



**Victorian Certificate of Education
2013**

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STUDENT NUMBER

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FOOD AND TECHNOLOGY
Written examination

Friday 15 November 2013

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>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
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

What temperature should a freezer operate at?

- A. 8 °C
- B. 0 °C
- C. -18 °C
- D. -28 °C

Question 2

Specifications are an essential component of a design brief as they

- A. provide the guidelines within which the designer must work.
- B. may be reinterpreted by the designer to enable flexibility in the design outcome.
- C. include information about the constraints of the project but not any considerations.
- D. include information about the considerations of the project but not any constraints.

Question 3

'Food product recall' is an action taken to

- A. ensure that 'closure orders' may be enforced.
- B. identify potential food hazards in a food safety program.
- C. ensure food products are produced in a hygienic environment.
- D. remove from distribution, sale and consumption, food that may pose a health and safety risk to consumers.

Question 4

An individual production plan provides important information for the chef, including the

- A. tools, equipment, processes and ingredients required to produce the food item.
- B. research, tools, equipment, processes, ingredients and time required to produce the food item.
- C. sensory and functional properties of the food item, and the processes and ingredients required to produce the food item.
- D. sensory properties of the food item, tools, equipment, and health and safety procedures required to produce the food item.

Question 5

Marketing considerations for food products focus on the four Ps.

The four Ps of marketing are

- A. product, price, place and publicity.
- B. product, price, place and promotion.
- C. produce, price, place and promotion.
- D. produce, price, position and promotion.

Question 6

What does HACCP stand for?

- A. Hazard Analysis Critical Control Points
- B. Hazard Analysis Crucial Control Points
- C. Hazard Assessment Crucial Control Points
- D. Hazard Assessment Critical Control Points

Question 7

The main driving forces in food product development are

- A. consumer demands, new manufacturing and packaging techniques, environmental considerations and me-too products.
- B. consumer demands, technological developments, environmental considerations and marketing strategies.
- C. social pressures, consumer demands, technological developments and environmental considerations.
- D. social pressures, consumer demands, line extensions and environmental considerations.

Question 8

When a food containing protein is cooked, there is a permanent change in the structure of the protein.

This change is called

- A. syneresis.
- B. denaturation.
- C. gelatinisation.
- D. emulsification.

Question 9

A functional property of starch in food preparation is

- A. tenderising a cake mixture.
- B. retaining moisture in a cake batter.
- C. acting as a thickening agent in a sauce.
- D. providing a glossy appearance to a sauce.

Question 10

Which authority will register a food safety program and allow a business to open?

- A. a state authority
- B. a local authority
- C. a national authority
- D. Food Standards Australia New Zealand

Question 11

The structure of a cereal grain is the

- A. bran layer made up of protein, the endosperm containing starch and protein, and the germ containing vitamin C.
- B. bran layer made up of protein, the endosperm containing starch, and the germ containing protein, fats and minerals.
- C. bran layer made up of fibre, the endosperm containing starch and protein, and the germ containing protein and fibre.
- D. bran layer made up of fibre, the endosperm containing starch and protein, and the germ containing protein, fats and vitamins.

Question 12

A complex process is a

- A. process whereby the food product is produced using only handheld tools.
- B. process whereby the food product is produced using only electrical appliances.
- C. hands-on process that requires a chef to make a decision in the preparation of a recipe that will affect the outcome of the food item.
- D. production process that allows a chef to combine hands-on processes with commercial products that will affect the outcome of the food item.

Question 13

The number of functional foods that are available in Australia has increased considerably in recent years.

Functional foods include

- A. high-fibre breakfast drinks, brown rice, organic broccoli and probiotic yoghurt.
- B. breakfast cereals containing folate, reduced-fat cheese, omega-3 bread and organic apples.
- C. high-calcium milk, almonds, wholemeal pasta and table margarine made with plant sterols.
- D. low-kilojoule jam, breakfast cereals containing prebiotic barley, orange juice containing iron, and hi-maize muffins.

Question 14

Examples of high-risk foods for food poisoning include

- A. soft cheese, dried pasta, poultry and eggs.
- B. cooking oil, dried pasta, poultry and eggs.
- C. soft cheese, cooked pasta, poultry and eggs.
- D. cooking oil, cooked pasta, poultry and eggs.

Question 15

What is the difference between a target market and a niche market?

- A. A target market is a large group of consumers who share a common need, whereas a niche market is a small portion of the target market.
- B. A target market is a group of consumers who have one common need, whereas a niche market is a large group of consumers with various needs.
- C. A target market is a small group of consumers whom the company is targeting, whereas a niche market includes all of the consumers in a particular age group.
- D. A target market may be either male or female but of the same age group, whereas a niche market is a group of consumers of the same gender but of different ages.

SECTION B

Instructions for Section B

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

Question 1 (14 marks)

Milk is a staple food that is consumed in most households and it is the main ingredient in the production of all dairy products. Fresh milk is highly perishable as it provides a suitable environment for the growth of microorganisms. Milk is nutrient dense, containing protein, fats, vitamins and minerals. A range of milks is produced for consumers.

- a. Identify **two** steps in the primary production of milk. 2 marks

- b. Reduced-fat milk is produced using innovative technology. Identify and describe **one** example of innovative technology that is used to produce reduced-fat milk. 3 marks

- c. Milk is the main ingredient in cheese. A local cheese manufacturer has found that several batches of cheese have been contaminated with *Listeria*. *Listeria* is a bacterium commonly linked to food poisoning. Explain **one** cause of food poisoning other than bacterial contamination. 2 marks

- d. As a result of the *Listeria* contamination, the manufacturer has voluntarily recalled the cheese products from sale.

Describe the role of local authorities in recalling the cheese products from sale.

2 marks

- e. Cheese can be packaged using modified atmosphere packaging (MAP).

What is modified atmosphere packaging?

2 marks

- f. A range of modified atmosphere packaging systems can be used to package food.

Identify and describe **one** modified atmosphere packaging system.

3 marks

Question 2 (15 marks)

Dumplings Inc. is a manufacturer of Asian foods that is expanding its range of frozen speciality dumplings.

- a. As part of the design process, it will be necessary for Dumplings Inc. to develop a detailed design brief.

Explain the importance of a design brief as part of the design process.

2 marks

- b. The product development team at Dumplings Inc. will generate a large number of ideas for the new range of speciality dumplings.

Outline **two** ways in which ideas for the new speciality dumplings may be developed.

2 marks

- c. The new product range will include dumplings for consumers who suffer from a food intolerance.

Name **one** food intolerance that the new product range could address.

1 mark

- d. The most popular dumplings that are produced by Dumplings Inc. are the chicken and coriander dumplings. Shown below is the list of ingredients that are used to make the chicken and coriander dumplings.

INGREDIENTS: pastry (wheat flour, water, salt), chicken (29%), cabbage, carrots, oyster sauce (contains oyster extract, wheat), leeks, coriander (2%), dried milk powder, garlic, sesame oil, salt, pepper

- i. Examine the list and identify **one** ingredient that is linked to the food intolerance that you named in **part c**. 1 mark

- ii. Outline **one** way in which Dumplings Inc. could **alter** the ingredients in the chicken and coriander dumplings to address the food intolerance that you named in **part c**. 1 mark

- e. The ingredients list for the chicken and coriander dumplings states that they have a chicken content of 29 per cent.
Explain the term ‘percentage labelling’ and discuss how this labelling requirement can be beneficial to the consumer. 3 marks

f. Dumplings Inc. has imported the wrappers for its dumplings from overseas.

i. Write the full name of the statutory authority that is responsible for overseeing food imported into Australia.

1 mark

ii. Explain the role of this authority in ensuring that a safe food supply is maintained in Australia.

2 marks

g. Dumplings Inc. is required to prepare a food safety program for the production of its new range of speciality dumplings.

Describe **one** responsibility of the Victorian Department of Human Services in the establishment of a food safety program.

2 marks

Question 3 (20 marks)

Due to copyright restriction,
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Source: Deborah Gough, 'Children lured to unhealthy food', *The Age*, 26 December 2012

The Obesity Policy Coalition believes that the marketing practices outlined in the extract above are unethical.

- a. Explain why the unethical marketing of food to children, including the use of cartoon characters and giveaway toys, may be a concern to many people in the community. 3 marks

- b. Outline **two** promotional strategies, other than the use of cartoon characters and giveaway toys, that are used by food manufacturers to market their products. 2 marks

- c. Hilltop Homestead, a food manufacturer in Queensland, is planning to package fresh mango slices in a snack pack as a healthy snack food for children. The mango slices will be packaged in a pouch using the innovative technology of high-pressure processing.

i. Explain how food is packaged using high-pressure processing technology.

2 marks

ii. Identify **two** benefits to the manufacturer of packaging foods using high-pressure processing technology.

2 marks

d. As a food manufacturer, Hilltop Homestead can include either a nutrition content claim or a health claim on its new mango slices snack pack.

i. Write the full name of the authority that is responsible for regulating both nutrition content claims and health claims. 1 mark

ii. Explain the difference between a nutrition content claim and a health claim. 3 marks

e. During the production of the new mango slices snack pack, Hilltop Homestead will generate a considerable amount of food waste, such as discarded mango peelings.

i. Describe **one** environmental concern that is associated with the production of food waste by Hilltop Homestead. 2 marks

ii. Outline **one** strategy that Hilltop Homestead could implement to minimise the impact of its waste material on the environment. 1 mark

Hilltop Homestead also plans to produce a mango puree that can be swirled through their vanilla ice-cream. Below is the recipe for vanilla ice-cream.

Vanilla ice-cream

6 egg yolks
 300 g caster sugar
 500 mL milk
 1 vanilla bean, split
 500 mL cream

1. Place the milk and sugar in a saucepan. Scrape the seeds from the vanilla bean and add to the milk, then place the saucepan over a low heat. Stir occasionally and heat to simmering point.
2. Beat the egg yolks together, then slowly whisk the hot milk into the egg mixture and stir well.
3. Cook over a low heat, stirring constantly with a wooden spoon until a custard is formed.
4. Remove from the heat and strain the mixture into a clean bowl. Allow to cool. When cold, stir in the cream and churn in an ice-cream machine.

f. The preparation of ice-cream is an example of a complex process.

Select **two** steps in the recipe above for vanilla ice-cream.

- i. How can you judge when the step has been successfully completed? 2 marks
- ii. What is the impact on the sensory properties of the finished ice-cream when this step has been successfully completed? 2 marks

Step	How to judge when successfully completed	Impact on sensory properties of ice-cream when successfully completed

Question 4 (13 marks)

a. Giovanna lives in an inner-city townhouse and grows tomatoes in containers in her courtyard garden. The growing season has been very fruitful this year and she has decided to preserve some of the tomatoes for use later in the year.

i. Identify **one** preservation technique that is suitable to preserve tomatoes. 1 mark

ii. Explain how the technique preserves the tomatoes and prevents spoilage. 2 marks

iii. Describe the impact of the preservation technique on the sensory properties of the tomatoes. 2 marks

b. Giovanna has made some tomato paste using the tomatoes from her garden. She roasted the tomatoes in the oven and then pureed them in her food processor.

Outline **two** important rules for using the food processor safely. 2 marks

- c. Giovanna has decided to test the volume and viscosity of the homemade tomato paste. Identify the type of food product analysis that measures properties such as volume and viscosity. 1 mark
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- d. i. Identify **one** type of food product analysis test that Giovanna could undertake to evaluate the aroma and texture of the tomato paste. 1 mark
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- ii. Outline the type of information that this test will provide. 1 mark
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- e. The original recipe for commercial tomato paste has been adapted to include varieties such as salt-reduced tomato paste, tomato paste with added herbs, sun-dried tomato paste and tomato paste in individual serves or multi-portion packages. i. Identify this type of food product development. 1 mark
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- ii. Describe **two** benefits to the consumer of this type of food product development. 2 marks
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Question 5 (15 marks)

An organic farmer in Western Australia is suing his neighbour for alleged negligence and nuisance, claiming that genetically modified (GM) canola seed from his neighbour’s farm blew onto his land and contaminated his organic canola crop. The contamination of his crop caused the farmer to lose his status as an organic food producer.

- a. Explain the term ‘organic food production’. 2 marks

- b. Describe **one** benefit to the environment of using organic systems in food production. 2 marks

- c. Genetically modified canola is now widely grown in Australia.

- i. Explain the process that scientists would use to genetically modify cereal crops, such as canola, rice or corn. 2 marks

- ii. Select **one** of the cereals listed in **part c.i.** and outline how its characteristics have been altered through the process of genetic modification. 1 mark

cereal _____

d. Land degradation is one of the key farm management issues facing all cereal growers, including canola farmers.

i. Describe **one** way in which land can be degraded.

2 marks

ii. Outline **two** sustainable farming practices that farmers can implement to manage the type of land degradation outlined in **part d.i.**

2 marks

e. As a result of secondary processing, canola seed can be made into canola oil.

i. Identify **two** physical properties of oils.

2 marks

ii. Identify and outline **one** functional property of fats and oils in food preparation.

2 marks
