



Victorian Certificate of Education 2010

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Figures

Words

Letter

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FOOD AND TECHNOLOGY

Written examination

Monday 15 November 2010

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

<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
7	7	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.

Instructions

- Write your **student number** in the space provided above on this page.
- All written responses must be in English.

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

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Instructions

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

Question 1

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Chang's Authentic Asian Cooking produces a range of noodles for consumers including the gluten free wok-ready noodles pictured above. These noodles can be added straight to a stir-fry or heated in a microwave oven.

Market research is the first stage of product development before the design brief is written.

- a.** List **two** ways that Chang's may have carried out its market research.

2 marks

When new food products are developed the manufacturer will also identify a target market.

- b. i.** Explain what is meant by the term 'target market'.

- ii.** Describe a suitable target market for Chang's wok-ready noodles.

1 + 1 = 2 marks

- c. Explain why a detailed design brief is an important step in the development of any new food product.

2 marks

The label of Chang’s noodles provides information about the product.

- d. From the information on the label, identify **two** possible specifications that could have been included in the design brief that was used in the development of these noodles.

2 marks

The development of a prototype was another stage in the process of product development for Chang’s wok-ready noodles.

- e. Outline **two** reasons why the development of a prototype was an important stage in the development of Chang’s wok-ready noodles.

2 marks

The noodles can be reheated in a microwave oven. In recent years the number of foods that can be prepared using a microwave oven has increased.

- f. Identify and describe **two** social factors that have led to the increase in foods suitable for cooking in a microwave oven.

4 marks

The system of modified atmosphere packaging (MAP) has enabled manufacturers to produce a large range of food products. Chang’s noodles are packaged using MAP.

- g. i. Outline the system of modified atmosphere packaging.

- ii. List **two** reasons why Chang’s would have chosen this type of packaging system for its wok-ready noodles.

1 + 2 = 3 marks

Total 17 marks

Question 2

Perfection Fresh Australia Pty Ltd has been involved in the development of a range of new food products through the process of plant breeding. One of its products is Broccolini® Baby Broccoli, shown below. The product is also commonly known as broccolini.

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- a. Explain the **process** of plant breeding used to produce the Broccolini® Baby Broccoli.

2 marks

- b. Describe **two** advantages in using the process of plant breeding to a food producer such as Perfection Fresh Australia Pty Ltd.

2 marks

In order for vegetables such as broccolini to reach consumers in peak condition, they undergo primary processing.

- c. Outline **two** key steps in the primary processing of vegetables such as broccolini. Explain how each step will ensure that vegetables reach consumers in their peak condition.

Step 1 _____

Step 2 _____

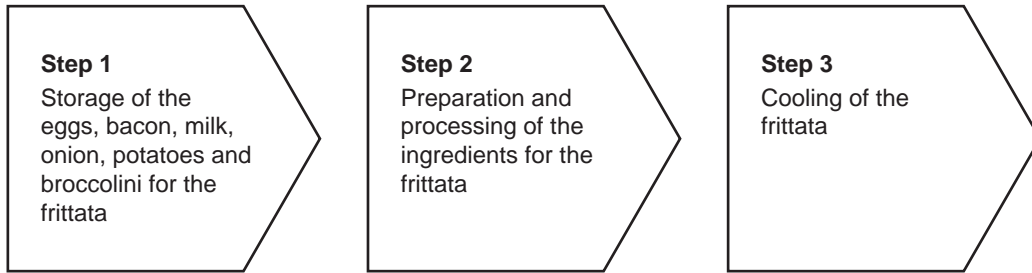
4 marks

Vegetables such as broccolini may also undergo secondary processing.

- d. Explain how secondary processing of vegetables differs from primary processing.

2 marks

A large food manufacturing company uses broccolini as an ingredient in its vegetable frittata. Other ingredients in the frittata include eggs, bacon, milk, onion and potatoes. Below are three key steps in the Hazard Analysis and Critical Control Points (HACCP) system the company has established to produce the frittata.



- e. i. Outline **one** hazard in Step 1 when storing the ingredients for the frittata, apart from cross contamination, **and** briefly describe a corrective action that could be taken to address the hazard.

Hazard _____

Corrective action _____

Cross contamination has been identified as one possible hazard in Step 2 of the HACCP system.

- ii. Describe **one** corrective action, different from the one given above, the manufacturer could take to prevent cross contamination.

One hazard in Step 3 of the HACCP system is to keep the cooked frittata out of the danger zone.

- iii. Explain the meaning of the term ‘danger zone’ and identify **one** action the manufacturer could take to avoid this hazard.

2 + 1 + 2 = 5 marks

Total 15 marks

Question 3

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- a. Campbell's Real Stock™ pictured above is packaged using the aseptic packaging system.
- i. Describe the process of aseptic packaging used to package the beef stock pictured above.

- ii. Outline **two** advantages of using aseptic packaging to package food.

2 + 2 = 4 marks

A potato-topped meat pie is prepared with a shortcrust pastry base, a meat filling and then topped with creamy mashed potato. Ready-made stock such as Campbell's Real Stock™ can be used to prepare the meat filling for the potato-topped meat pie. Below is the recipe for the pastry and the filling for the pie.

Shortcrust pastry

Ingredients	Steps
½ cup plain flour	1. Rub butter into flour.
½ cup SR flour	2. Add chilled water and mix.
60 grams butter – roughly chopped	3. Turn onto a floured board and knead.
¼ cup chilled water	4. Refrigerate for 30 minutes before using.
	5. Roll out to fit the pie dish.

Potato-topped meat pie

Ingredients	Method
1 onion, finely diced	1. Sauté the onion in olive oil until golden.
1 tablespoon olive oil	2. Add minced steak, fry until lightly browned, stir continuously.
500 grams minced steak	3. Add flour and stir through.
1 carrot, diced	4. Add carrots, celery, parsley, stock and tomato sauce.
1 stick celery, finely diced	5. Simmer for 20 minutes.
1 tablespoon chopped parsley	6. Line a greased pie dish with the rolled out shortcrust pastry.
2 tablespoons flour	7. Place meat filling into prepared pie dish.
300 ml stock	8. Top with creamy mashed potato. Sprinkle with grated cheese.
1 tablespoon tomato sauce	9. Bake at 220 °C for 20 minutes.
2 cups creamy mashed potato	10. Turn oven down to 180 °C and bake for a further 20 minutes until the potato topping is golden.
¼ cup grated cheese	

b. The preparation and cooking of the potato-topped meat pie uses both wet and dry cooking methods.

i. Identify and describe **one dry method** of cooking used in preparing and/or cooking the pie.

ii. Identify and describe **one wet method** of cooking used in preparing and/or cooking the pie.

2 + 2 = 4 marks

- c. Butter and minced steak are ingredients in the potato-topped meat pie. Complete the following table.
- Identify the natural food component found in the butter for the pastry and the minced steak for the filling.
 - Describe the impact of this natural food component on the preparation and processing of the pastry and minced steak filling.

	Butter for the pastry	Minced steak for the filling
Natural food component		
Impact on preparation and processing		

2 + 4 = 6 marks

Making the pastry for the potato-topped meat pie is a complex process. A complex process requires a judgment or a decision being made that will affect the final outcome of the product.

- d. Select **one** important step from the recipe for **shortcrust pastry**.

- i. Describe how you would judge when the step has been completed.

- ii. Explain the importance of this step in producing a high-quality pastry.

1 + 2 = 3 marks

Total 17 marks

TURN OVER

Question 4

An article in *The Age* on Saturday 10 October 2009 reported the following food poisoning incident.

‘An outbreak of hepatitis A has been linked to contaminated semi-dried tomatoes, Victorian authorities warned yesterday. This week about a dozen Victorians were diagnosed with hepatitis A, an unusually high number.’

The food poisoning incident described above has been linked to semi-dried tomatoes that had been contaminated as a result of poor personal hygiene.

- a. Outline **two** personal hygiene practices that could have reduced the likelihood of contamination of the semi-dried tomatoes.

2 marks

As a result of the contamination incident, authorities at the federal, state and local levels would have been notified and action taken.

- b. Select **two** of the levels of authority and describe their role in addressing the food poisoning incident.

Level of authority _____

Level of authority _____

2 + 2 = 4 marks

The food manufacturing company responsible for the preparation of the semi-dried tomatoes is required to have a Hazard Analysis and Critical Control Points (HACCP) system in place.

- c. Explain how the development of an HACCP system should prevent unsafe food from reaching consumers.

2 marks

Question 4 – continued

Food can be unfit to eat as a result of either food poisoning or food spoilage.

- d.** Explain the difference between food poisoning and food spoilage.

2 marks

One of the main causes of **food poisoning** is through bacterial contamination.

- e.** Name and describe two conditions that are required for bacteria to grow and contaminate food.

Condition 1 _____

Condition 2 _____

2 + 2 = 4 marks

- f.** List **one** cause of **food spoilage** and describe the way it can cause food to spoil.

2 marks

Dehydration is one method of preserving food for future use.

- g.** Using tomatoes as your example, explain how dehydration can preserve food.

2 marks

Total 18 marks

TURN OVER

Question 5

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a. The Light & Creamy Classic Vanilla ice cream pictured above is produced by Nestlé Peters Ice Cream. Nestlé has decided to increase its range of Light & Creamy Classic ice cream.

i. Identify the type of product development that will be used by Nestlé to increase this range of ice cream.

ii. Discuss **two** advantages to Nestlé of this type of product development.

1 + 2 = 3 marks

Nestlé uses the continuous processing system to manufacture this ice cream. Vanilla ice cream can also be made in a restaurant by the batch production system. Each system will produce different quantities and outcomes.

b. Compare the continuous processing and the batch production system for making ice cream.

4 marks

Membrane technology has been used in the production of the milk for the Nestlé Light & Creamy Classic Vanilla ice cream.

- c. Describe the process of membrane technology, or another technological development you have studied this year, that is used in the manufacture of new food products. Your answer should include an example of a food produced using this technology other than ice cream.

Technological development _____

3 marks

The packaging of the product would have been a key stage in the development of Nestlé Light & Creamy Classic Vanilla ice cream.

- d. Identify and describe **two** functions of the packaging of ice cream.

Function 1 _____

Function 2 _____

2 + 2 = 4 marks

During the design of the packaging, Nestlé would have considered the impact of the packaging on the environment.

- e. Discuss **one** strategy Nestlé could use to minimise the environmental impact of the disposal of its ice cream packaging.

2 marks

Total 16 marks

Question 6

‘The global functional food market continues to develop at a fast pace with growth outstripping that of conventional foods. The Federal Government’s strict approach to health claims will, however, influence the future development of the sector, and heightens the need for the latest market information.’

Food Australia, Volume 62, Number 3, 2010

- a. Define the term ‘functional food’.

2 marks

- b. Explain the meaning of ‘health claim’.

2 marks

- c. Explain why nutrition information and messages related to nutrition are allowed to appear on food labels and most health claims are not.

2 marks

- d. Name the authority responsible for labelling regulations for food sold within Australia.

1 mark

- e. Food labelling laws require that the label on a packaged food product must include the following information.
- nutrition information
 - percentage labelling
 - best-before or use-by date
 - disclosure of major allergens
 - list of ingredients
- i. Select **two** of the above requirements and explain in detail the information that must be included on the label.
- ii. Outline **one** benefit of each of the selected labelling requirements to the consumer.

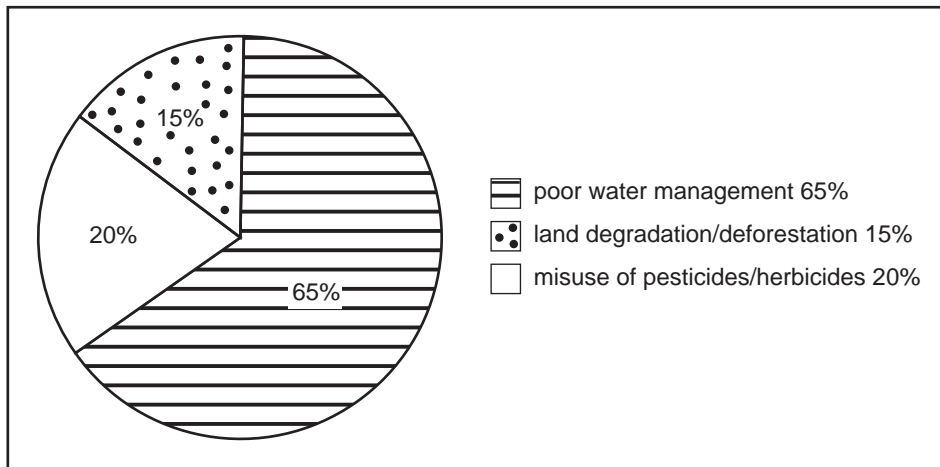
Labelling requirement	Information that must be included on the label	Benefit to consumer

2 + 2 = 4 marks

Total 11 marks

Question 7

**Consumer responses to the question:
Which environmental issue are you most concerned about?**



Select **one** of the environmental issues identified in the pie chart.

Environmental issue _____

a. Explain how the production of food can contribute to the environmental issue you have selected.

2 marks

b. Describe a strategy to address the environmental issue you have selected.

2 marks

c. Explain how the suggested strategy will provide an economic advantage to the primary producer.

2 marks

Total 6 marks