LUI										School code		
Schoo	ol nam	e										
Given name/s								Attach your				
Famil	y nam	ie							barcode ID label here			
Exte	rnal	asse	ssme	nt 20	)22					Book of books used		
										<b>Question and response book</b>		

# **Food & Nutrition**

#### Time allowed

- Perusal time 10 minutes
- Working time 120 minutes

#### **General instructions**

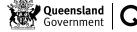
- Answer all questions in this question and response book.
- Write using black or blue pen.
- Respond in paragraphs consisting of full sentences.
- Planning paper will not be marked.

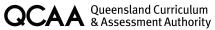
#### Section 1 (25 marks)

• 4 short response questions

#### Section 2 (41 marks)

• 1 extended response question





# DO NOT WRITE ON THIS PAGE THIS PAGE WILL NOT BE MARKED

## **Section 1**

#### **Instructions**

- If you need more space for a response, use the additional pages at the back of this book.
  - On the additional pages, write the question number you are responding to.
  - Cancel any incorrect response by ruling a single diagonal line through your work.
  - Write the page number of your alternative/additional response, i.e. See page ...
  - If you do not do this, your original response will be marked.
- This section has four questions and is worth 25 marks.

## **QUESTION 1 (4 marks)**

a) Define the term food formulation.	[1 mark]
Explain how and why a formulation would be reformulated.	[3 marks <sub>]</sub>

## QUESTION 2 (5 marks)

Read the case study.

**Case study:** A consumer bought a pre-prepared meal from a supermarket, reheated it at home and ate it. Soon after, they reported the following symptoms: dizziness, an itchy throat and swelling of the face and lips. The ingredients in the meal were listed as coconut milk, prawns, fish stock, lemon juice, onion, garlic, peanuts, cashews, broccoli, wheat flour and olive oil.

a)	Identify four allergens in the formulation that could have caused the symptoms reported.	[2 marks]
b)	Explain the responsibility of the food manufacturer and the responsibility of the	
	consumer in this situation.	[2 marks]
Fo	od manufacturer's responsibility:	
Foo	od consumer's responsibility:	

#### QUESTION 3 (9 marks)

The ingredient lists and nutrition information panels for four food prototypes suitable for an infant (12 months of age or younger) are shown.

#### Bacon and egg muffins

**Ingredients:** Egg, bacon, cheese, milk, mushrooms, broccoli, baby spinach

#### **Nutrition information**

Servings per package: 6 Serving size: 120 g

	•	· · ·
	Average	Average
	quantity	quantity
	per serving	per 100 g
Energy	699 kJ	583 kJ
Protein	15.4 g	12.8 g
Fat, total	11.2 g	9.3 g
<ul><li>saturated</li></ul>	5.0 g	4.2 g
Carbohydrate	1.0 g	0.8 g
– sugars	0.9 g	0.8 g
Dietary fibre	3.2 g	2.7 g
Sodium	568 mg	473 mg
Calcium	136 mg	113 mg

#### Mild curried meatballs

**Ingredients:** Potato, carrot, peas, curry powder, baby spinach, parsley, tomato sauce, egg, beef mince

#### **Nutrition information**

Servings per package: 15 Serving size: 120 g

	Average	Average
	quantity	quantity
	per serving	per 100 g
Energy	1990 kJ	1660 kJ
Protein	13.3 g	11.1 g
Fat, total	26.2 g	21.8 g
<ul><li>saturated</li></ul>	10.7 g	8.9 g
Carbohydrate	45.0 g	37.5 g
– sugars	8.2 g	6.8 g
Dietary fibre	1.5 g	1.3 g
Sodium	375 mg	313 mg
Calcium	7.7 mg	6.4 mg

#### **Tuna patties**

**Ingredients:** Tuna, breadcrumbs, wholemeal flour, sweet potato, parmesan, egg, garlic, milk, parsley

#### **Nutrition information**

Servings per package: 5 Serving size: 120 g

	Average	Average
	quantity	quantity
	per serving	per 100 g
Energy	681 kJ	568 kJ
Protein	11.6 g	9.7 g
Fat, total	2.9 g	2.4 g
<ul><li>saturated</li></ul>	1.2 g	1.0 g
Carbohydrate	20.8 g	17.3 g
– sugars	4.8 g	4.0 g
Dietary fibre	0.8 g	0.7 g
Sodium	255 mg	213 mg
Calcium	97 mg	81 mg

#### Mini zucchini frittatas

**Ingredients:** Zucchini, tomatoes, egg, sweet potato, onion, low-salt feta, tomato paste, basil, baby spinach, maple syrup, olive oil

#### **Nutrition information**

Servings per package: 10 Serving size: 120 g

	Average	Average
	quantity	quantity
	per serving	per 100 g
Energy	575 kJ	479 kJ
Protein	6.3 g	5.3 g
Fat, total  – saturated	6.2 g 2.3 g	5.2 g 1.9 g
Carbohydrate – sugars	25.9 g 12.4 g	21.6 g 10.3 g
Dietary fibre	4.4 g	3.7 g
Sodium	138 mg	115 mg
Calcium	92 mg	77 mg

a)	Using each prototype only once, determine their category.	[2 marks
Hig	h in fat:	
Hig	h in sugar:	
Hig	h in salt:	
Low	v in fibre:	
b)	Decide which prototype would be the best option to feed an infant. Justify your answer using data in the nutrition information panels.	[3 marks
	changes you could make to the formulation to better meet the needs of the infant nutrition consumer market. Justify each change with data from the nutrition information panels.	[4 marks

#### QUESTION 4 (7 marks)

A health food company has formulated a new frozen prototype to suit the nutrition needs for a consumer experiencing chronic heart disease. The food formulation and nutrition information are shown.

## Frozen chicken burritos **Food components** 10 g cumin 10 g smoked paprika 10 g ground coriander 300 g chicken thighs 40 mL coconut oil 225 g brown onion, diced 2 garlic cloves, diced 150 g kidney beans, drained 200 g white rice, cooked 150 g tomatoes, diced 100 g fresh coriander, washed, dried, leaves and stems chopped 40 mL lime juice 150 g cheddar cheese, grated 4 flour tortillas Sour cream, to serve

#### **Procedure**

- 1. Place spices in a bowl and combine thoroughly. Rub mixture onto chicken thighs. Heat half the oil in a frying pan. Cook the chicken, allow to cool, then shred.
- 2. Heat remaining oil in pan, add onion and one diced garlic clove and fry until cooked. Add kidney beans, rice and chicken.
- 3. Combine diced tomatoes and second diced garlic clove with fresh coriander and lime juice.
- 4. Place evenly divided chicken mixture on tortillas. Top with salsa and cheese. Wrap firmly before packaging for freezer.
- 5. When ready to eat burrito, heat for 5 minutes in microwave then serve with sour cream.

#### **Nutrition information**

Servings per package: 4 Serving size: 362.5 g

	Average	Average
	quantity	quantity
	per serving	per 100 g
Energy	3340 kJ	921 kJ
Protein	35.1 g	9.7 g
Fat, total	41.6 g	11.5 g
<ul><li>saturated</li></ul>	17.3 g	4.8 g
Carbohydrate	65.5 g	18.1 g
– sugars	7.6 g	2.1 g
Dietary fibre	16.6 g	4.6 g
Sodium	778 mg	215 mg

## **Substitute food components**

chicken breast, low-salt kidney beans, beef mince, low-fat yoghurt, canned lentils, low-fat cheddar

palm oil, safflower oil, olive oil, lard, sunflower oil, butter

#### Carbohydrate

wholemeal tortilla, penne pasta, wholemeal rice, potato, basmati rice, lasagne sheets

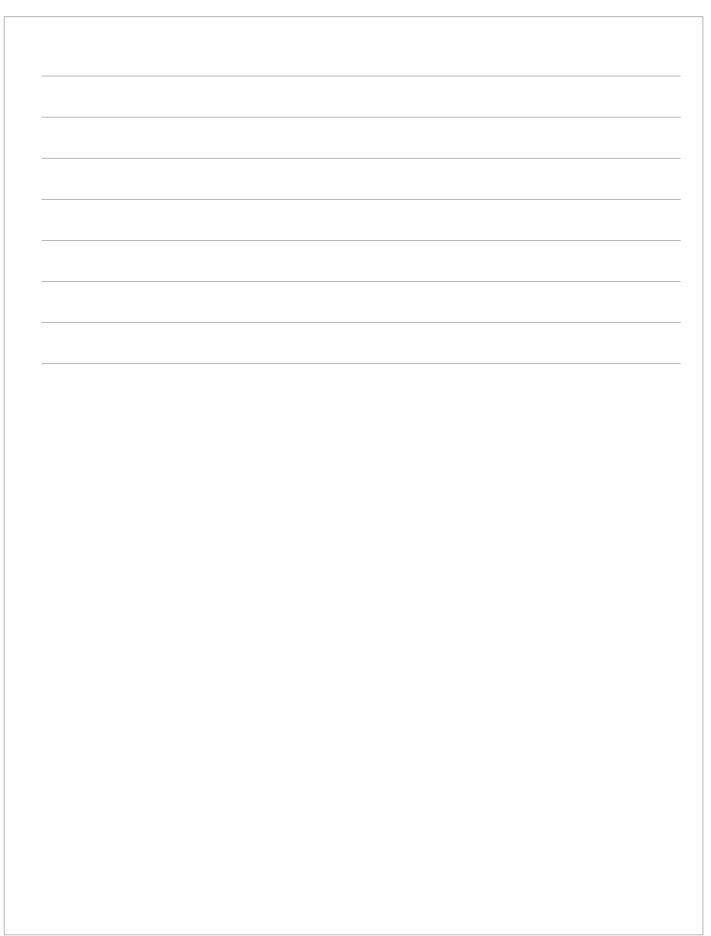
## Australian food standards — nutrient claim conditions

Nutrient	Claim	Claim conditions	
Energy	Low	170 kJ per 100 g solid food	80 kJ per 100 mL liquid
Protein	Claim Good source	5 g per serving 10 g per serving	
Fat	Low	3 g per 100 g solid food	1.5 g per 100 mL liquid
Saturated fat	Low	1.5 g per 100 g solid food	0.75 g per 100 mL liquid
Sugar	Low	5 g per 100 g solid food	2.5 g per 100 mL liquid
Dietary fibre	Claim Good source Excellent source	2 g per serving 4 g per serving 7 g per serving	
Sodium	Low	120 mg per 100 g solid food	120 mg per 100 mL liquid

a)	Review the procedure and identify one section that could be altered to make the	
	formulation better meet the needs of a consumer experiencing chronic heart disease.	
	Justify your decision.	[2 marks]

b)	Choose two food components from the substitute food components list to reformulate	
	this prototype for a consumer experiencing chronic heart disease. Justify each chosen	
	substitute food component using the data provided.	[5 n

[5 marks]



## **Section 2**

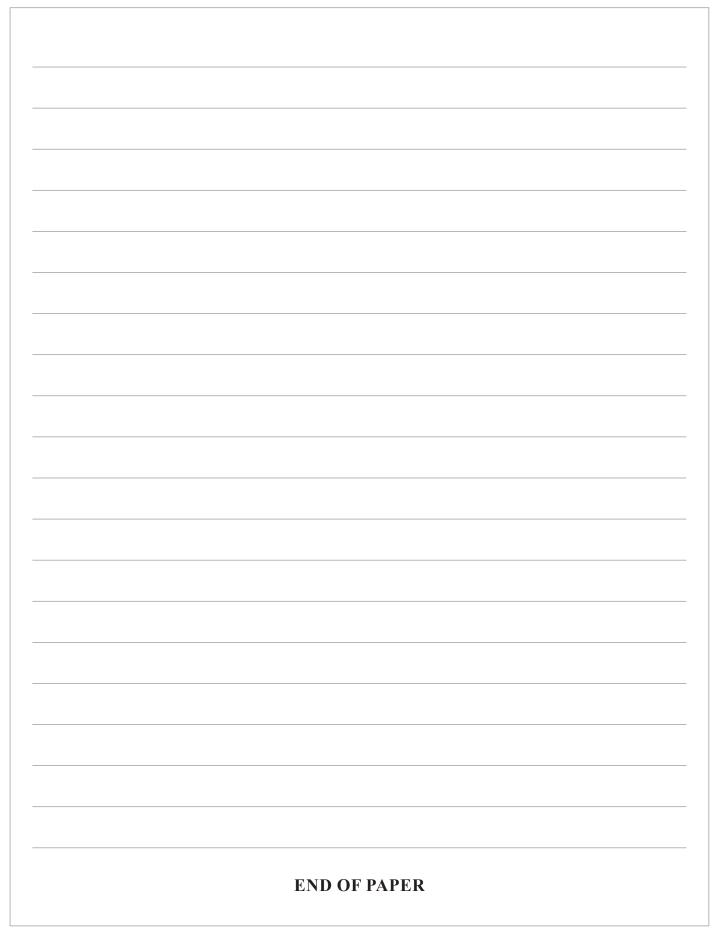
## **Instructions**

- Read Stimulus 1 in the stimulus book.
- Respond in 400 words or more.
- This section has one question and is worth 41 marks.

## **QUESTION 5 (41 marks)**

A food company that provides meals for elderly consumers in an aged care facility has had complaints about its fish curry, a meal choice served weekly. The company has gathered do to the issues around this product. The results of the testing are outlined in the test kitchen restimulus 1. Use the problem-solving process to determine the best possible solution for the	
to provide a suitable alternative	e formulation to replace the fish curry in its dinner options.









#### References

#### **Question 4**

Data sourced from Food Standards Australia New Zealand (FSANZ), Schedule 4, available at: www.foodstandards.gov.au/code/Documents/Sched%204%20Nutrition%20and%20health%20 claims%20v159.pdf

© State of Queensland (QCAA) 2022

Licence: https://creativecommons.org/licenses/by/4.0 | Copyright notice: www.qcaa.qld.edu.au/copyright — lists the full terms and conditions, which specify certain exceptions to the licence. | Attribution: © State of Queensland (QCAA) 2022