



**B O A R D O F S T U D I E S**  
NEW SOUTH WALES

**2013**

**HIGHER SCHOOL CERTIFICATE  
EXAMINATION**

# Food Technology

## General Instructions

- Reading time – 5 minutes
- Working time – 3 hours
- Write using black or blue pen  
Black pen is preferred
- Write your Centre Number and  
Student Number at the top of  
pages 9, 11, 15, 17 and 19

**Total marks – 100**

**Section I** Pages 2–6

**20 marks**

- Attempt Questions 1–20
- Allow about 35 minutes for this section

**Section II** Pages 9–19

**50 marks**

- Attempt Questions 21–27
- Allow about 1 hour and 25 minutes for this section

**Section III** Page 21

**15 marks**

- Attempt Question 28
- Allow about 30 minutes for this section

**Section IV** Page 22

**15 marks**

- Attempt Question 29
- Allow about 30 minutes for this section

## Section I

**20 marks**

**Attempt Questions 1–20**

**Allow about 35 minutes for this section**

Use the multiple-choice answer sheet for Questions 1–20.

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- 1** Which of the following products is the result of a line extension?

  - (A) Genetically modified corn
  - (B) Generic branded lemonade
  - (C) Banana flavoured instant porridge
  - (D) Rations designed for military purposes
  
- 2** Which driver of food product development has had the greatest influence on the increase in individually packaged breakfast foods?

  - (A) Cost
  - (B) Convenience
  - (C) Environmental concerns
  - (D) Single-parent households
  
- 3** Which health issue is supported by Coeliac Australia?

  - (A) Diabetes
  - (B) Colon cancer
  - (C) Gluten intolerance
  - (D) Lactose intolerance
  
- 4** A food company trials small batches of a new food product.

What type of testing is this?

  - (A) Compliance
  - (B) Feasibility
  - (C) Prototype
  - (D) Sensory

- 5** What is most likely to be prevented by thawing frozen food in the refrigerator?
- (A) Freezer burn
  - (B) Contamination
  - (C) Activation of enzymes
  - (D) Increase in microbial load
- 6** Which of the following best addresses concerns about the availability of landfill sites?
- (A) Installing solar panels
  - (B) Reducing overall packaging
  - (C) Decreasing factory emissions
  - (D) Using biodegradable packaging
- 7** What can an environmental health officer do to uphold legislative requirements for food handling?
- (A) Enter premises, collect food samples and check holding temperatures
  - (B) Close premises, check employer financial records and issue fines
  - (C) Close premises, take photographs and install vermin control
  - (D) Enter premises, survey and examine packaging
- 8** In which sector of the Australian food industry would an abattoir worker be employed?
- (A) Food retail
  - (B) Agriculture and fisheries
  - (C) Food service and catering
  - (D) Food processing/manufacturing
- 9** What is the major health concern regarding the misuse of vitamin C supplements?
- (A) Overload on kidneys
  - (B) Poor absorption
  - (C) Weight gain
  - (D) Toxicity

**10** A factory has an untrained worker operating a fish mincer.

What legislation is being breached?

- (A) *Fisheries Management Act 1994* (NSW)
- (B) *Work Health and Safety Act 2011* (NSW)
- (C) *Trade Practices Act 1974* (Commonwealth)
- (D) *Food Standards Australia New Zealand Act 1991* (Commonwealth)

**11** Kim's diet consists primarily of meat and dairy products.

From which disorder related to undernutrition is Kim most likely to suffer?

- (A) Anaemia
- (B) Constipation
- (C) Hypertension
- (D) Osteoporosis

**12** Read the following ingredient list.

Carbonated purified water, flavour, colour (caramel), food acids, sweeteners (aspartame), preservative and caffeine.

Which type of drink is this ingredient list most likely to represent?

- (A) Iced tea
- (B) Diet cola
- (C) Sports drink
- (D) Flavoured mineral water

**13** Six cans of baked beans are shrink-wrapped together.

What type of packaging is this?

- (A) Bulk
- (B) Primary
- (C) Secondary
- (D) Tertiary

**14** A limited supply of a gourmet sorbet is available in only a few retail outlets.

What type of distribution is this?

- (A) Exclusive
- (B) Intensive
- (C) Random
- (D) Selective

**15** A paper has published an unendorsed photograph of a celebrity drinking an energy drink.

What form of marketing is this?

- (A) Publicity
- (B) Advertising
- (C) Public relations
- (D) Sales promotion

**16** A diet food company uses celebrities to promote their products. Photographs of celebrities are digitally modified to make them look slimmer before publication on the company's website.

What type of issue is involved in this practice?

- (A) Ethical
- (B) Legislative
- (C) Cross-promotional
- (D) Product positioning

**17** Which of the following separation processes is used in the manufacture of pulp-free orange juice?

- (A) Sieving
- (B) Filtration
- (C) Evaporation
- (D) Sublimation

- 18** Which sector of the Australian food industry is most likely to be negatively affected by supermarket price wars?
- (A) Food retail
  - (B) Agriculture and fisheries
  - (C) Food service and catering
  - (D) Food processing/manufacturing
- 19** *Food miles* is a term which refers to the distance that food is transported from the time of its production until it reaches the consumer.
- Consumers who choose food on the basis of food miles are most likely to be concerned about which aspect of food production?
- (A) Animal welfare
  - (B) Cost-benefit ratio
  - (C) Environmental impact
  - (D) Appropriate technology
- 20** In the manufacture of bread, what must be added to wheat flour under Australian mandatory fortification standards?
- (A) Folic acid and iron
  - (B) Iodine and thiamine
  - (C) Vitamin D and calcium
  - (D) Thiamine and folic acid

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Centre Number

**Section II**

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Student Number

**50 marks**

**Attempt Questions 21–27**

**Allow about 1 hour and 25 minutes for this section**

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

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**Question 21** (11 marks)

- (a) The table shows examples of the types of processing equipment used in domestic and industrial food production systems. Complete the table by identifying appropriate examples. **3**

<i>Process</i>	<i>Domestic Equipment</i>	<i>Industrial Equipment</i>
Grinding and milling	<ul style="list-style-type: none"> <li>• .....</li> <li>• .....</li> </ul>	Roller mill Hammer mill
Heating	Oven Microwave oven	<ul style="list-style-type: none"> <li>• .....</li> <li>• .....</li> </ul>
Freezing	Chest freezer Ice-cream maker	<ul style="list-style-type: none"> <li>• .....</li> <li>• .....</li> </ul>

**Question 21 continues on page 10**

Question 21 (continued)

- (b) What are the advantages of using a fully automated production system compared to a manual system? **3**

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- (c) Explain the characteristics of equipment used in large-scale food production systems. **5**

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**End of Question 21**



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# Food Technology

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Section II (continued)

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Question 22 (9 marks)

Please turn over

**Question 22** (9 marks)

A complete meal plan for a typical day is shown.

<i>Breakfast</i>	<i>Lunch</i>	<i>Dinner</i>	<i>Snacks</i>
<ul style="list-style-type: none"><li>• rolled oats (100 g)</li><li>• whole milk (150 mL)</li><li>• glass of orange juice (200 mL)</li></ul>	<ul style="list-style-type: none"><li>• tuna, lettuce, whole egg mayonnaise in a white wrap</li><li>• soft drink (375 mL)</li><li>• apple (small)</li></ul>	<ul style="list-style-type: none"><li>• fried rice (200 g)</li><li>• soy and honey marinated chicken wings (400 g)</li><li>• frozen yoghurt (250 g)</li></ul>	<ul style="list-style-type: none"><li>• packet of crisps (100 g)</li><li>• toasted muesli bar (45 g)</li></ul>

(a) How might the production of ONE food in this meal plan affect the environment?

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**Question 22 continues on page 13**

Question 22 (continued)

(b) Explain the modifications that could be made to the meal plan to enhance the overall nutritional value for a specific group.

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Specific group chosen .....

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End of Question 22

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Section II (continued)

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Question 23 (6 marks)

- (a) Define the term *active non-nutrient*. **2**

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- (b) Discuss the role of specific active non-nutrients in the diet. **4**

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**Question 24** (6 marks)

Explain, using examples, how advisory groups have an effect on the Australian food industry.

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Section II (continued)

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Question 25 (6 marks)

- (a) Recommend a price structure that could be used to successfully market a *me-too* chicken-flavoured rice cracker. **2**

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- (b) Describe the advantages and disadvantages of developing a *me-too* food product. **4**

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**Question 26** (7 marks)

Name an organisation within the Australian food industry.

Name of organisation: .....
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(a) How does this organisation implement quality assurance? **3**

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(b) Explain how this organisation contributes to the Australian economy. **4**

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Centre Number

Section II (continued)

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**Question 27** (5 marks)

Sam’s Smoothies has decided to introduce a new range of hot drinks. The company has a reputation for quality products that are healthy and that have a minimal impact on the environment.

- (a) With reference to the company’s reputation, outline TWO product specifications for the new hot drink range. **2**

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- (b) Describe the issues to be considered when conducting a feasibility study for the new hot drink range. **3**

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## Food Technology

### Section III

**15 marks**

**Attempt Question 28**

**Allow about 30 minutes for this section**

Answer the question in a writing booklet. Extra writing booklets are available.

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#### **Question 28** (15 marks)

- |     |   |           |
|-----|---|-----------|
| (a) | Outline an emerging technology that you have investigated in ONE sector of the Australian food industry.  | <b>2</b>  |
| (b) | Describe the risks associated with using the emerging technology outlined in part (a).  | <b>3</b>  |
| (c) | Explain both the internal and external factors that affect the success of using emerging technologies in the development and production of new food products. | <b>10</b> |

**Please turn over**

## **Section IV**

**15 marks**

**Attempt Question 29**

**Allow about 30 minutes for this section**

Answer the question in a SEPARATE writing booklet. Extra writing booklets are available.

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In your answer you will be assessed on how well you:

- demonstrate knowledge and understanding relevant to the question
  - apply course concepts to food technology issues
  - communicate ideas and information using appropriate terminology and relevant examples
  - present a logical and cohesive response
- 

**Question 29** (15 marks)

Analyse the effect of food preservation processes on the health of Australians.

**End of paper**