

**Victorian Certificate of Education
2020**

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER Letter

FOOD STUDIES
Written examination

Thursday 26 November 2020

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	11	11	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 26 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.

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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

Criteria used when assessing the validity of claims made by weight-loss and nutrient supplement companies include

- A. endorsements from celebrity chefs.
- B. testimonials from satisfied customers.
- C. commercial gain, ethics and the effectiveness of the product.
- D. how many likes or followers a product attracts on social media.

Question 2

One practical eating behaviour an individual can use to avoid overconsumption of food is

- A. eating evening meals from takeaway restaurants.
- B. snacking on biscuits and cheese throughout the day.
- C. planning and preparing meals to meet dietary requirements.
- D. eating savoury snacks while watching videos on their computer.

Question 3

An example of the key behavioural principle of repetition to establish healthy diets in children is

- A. offering the same food on multiple occasions.
- B. using dessert as a reward for eating vegetables.
- C. school canteens surveying parents about what food they should sell.
- D. parents serving separate meals for their children that align with the 'Australian Guide to Healthy Eating' (part of the 'Eat for Health' program).

Question 4

The production and consumption of high-protein edible insects has been proposed as one option to meet food security needs for a growing global population.

The best reason to support the viable commercial production of edible insects in Australia is that

- A. everyone has insects at home in their gardens.
- B. vegetarians would support insect consumption.
- C. people would replace meat for insects in their diet.
- D. it might create innovative opportunities for the food industry.

Question 5

When a steak is grilled, it changes colour.

This is due to

- A. gelatinisation.
- B. dextrinisation.
- C. mechanical action.
- D. the Maillard reaction.

Question 6

The principle of heat transfer in the grilling of a steak on a barbecue is

- A. radiation.
- B. convection.
- C. conduction.
- D. microwave.

Question 7

Which one of the following statements aligns with recommendations from the *Australian Dietary Guidelines* (part of the 'Eat for Health' program) to assist in the prevention of obesity and related lifestyle diseases?

- A. A vegan diet is the only diet that will prevent obesity.
- B. Enjoy a variety of nutritious foods from each of the five food groups.
- C. All foods containing saturated fat, added salt and added sugars should be removed from the diet.
- D. A high-protein, low-carbohydrate diet should be encouraged for children in order to establish healthy eating habits.

Question 8

Which one of the following statements best describes why discretionary foods can play a social role for individuals?

- A. Discretionary foods are often shared at celebrations.
- B. A lot of money is spent marketing discretionary foods.
- C. Discretionary foods are often high in sugar, fat and salt.
- D. Discretionary foods are often linked to lifestyle diseases.

Question 9

Australia's Sustainable Seafood Guide has been developed to help Australian consumers make decisions about the seafood they buy.

Which one of the following is an example of an ethical decision at the time of purchase?

- A. only buying fresh fish
- B. only buying tuna when it is on sale
- C. buying prawns on summer holidays
- D. refusing to buy endangered deep-sea fish

Question 10

According to the Commonwealth Scientific and Industrial Research Organisation (CSIRO), a current food trend is the domestic purchase and consumption of plant-based protein alternative foods. This trend is set to reach \$4.1 billion by 2030, up from \$2.2 billion in 2018.

This expanding market could be due to

- A. the promotion of plant-based protein alternative foods by organisations advocating meat consumption.
- B. health-conscious consumers wanting to reduce their sugar intake.
- C. consumer concern for animal welfare and the environment.
- D. the zero waste food trend.

Question 11

Abdominal pain, breathing difficulties and swelling of the tongue are all symptoms of

- A. a diet-related disease.
- B. a food intolerance.
- C. loss of appetite.
- D. a food allergy.

Question 12

Lemon juice is an acid frequently used in meat marinades to

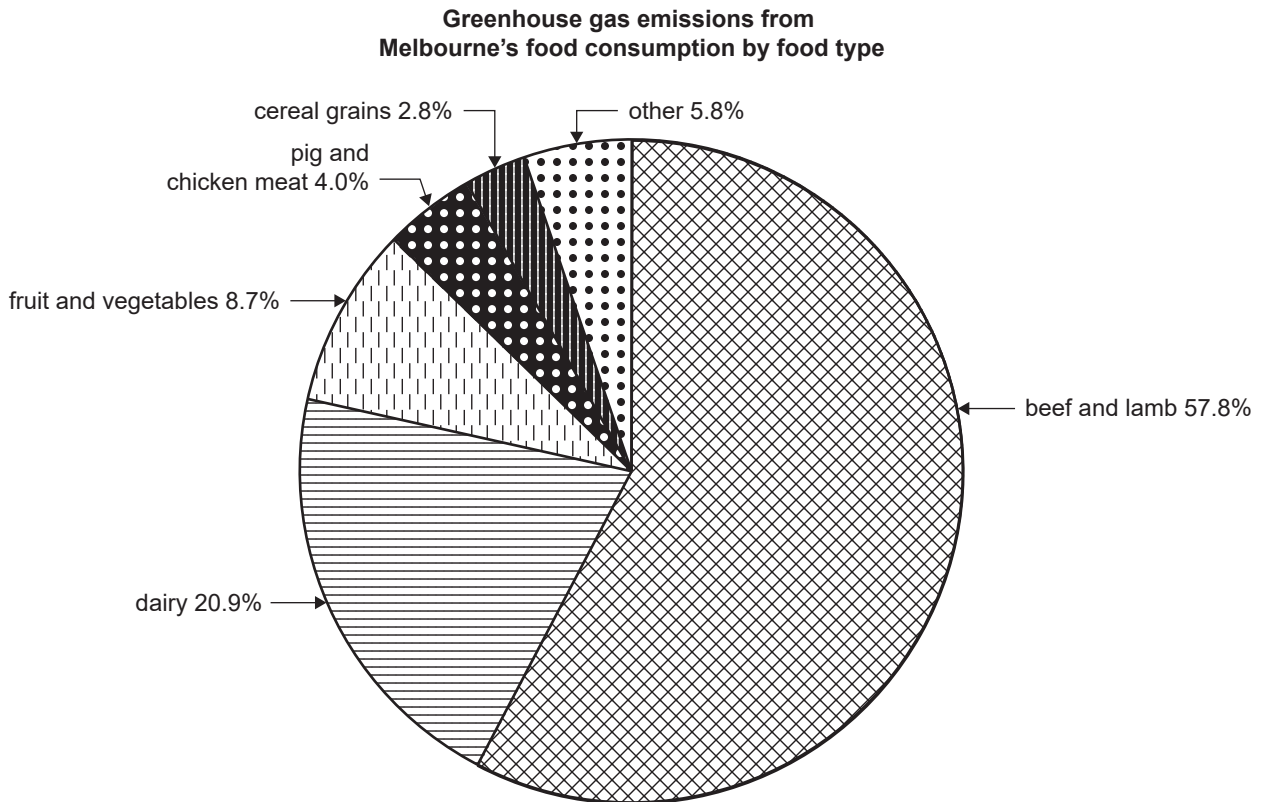
- A. increase the pH of the meat.
- B. tenderise and flavour the meat.
- C. reduce moisture loss from the meat.
- D. reduce the fat content of the meat.

Question 13

It is important to analyse the nutritional efficacy of contemporary food fads because many of these fads

- A. omit key food groups.
- B. support sedentary behaviour.
- C. provide quick and easy breakfast ideas.
- D. align with the recommendations made in the *Australian Dietary Guidelines*.

Use the following information to answer Questions 14 and 15.



Source: adapted from J Sheridan, R Carey and S Candy, *Melbourne's Foodprint: What does it take to feed a city?*, Victorian Eco-Innovation Lab, The University of Melbourne, Melbourne, 2016, p. 18

Question 14

According to the diagram above, which food type is responsible for the highest greenhouse gas emissions from Melbourne's food consumption?

- A. pig and chicken meat
- B. beef and lamb
- C. cereal grains
- D. dairy

Question 15

Based on the diagram above, what is the best way to reduce these greenhouse gas emissions?

- A. purchase food from local suppliers
- B. reduce cereal grain consumption
- C. reduce red meat consumption
- D. reduce fruit consumption

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SECTION B

Instructions for Section B

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

Question 1 (8 marks)

Growing and giving: Community food sharing
 Grow Free is a grassroots movement [...] operating in New Zealand and the USA.

Due to copyright restrictions,
 this material is not supplied.

Source: Yasmin Noone, 'These food movements are trying to change the way we eat', SBS Food, 4 September 2019, <www.sbs.com.au>

- a.** Identify and explain two social factors that could contribute to the success of the Grow Free movement for communities. 6 marks

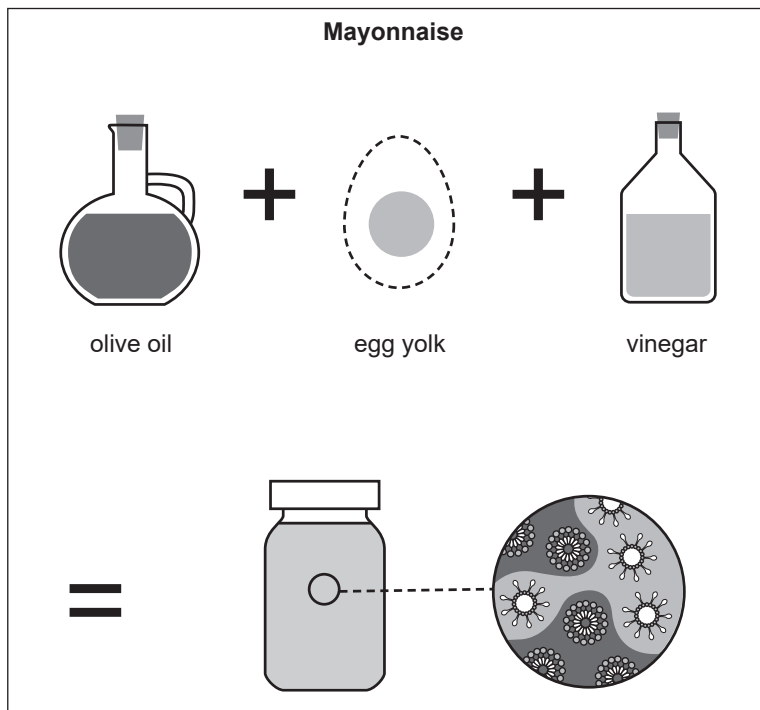
Social factor 1 _____

Social factor 2 _____

- b.** Outline how the Grow Free movement could promote connectedness and the sharing of food within communities. 2 marks

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Question 2 (10 marks)



Source: adapted from Iona Urma, <<https://ionacolor.com>>

a. State the name of the chemical change shown in the diagram above. 1 mark

b. Using the information in the diagram above, describe how this chemical change occurs. 3 marks

c. Suggest why this mayonnaise could be consumed on a daily basis. 2 marks

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The egg white that is left over when making mayonnaise can be whipped to be used in another food product rather than being discarded.

- d. Describe **one** physical change to the egg white when it is whipped. 2 marks

- e. After whipping, the egg white is then cooked in a food product.
Describe **one** chemical change to the egg white when it is cooked. 2 marks

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Question 3 (8 marks)



Source: SunRice, <www.sunrice.com.au>

- a. Identify **one** compulsory component shown on the food label above and describe the purpose of this component. 3 marks

- b. Provide **one** example of optional information that could be included on a food label and describe the purpose of this information. 3 marks

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- c. Suggest **one** reason why accurate labelling information must reflect ethical principles. 2 marks

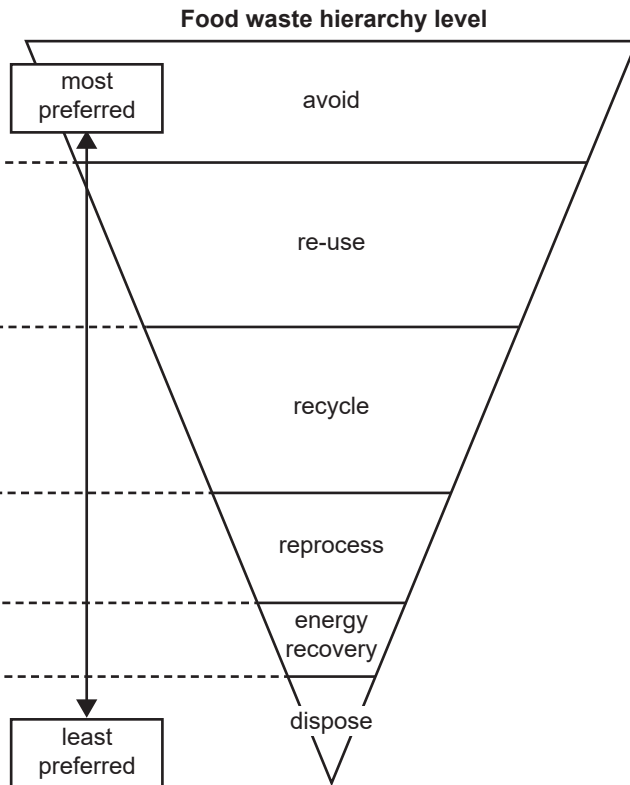
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Question 4 (8 marks)

The food waste hierarchy model below includes examples of activities that help guide the food industry, commercial operators and consumers to reduce their food waste.

Examples

- education campaigns
 - research and development to support more efficient production methods
 - packaging initiatives to improve shelf life
-
- food rescue donations
 - repurposing imperfect food
 - repurposing without processing for animal feed
-
- composting
 - soil conditioners
 - worm farms
 - biotechnology solutions for animal feed
-
- conversion to pharmaceuticals and nutraceuticals
 - conversion to cosmetic products
-
- incineration and anaerobic digestion for energy recovery
-
- landfill
 - incineration for non-energy recovery
 - food waste going to sewer



Source: adapted from Australian Government, *National Food Waste Strategy: Halving Australia's Food Waste by 2030*, Commonwealth of Australia, 2017, p. 16

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For each suggested action in the table below, select the correct level of waste hierarchy by referring to the food waste hierarchy model on page 12. State how the action has an impact on food waste and/or the environment.

Suggested action	Waste hierarchy level	How the action has an impact on food waste and/or the environment
Supermarkets make coleslaw salad out of oddly shaped vegetables.	<i>re-use</i>	<i>finds a purpose for vegetables that would otherwise be thrown out</i>
Supermarkets put excess food that is past its 'best before' date into the rubbish bins.		
Controlled use of waste-to-energy incinerators generates heat that is used for heating buildings.		
Families put their vegetable scraps in compost bins.		
Advertising campaigns promote the use of food already in the fridge.		

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Question 5 (6 marks)

Kate, a university lecturer, is currently researching how popular Facebook pages provide online nutrition and diet information. She is looking at whether the advice on these Facebook pages is consistent with the *Australian Dietary Guidelines* (part of the ‘Eat for Health’ program). Kate is finding that many of these Facebook pages use celebrities to promote their advice.

- a. Identify two principles of research used in the development of the *Australian Dietary Guidelines*. How could each principle of research be used by Kate to assess the nutrition and diet information found on the Facebook pages?

4 marks

Principle of research	How the principle of research can be used to assess the nutrition and diet information found on the Facebook pages

- b. One criterion used to assess the validity of food information is purpose.

What is the purpose of Kate’s research?

2 marks

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Question 6 (6 marks)

‘Primary food production must address the risks associated with climate change, and the only solution is genetic modification.’

Analyse this statement.

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Question 7 (9 marks)



Sources (from left): Australian Citrus, <www.facebook.com/australiancitrus>; Aussie Mandarins, <www.facebook.com/AussieMandarins>

- a. Analyse how marketing and advertising are used to influence parents' food choices for their children in the Aussie mandarins advertisements above.

5 marks

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- b. Suggest how the key behavioural principle of modelling can increase the consumption of Aussie mandarins by children. 2 marks

- c. Outline **one** psychological response that the advertisement(s) suggests parents experience when their children eat Aussie mandarins. 2 marks

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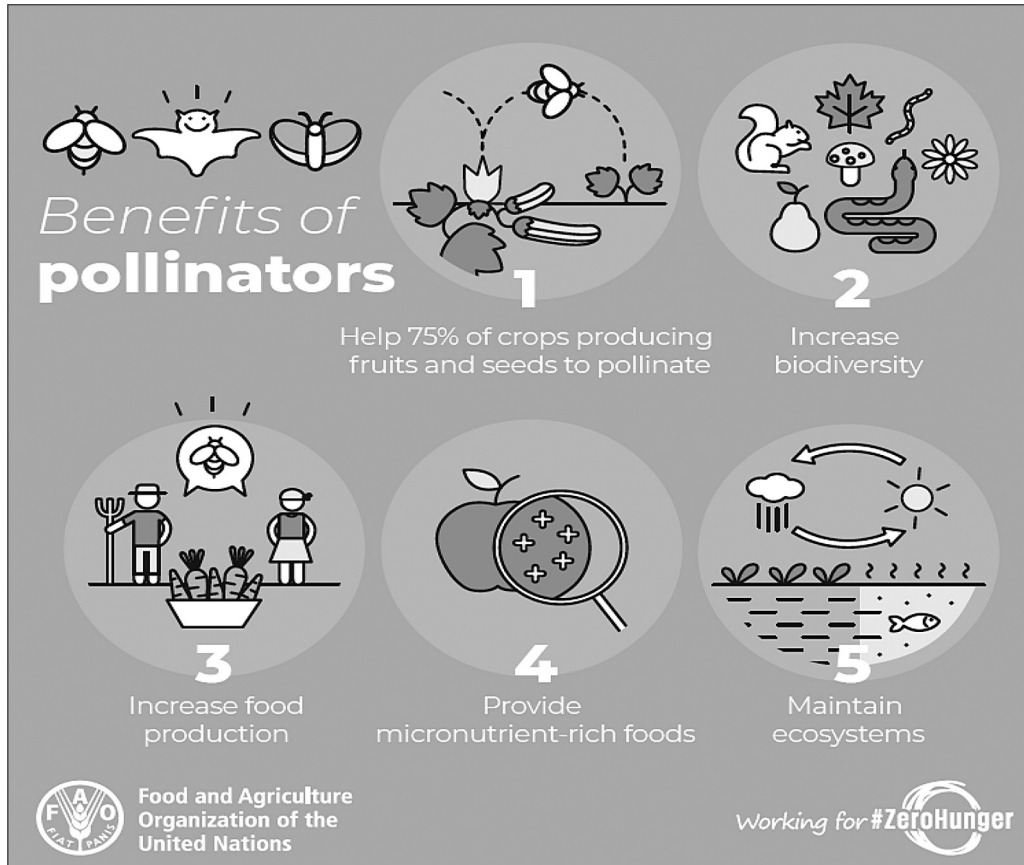
Question 8 (7 marks)

‘The Food and Agriculture Organisation of the United Nations (FAO) estimates that out of some 100 crop species which provide 90 per cent of food worldwide, 71 of these are bee-pollinated.’

Source: United Nations Environment Programme, *UNEP Emerging Issues: Global Honey Bee Colony Disorders and Other Threats to Insect Pollinators*, 2010, p. 1

Over the last few years, there has been increasing concern about the possibility of a ‘pollination crisis’, linked to a global decline in bee populations, which may lead to a decline in global food security.

Pollination is the transfer of pollen from one part of a flower to another, resulting in plant fertilisation. One method of pollination is the transfer of pollen from flower to flower by pollinators. Pollinators include bees, butterflies and bats.



Source: Food and Agriculture Organization of the United Nations, <www.fao.org>

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- a. i. Other than climate change, state **one** issue that might be contributing to a possible 'pollination crisis'. 1 mark

- ii. Describe how the issue stated in **part a.i.** might lead to a 'pollination crisis' in Australia. 2 marks

- b. Choose two benefits of pollinators from the infographic on page 18 and write their numbers in the spaces provided in the table below. How could each benefit help to achieve global food security? 4 marks

Benefit number	How this benefit could help achieve global food security

Question 9 (4 marks)

Deakin’s healthy vending machines tackle bad snacking habits

Deakin students will soon have more healthy food options on campus, with the University this month installing new health-conscious food and drink vending machines.

...

‘We haven’t done away with products such as soft drinks, chips and chocolate bars entirely, though they will now be stocked in reduced quantities and given less prominent placing ...’

Source: ‘Deakin’s healthy vending machines tackle bad snacking habits’, media release, Deakin University, 17 December 2018

- a. Suggest **one** reason why access to the new vending machines could change the food purchasing and consumption behaviours of Deakin University students in a positive way. 2 marks

- b. Suggest **one** reason why access to the new vending machines may not change the food purchasing and consumption behaviours of Deakin University students. 2 marks

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SECTION B – continued
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Question 10 (9 marks)**Milk drink packaging uses augmented reality**

[Food company] Yili Weikezi has developed packaging that uses augmented reality (AR)¹. Packaged in 240 mL boxes, the company's milk drinks feature the voiceprint² of singer Han Lu. When consumers scan the voiceprint with a smartphone app, they will be presented with a different audio message for each of the four flavours – coffee, strawberry, banana and chocolate.

Source: 'Milk drink packaging uses augmented reality', *What's New in Food Technology and Manufacturing*, Wahroonga (NSW), May/June 2018, p. 78

¹**augmented reality (AR)** – a type of technology that places a computer-generated image or audio on a user's view of the world

²**voiceprint** – a printed pattern that contains information that can be read by a camera on a smartphone

- a. Outline how receiving food information through AR could influence the way consumers purchase this milk.

2 marks

- b. Explain how having AR on milk packaging could be used to improve the food safety of milk for consumers.

3 marks

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The *Australian Dietary Guidelines* provide recommendations for the number of serves of each food group that should be consumed daily. The following table shows the minimum number of serves per day of the ‘milk, yoghurt, cheese and/or their alternatives’ food group.

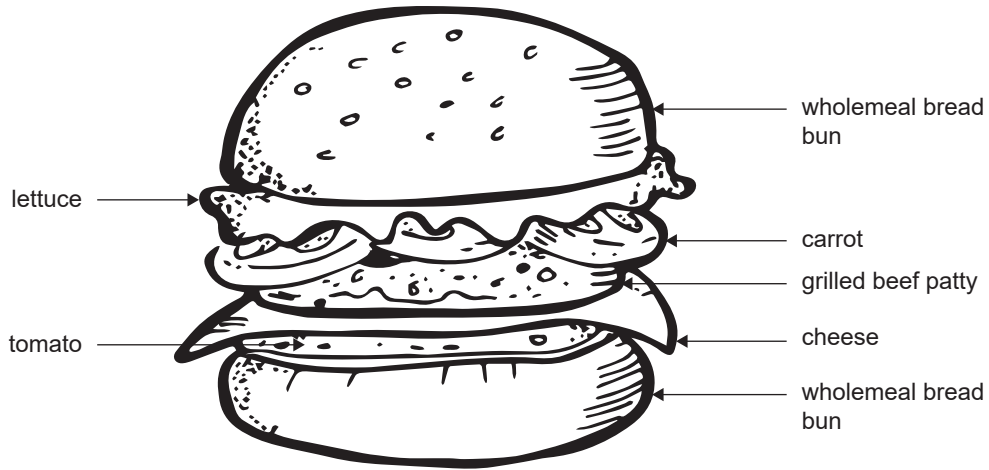
Sex and age (years)	Minimum number of serves per day
boys and girls, 14–18	3.5
men and women, 19–50	2.5
women, 51+	4

Data: National Health and Medical Research Council, *Australian Dietary Guidelines*, National Health and Medical Research Council, Canberra, 2013, p. 59

- c. Provide **one** biological reason why boys and girls aged 14–18 years require more serves of this food group than men and women aged 19–50 years. 2 marks

- d. Why do women aged 51 years and older require more serves of this food group than men and women aged 19–50 years? 2 marks

Question 11 (10 marks)



Explain the physiological processes of eating and digesting the macronutrients of the ingredients in this healthy homemade hamburger. In your response, include the following:

- sensory appreciation of this hamburger
- this hamburger’s contribution to satiety
- process of eating this hamburger
- digestion of the macronutrients in this hamburger

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