

2011
**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, 13, 15 and 17

Total marks – 100

Section I Pages 2–6

20 marks

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

Section II Pages 9–18

50 marks

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

Section III Page 19

15 marks

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

Section IV Page 20

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.

- 1** Which of the following food products was developed to meet consumer demand for convenience foods?

 - (A) Kangaroo fillets
 - (B) Single-serve meals
 - (C) Free-range chicken
 - (D) Fibre-enriched bread

- 2** Which of the following is a key area of research and development in the food retail sector?

 - (A) Food exports
 - (B) Organic crops
 - (C) Online shopping
 - (D) Active packaging

- 3** Which of the following components of raw milk should be tested for quality when making butter?

 - (A) Calcium
 - (B) Fat
 - (C) Lactose
 - (D) Protein

- 4** Why is HACCP used in food manufacture?

 - (A) To increase food production rates
 - (B) To reduce the use of food additives
 - (C) To set fair working conditions for employees
 - (D) To identify potential hazards in food production

- 5 What is the most likely level of operation for a family-owned butcher shop that serves the local community?
- (A) Household
 - (B) Multinational
 - (C) Small business
 - (D) Large company
- 6 Which of the following best describes *functional foods*?
- (A) Foods with an extended shelf life
 - (B) Foods altered to improve processing
 - (C) Foods that have a specific role in the diet
 - (D) Foods altered to provide additional nutritional benefits
- 7 What is the most important function of market research?
- (A) To determine the break-even point
 - (B) To plan the development of production processes
 - (C) To assess consumer acceptance of a new product
 - (D) To ensure quality assurance systems are developed
- 8 Which of the following is an active non-nutrient?
- (A) Fat
 - (B) Fibre
 - (C) Protein
 - (D) Sugar
- 9 A new breed of salmon, resistant to a serious viral disease, has been developed by the addition of a gene from peanuts.

What is likely to be the major concern for consumers about this product?

- (A) Allergic reactions
- (B) Animal welfare
- (C) Increased price
- (D) Reduced yield

- 10** Which sector of the Australian food industry is most affected by salinity?
- (A) Food retail
 - (B) Agriculture and fisheries
 - (C) Food service and catering
 - (D) Food processing/manufacturing
- 11** How has the popularity of television food shows affected the Australian food industry?
- (A) Grocery sales have decreased.
 - (B) More people are eating takeaway foods.
 - (C) Imported foods have become less popular.
 - (D) Demand for exotic ingredients has increased.
- 12** Which of the following determines company profitability?
- (A) Market share
 - (B) Legislative requirements
 - (C) Consumer health concerns
 - (D) Technological developments
- 13** People opting for a vegetarian diet are at greater risk of developing which of the following?
- (A) Anaemia
 - (B) Diabetes
 - (C) Hypertension
 - (D) Gluten intolerance

- 14** Food manufacturers are most likely to use manual labour in their production systems when
- (A) small scale production runs are needed.
 - (B) there is a need to reduce operating costs in the short term.
 - (C) large volumes need to be produced in a short period of time.
 - (D) automated production systems cannot meet production requirements.
- 15** What is the first step in identifying a food intolerance?
- (A) Blood test
 - (B) Skin prick test
 - (C) Food challenge
 - (D) Elimination diet
- 16** What is the major health concern for people who take fat-soluble vitamin supplements?
- (A) Toxicity
 - (B) Weight gain
 - (C) Skin discolouration
 - (D) Poor absorption of nutrients
- 17** Which factor affects food product development in a micro-environment?
- (A) Food regulations
 - (B) Increasing numbers of multinationals
 - (C) Level of mechanisation in the company
 - (D) Consumer opposition to genetically modified food
- 18** Lactic acid bacteria are the major agent of fermentation in which food?
- (A) Wine
 - (B) Bread
 - (C) Yoghurt
 - (D) Soy sauce

- 19** Cold-pasteurised fruit juice is being produced in response to which of the following?
- (A) Dietary concerns
 - (B) Environmental issues
 - (C) A demand for convenience
 - (D) A technological development
- 20** Which method of food packaging relies on the use of water baths and vacuum sealing?
- (A) Active
 - (B) Canning
 - (C) Sous vide
 - (D) Modified atmosphere

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Section II

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50 marks

Student Number

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.

Question 21 (7 marks)

- (a) What is meant by the term *ecologically sustainable food production*? 2

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- (b) Discuss the use of genetically modified crops in food production. 5

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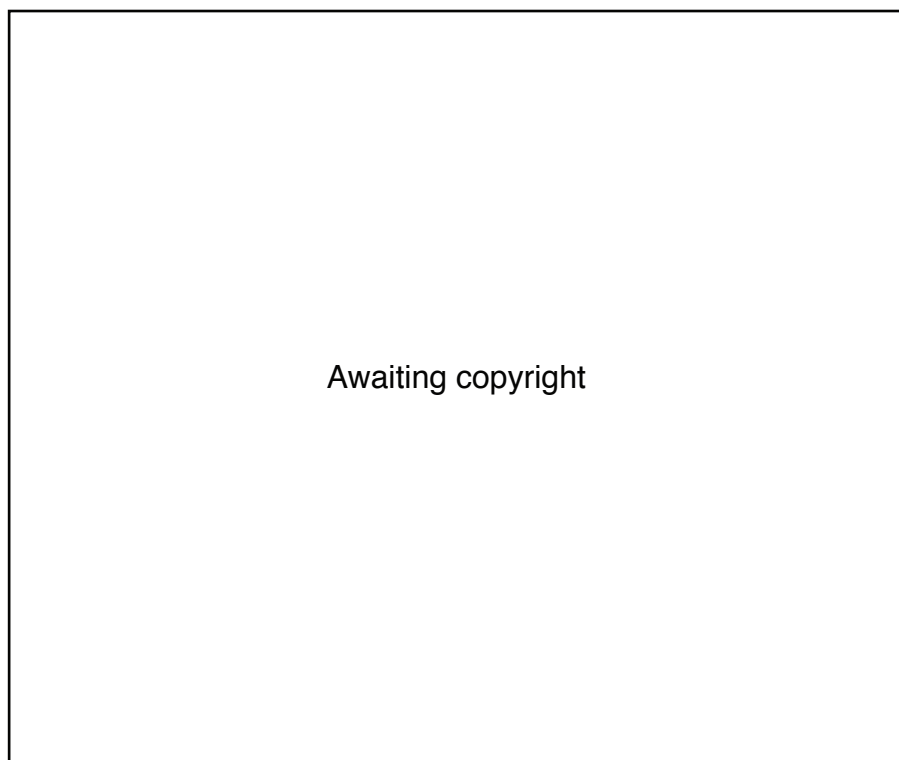
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Question 22 (4 marks)

The flowchart shows a number of processes that are involved in the production of flour from wheat.



- (a) Identify **THREE** processes from the flowchart in which the raw material, wheat, is transformed into flour. **2**

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- (b) Describe **ONE** process used to transform wheat into flour. **2**

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Section II (continued)

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Question 23 (8 marks)

Explain how government legislation and policies affect the Australian food industry.

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Question 24 (6 marks)

(a) Using an example, describe the primary function of the following additives.

(i) Emulsifiers

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(ii) Humectants

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(b) What are the advantages of using an additive code numbering system in food labelling?

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Question 25 (6 marks)

- (a) Why is it necessary to produce a prototype during the development of a food product? **2**

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- (b) How can food product prototypes be tested? **4**

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Section II (continued)

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Question 26 (9 marks)

- (a) Identify THREE external factors that affect food product development, and give a relevant example for each. 3

| <i>External factor</i> | <i>Example</i> |
|------------------------|----------------|
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Question 26 continues on page 16

Question 26 (continued)

- (b) How does the food industry adjust its pricing structures in response to changes in the economy?

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End of Question 26

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Section II (continued)

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Question 27 (10 marks)

Name a specific group in Australia whose health you have investigated.

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| Group: |
|--------------|

- (a) Identify a significant health concern for this group and explain why it is a concern. **2**

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- (b) Explain the changes to dietary intake that would address the nutritional needs of this group. **4**

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Question 27 continues on page 18

Question 27 (continued)

- (c) Propose and justify a strategy to promote optimum health through good nutrition for this group.

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End of Question 27

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.

Question 28 (15 marks)

A large fruit growing company wishes to preserve its oversupply of fruit for future use.

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|-----|--|----------|
| (a) | What are the possible causes of deterioration and spoilage in fruit? | 3 |
| (b) | Describe the legislative requirements for the labelling of a preserved fruit product. | 4 |
| (c) | Explain TWO preservation processes that could be used to extend the shelf life of the fruit. | 8 |

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.

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)

Australia's population has changed over the last fifty years. It is now older, and has undergone shifts in lifestyle and household structures. Overall, people are more aware of health and diet-related issues.

To what extent have food manufacturers and food product developers responded to these societal changes?

End of paper