

**Victorian Certificate of Education
2019**

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER Letter

FOOD STUDIES
Written examination

Monday 11 November 2019

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	12	12	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 correction fluid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer book of 21 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 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

One characteristic of organic farming is that it

- A. does not use artificial fertilisers.
- B. uses artificial pesticides and herbicides.
- C. uses feedlot animals such as cattle.
- D. can be accredited by a farmer in a short period of time.

Question 2

Which one of the following reflects the activities of a food system?

- A. affordability, transport and marketing of food
- B. food accessibility, and agricultural inputs and outputs
- C. food availability, individual accessibility and affordability
- D. production, processing, transport and consumption of food

Question 3

One role of news reportage in shaping food information is to

- A. form our food system.
- B. fund a food business started by an individual.
- C. ensure evidence-based principles are published.
- D. inform individuals about foods that have been recalled.

Question 4

Which one of the following is part of the nutritional rationale underpinning the *Australian Dietary Guidelines* (part of the 'Eat for Health' program)?

- A. Discretionary foods are essential for daily consumption.
- B. Foods are grouped based on their type and nutrient contribution.
- C. 45–60 minutes of moderate intensity physical activity should be performed daily.
- D. The recommended number of serves of each food group should be based on an individual's preferences.

Question 5

Demand for ethically sourced animal products is increasing in supermarkets and butchers.

This may be due to

- A. consumer concern regarding the welfare of producers.
- B. the packaging always being environmentally friendly.
- C. consumer education regarding primary food production.
- D. farming techniques that are adaptable to climate change.

Question 6

Once digested, proteins can be utilised by the body to

- A. add bulk to faeces.
- B. increase blood glucose levels.
- C. provide its main source of energy.
- D. assist in the creation of chemicals in the body such as hormones and enzymes.

Question 7

One way of consuming meat economically is to use tougher cuts of meat, such as shanks (shin bones).

What is the best way to cook shanks?

- A. frying
- B. stewing
- C. grilling
- D. roasting

Question 8

When assessing claims made by a weight loss company about its weight loss product, consumers should

- A. keep a food diary.
- B. trial the product for a two-week period.
- C. consider the commercial gain for the company.
- D. read the success stories of people who have used the product.

Question 9

Which statement is one of the principal recommendations of the *Australian Dietary Guidelines*?

- A. Older people should avoid physical activity.
- B. Consume fruit drinks to increase intake of vitamin C.
- C. Organic produce should be selected for added health benefits.
- D. Low-fat diets are not suitable for children under the age of two years.

Question 10

Due to copyright restrictions,
this material is not supplied.

Source: A Farmery, G O’Kane and G Hendrie,
‘Here’s the seafood Australians eat (and what we should be eating)’,
The Conversation, 4 December 2018, <<http://theconversation.com/au>>

According to the diagram above, what types of seafood provide the highest amount of nutrition and are the most sustainable?

- A. basa and tilapia
- B. sardine and mackerel
- C. mussels and anchovy
- D. salmon and mackerel

Question 11

Which one of the following gives a reason why seafood could be unsustainable?

- A. decreased consumption of seafood
- B. overfishing of some species
- C. restricted fishing practices
- D. consuming only shellfish

Question 12

Seafood provides good satiety levels because it

- A. is low in fat.
- B. is high in fibre.
- C. is high in protein.
- D. has a high glycaemic index.

Question 13

Consuming fish as part of a weekly diet can assist in the prevention of obesity and related lifestyle diseases by

- A. increasing essential fatty acids, which can reduce the risk of developing cardiovascular disease.
- B. increasing the amount of discretionary foods consumed, which can have an impact on type 2 diabetes.
- C. increasing the consumption of saturated fat, leading to changes in obesity.
- D. preventing hypertension through the consumption of simple sugars.

Question 14

Why are the evidence-based principles of the *Australian Dietary Guidelines* the best available information to assist with planning daily food intake?

- A. They are supported by evidence statements that are graded according to standard National Health and Medical Research Council (NHMRC) protocols.
- B. They have completed rigorous product evaluations to determine beneficial brands.
- C. They are supported by peer-reviewed studies on physical activity requirements.
- D. They were aided by nutrient supplement companies.

Question 15

Due to copyright restrictions,
this material is not supplied.

Source: Dan Thompson, 'Brevity' comic strip, Andrews McMeel Syndication,
31 August 2015

'55 million coffee pods get thrown away every single day. Let's all stick to the coffee plunger instead.'

A coffee pod is a single serve of coffee in a single plastic and aluminium package.

What message do the cartoon and statement above send about making sustainable choices as consumers to reduce our environmental impact?

- A. Always use a re-usable cup.
- B. All products produce significant food waste and therefore we should stop drinking coffee.
- C. All convenience products must be sustainable to reduce the environmental impact of food consumption.
- D. Consumers need to make informed decisions about the products they use and consider the waste that is produced.

**END OF SECTION A
TURN OVER**

SECTION B**Instructions for Section B**

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

Question 1 (14 marks)**Record of a practical activity**

Five grams of four different types of flours were cooked for two minutes in 50 mL of water. The resulting mixtures were tipped onto different plates of the same type and temperature to cool. The diameter of each of the cooled mixtures was measured at its widest point. The results are provided in Table 1.

Table 1

Type of flour	Diameter (mm) of flour after cooling (spread)	Contains gluten
wheat	94	✓
cornflour (wheaten)	85	✓
quinoa	70	✗
rice	52	✗

- a. Using the data in Table 1, identify and describe **one** physical change that would be observed when flour is cooked in water.

3 marks

- b.** Identify and describe the chemical change that occurs when flour is cooked in water. 4 marks

- c.** Using the data in Table 1, select a flour that would be a suitable substitute for wheat flour in a sauce for someone with a gluten intolerance. Justify your selection and explain how you would modify the quantity of the ingredients to create a sauce with similar functional properties. 3 marks

Flour _____

Justification and explanation _____

- d.** All food products containing gluten must be labelled 'contains gluten'.
State **two** other compulsory components of a food label. 2 marks

- e.** Describe the purpose of a food label. 2 marks

Question 2 (8 marks)

‘By 2050 the world’s population will likely increase by about 35 per cent.’

Source: J Foley, ‘Feeding Nine Billion’, *National Geographic*, vol. 225, no. 5, May 2014

- a. Suggest two reasons why crop production may be a better solution than animal production to feed a growing population. 4 marks

Reason 1 _____

Reason 2 _____

- b. Identify one example of a technology that could be used to potentially improve crop production and explain how this technology may have a positive impact on crop production, providing increased food security to the world’s growing population. 4 marks

Technology _____

Explanation _____

Question 3 (3 marks)

The *Australian Dietary Guidelines* recommend that adults should consume two serves of fruit per day and five-to-six serves of vegetables (five-to-six serves for men depending on age, and five serves for women).

Data: National Health and Medical Research Council, *Australian Dietary Guidelines Summary*, National Health and Medical Research Council, Canberra, 2013, pp. 15 and 17

Using the nutritional rationale, explain **one** reason for the difference in the recommended number of serves of fruit compared to vegetables, as outlined in the *Australian Dietary Guidelines* (part of the 'Eat for Health' program).

Question 4 (9 marks)

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is an independent federal government agency responsible for scientific research.

The CSIRO has discovered a variety of rice which has a very thick outer layer. Usually when wholemeal rice is ‘polished’ to make white rice, a large proportion of the nutrients, including fibre, is stripped from the grain, making it much less nutritious. This new variety of rice can still be polished and retain higher levels of nutrients that are ordinarily removed in the polishing process. This breakthrough means that it may be possible to get all the nutritional value and gut-health-promoting fibre of wholegrain rice (and other cereals) from varieties we prefer to eat.

Thankfully, the demand for healthier varieties of rice has been on the rise in recent years, and that’s where the CSIRO’s innovation comes in. This new innovation has been successfully tested by breeders in China in red- and black-grained rice varieties which are increasingly popular as wholegrain foods in China.

With our newfound understanding of the gene that makes more of the healthy outer layer, the CSIRO is teaming up with the Chinese Academy of Sciences and the Chinese Academy of Agricultural Sciences to see if we can use that knowledge to create healthier wheat, barley and sorghum. We’re also working with our friends at the University of Melbourne to further increase the nutritional content of our rice-based culinary creations.

Australia’s obsession with rice isn’t going anywhere, but unfortunately, our waistlines are, and too much white rice isn’t helping.

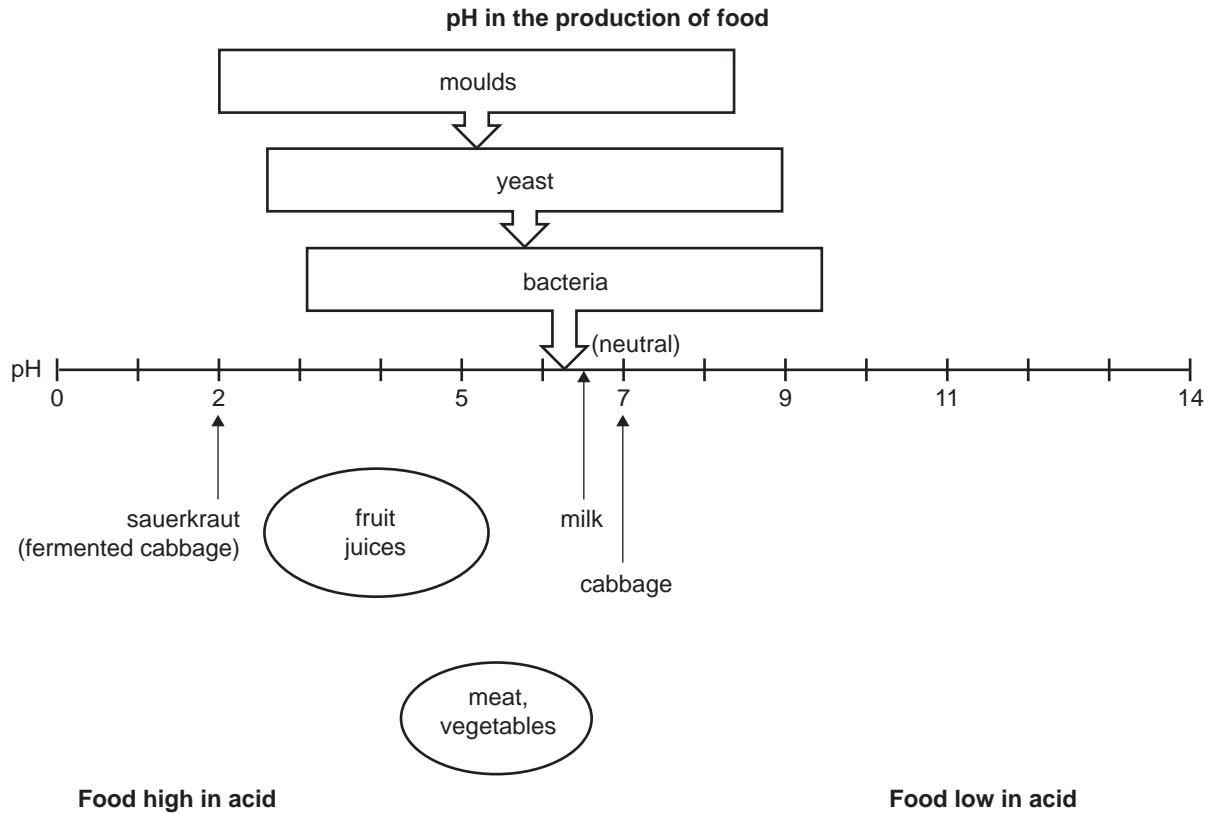
Sources: adapted from E Keck, ‘Healthier rice is extra nice’, CSIROscope, 16 October 2018, <<https://blog.csiro.au>> and

‘Rice with benefits: CSIRO brings the rice we like with the healthy bits we need’, Australian Food News, 17 October 2018, <www.ausfoodnews.com.au/>

- a. Identify **one** social factor and outline how it could contribute to an individual choosing white rice instead of wholemeal rice.

3 marks

Question 5 (4 marks)



Source: adapted from Dairy Processing Handbook, Tetra Pak International SA,
<<https://dairyprocessinghandbook.com>>

a. Using the diagram above, explain how the pH of food has an impact on the growth of microorganisms, such as moulds, yeast and bacteria.

3 marks

b. The main ingredient in sauerkraut is cabbage. Sauerkraut is produced through the process of pickling called lactic acid fermentation.

Using the diagram above, state the chemical change that occurs during this fermentation process.

1 mark

Question 6 (3 marks)

a. Describe the purpose of a high-level health claim.

2 marks

b. Provide **one** example of a high-level health claim.

1 mark

Question 7 (11 marks)

The use of online food delivery apps is increasing in popularity. These apps allow consumers to order food from a wide range of restaurants using their mobile phone, computer or tablet. Upon ordering, the selected menu items will be delivered straight to the consumer’s door. In 2017, there were 68 million online food orders placed in Australia.

a. Select one social factor from the list below and describe how this social factor could influence an individual to use an online food delivery app:

- location
- income
- accommodation

3 marks

Social factor _____

Description _____

b. Describe **one** possible link between the use of online food delivery apps and sedentary behaviour.

2 marks

c. Describe how the increased use of online food delivery apps may influence social connectedness.

2 marks

- d. An online food delivery company has reported that pizza has been the most ordered food product online for the last 12 years. In 2017, four million pizzas were ordered using its online food delivery app, with pizza margherita being the most popular pizza. Shown below is the list of ingredients that are used to make a standard pizza margherita.

Ingredients: pizza base (wheat flour, water, vegetable oil, yeast, sugar, salt), mozzarella cheese, pizza sauce (tomato paste, water, dried oregano), basil

Assess the nutritional quality of the pizza margherita for the population group of adolescents aged 14–18 with reference to the ‘Australian Guide to Healthy Eating’ (part of the ‘Eat for Health’ program).

4 marks

Question 8 (6 marks)

'Low-impact farming is the most sustainable choice for primary food production.'

Analyse this statement.

Question 9 (7 marks)

a. Explain the difference between biodiversity and biosecurity.

4 marks

b. Identify and describe **one** biosecurity risk to primary food production.

3 marks

Question 10 (6 marks)



Source: Danielle Nierenberg on Twitter

- a. Using the idea in the image above, suggest how educating children on growing their own food may contribute to a pathway in achieving global food security. 3 marks

- b. Name one key behavioural principle for the establishment of healthy diets and explain how it could be used to assist in establishing healthy meal patterns in families. 3 marks

Key behavioural principle _____

Explanation _____

Question 11 (4 marks)

Care and consideration must be given to a woman's diet during pregnancy, including the consumption of additional foods to meet the needs of the unborn child (foetus). The *Australian Dietary Guidelines* recommend the following minimum number of serves of each listed food group per day for non-pregnant and pregnant women.

Food group		Serves for women aged 19–50 years	Serves for pregnant women aged 19–50 years
1	grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties	6	8.5
2	lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans	2.5	3.5

Data: National Health and Medical Research Council, *Australian Dietary Guidelines*, National Health and Medical Research Council, Canberra, 2013, pp. 47 and 53

For each food group listed in the table above, explain **one** biological reason why an increased intake is required during pregnancy.

Food group 1 _____

Food group 2 _____

Question 12 (10 marks)

Social media platforms can play a major role in shaping food information and food choices. Social media platforms can allow users to upload photos and videos as well as view and follow other users' content. People on these platforms who have a large number of followers are known as social media influencers. These recognised influencers may promote restrictive diets and nutritional advice to thousands of followers, without any nutritional qualifications. One of the latest food fads is the Low Carbohydrate High Fat (LCHF) diet, which promotes the severe restriction of carbohydrate-based foods, including grains, high-fibre fruit and starchy vegetables.

The social media posts below show two examples of social media influencers promoting the restrictive LCHF diet to their large supporter base.



Explain the issues surrounding the LCHF diet. In your response, include the following:

- how contemporary contexts, such as social media, influence the shaping and expression of an individual's identity and connectedness
- the link between food, behaviours and effects on emotional and psychological health
- the nutritional efficacy of this contemporary food fad
