products are produced safely.

c. Identify and explain two steps involved in a HACCP system.

1.

2.

4 marks

GD Foods uses haricot beans in its canned baked beans. Primary producers use chemicals in the production of haricot bean crops to improve crop yield. The use of chemicals in primary production needs to be carefully managed.

d. Describe a sustainable farming practice that primary producers could implement to manage the use of chemicals in the primary production of haricot beans.

2 marks

The haricot beans, which are supplied by a local primary producer, have undergone primary processing.

e. Outline the importance of primary processing in food production.

1 mark

Question 4

Matilda is five years old and is about to attend her first day at primary school. Matilda's mother has prepared the food for her lunchbox and has included the following items.

- a corn tortilla wrap filled with shredded, cooked chicken breast, lettuce and mayonnaise
- carrot, celery and cheese sticks
- a mini blueberry muffin
- a handful of grapes and a small banana
- a drink bottle filled with water

Matilda's mother is concerned about food safety and the potential for food poisoning.

a. Describe **two** personal hygiene or food safety practices that she could use to reduce the risk of food poisoning.

2 marks

Matilda's mother intends to store the prepared tortilla wrap in the refrigerator until she is ready to pack the lunchbox. Refer to the food thermometer below when answering the question that follows.

b. Describe the impact of the temperature zones listed in the table on food-posioning bacteria.

Temperature zone	Description
above 60 °C	
5–60 °C	
below 5 °C	

3 marks

Some of the food items in Matilda's lunchbox could also be affected by food spoilage.

c. Explain the difference between food poisoning and food spoilage.

2 marks

The lunchbox contains some food items that have undergone secondary processing.

d. Outline **two** advantages for the consumer and **two** different advantages for the manufacturer of secondary processing of food.

consumer

manufacturer

4 marks

When producing corn tortillas in the factory, the food manufacturer must consider the environmental issue of the use of energy.

e. **i.** Explain how the use of energy during the manufacture of tortillas can have an impact on the environment.

ii. Describe one strategy for reducing the environmental impact of the use of energy during the manufacture of food.

2 + 2 = 4 marks

Matilda's lunchbox also contains celery sticks. The celery may have been produced through genetic modification.

f. **i.** Describe the process of genetic modification.

ii. Identify two advantages that genetically modified foods may provide for either the consumer or food producer.

advantage 1

advantage 2

1 + 2 = 3 marks

Question 5

Kristina lives in country Victoria and is a keen gardener. She has a very productive vegetable garden and a small orchard that includes several citrus and stone fruit trees. To avoid wasting the produce from her vegetable garden and fruit trees, she has developed a range of preserves that she sells at a local farmers' market.

Kristina uses a range of preservation techniques to preserve her produce, including dehydration, use of sugars, use of acids and heat processing (bottling).

a. **i.** Select **two** of the preservation techniques listed and explain how each will preserve food for use in the future.

ii. List an example of a food item that Kristina could produce using the preservation techniques selected.

Preservation technique	Explanation of how the process will preserve food	Food item

(2 + 2) + (1 + 1) = 6 marks

Kristina would have created a series of production plans to make each of the preserves for sale at the farmers' market.

b. Discuss the advantage to Kristina of developing production plans before producing her preserves.

2 marks

Kristina also makes a range of cakes, including a sponge cake, to sell at the farmers' market. Below is the recipe she uses for making her sponge cake.

Sponge cake

4 eggs, separated
½ cup caster sugar
pinch cream of tartar
1 teaspoon vanilla essence
½ cup plain flour, sifted

1. Beat the egg whites and cream of tartar until aerated.
2. Add the sugar, one tablespoon at a time, beating well between each addition.
3. Add the egg yolks and beat until just combined. Fold in the vanilla essence. Gently fold in the sifted flour using a metal spoon.
4. Pour the mixture into the prepared sponge cake tin and bake in the preheated oven for 12–15 minutes.

c. Making a sponge cake is a complex process. Select **two** of the steps in the recipe above and for **each** step

i. explain the decision to be made

ii. describe the impact that each decision will have on the sensory properties of the cooked sponge cake.

Step _____

Decision to be made	**Impact of the decision**

Step _____

Decision to be made	**Impact of the decision**

(1 + 1) + (1 + 1) = 4 marks

d. The recipe requires that the egg whites be beaten.
Describe the change that occurs to the protein in the egg whites when they are beaten.

2 marks

e. Identify **two** functional properties of eggs other than aeration.

2 marks

f. The sponge cake will brown when baked.
Name the process that causes this browning to occur.

1 mark

g. The sponge cake is baked in the oven. This is a dry method of cooking.
List one dry method of cooking food other than baking.

1 mark

h. Outline **two** safe work practices to follow when cooking in an oven.

2 marks

Question 6

FOOD RECALL

Granello Foods Italian Lasagne Dinner
Frozen pre-prepared meal
Best before 26 / October / 12
Made in Australia

Granello Foods Pty Ltd is conducting a recall of the above product.

The affected product has been available for sale in Smith and Smith supermarkets nationally.

Problem: The recall of the above product is due to foreign matter contamination – plastic.

Food Safety Hazard: Food products containing plastic may cause injury if consumed.

What to do: Consumers should not eat this product.

Customers should return the product to the place of purchase or directly to the address below for a full cash refund.

We apologise for any inconvenience. For further information please call:

(03) 9123 4567 or email info@granellofoods.com.au

Granello Foods Pty Ltd, Building 23, First Avenue, Mulgrave, Victoria 3170

Granello Foods has placed the above notice in all national newspapers to inform consumers that its frozen Italian Lasagne Dinner has been recalled from sale.

Discuss in detail the role and responsibilities of each of the national, state and local authorities in the development and implementation of the recall process used by Granello Foods. Your answer should also demonstrate a knowledge of the relationship between each authority.

8 marks

END OF QUESTION AND ANSWER BOOK