



OFFICE OF TASMANIAN
ASSESSMENT, STANDARDS
& CERTIFICATION

Tasmanian Certificate of Education
External Assessment 2017

PLACE YOUR CANDIDATE
LABEL HERE

FOOD and NUTRITION

(FDN315113)

Pages:	16
Questions:	7

PART 1

Time: 70 minutes

Candidate Instructions

1. You **MUST** make sure that your responses to the questions in this examination paper will show your achievement in the criterion being assessed.
2. This paper is divided into **THREE** sections.
3. Answer **ALL** questions in this part.
4. Answers must be written in the spaces provided on the examination paper.
5. You should make sure you answer all parts within each question so that the criterion can be assessed.
6. It is recommended that you spend approximately 70 minutes in total answering the questions in this booklet.
7. All written responses must be in English.

On the basis of your performance in this examination, the examiners will provide results on the following criterion taken from the course statement:

Criterion 4 Demonstrate knowledge and understanding of the relationship between nutrition, food and health.

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SECTION A

Answer **ALL** questions in this section.

This section is worth **15 marks**.

It is recommended you spend approximately **15 minutes** on this section.

Question 1

- (a) (i) Explain the difference between a macronutrient and a micronutrient. (1 mark)

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- (ii) State **one** example of a macronutrient and **one** micronutrient. (1 mark)

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- (iii) What is the most kilojoule dense macronutrient? How many kilojoules does it provide per gram? (1 mark)

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- (b) (i) What is the most common monosaccharide in food? (1 mark)

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- (ii) The disaccharide sucrose (common table sugar) consists of **two** monosaccharides. What are they? (1 mark)

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- (iii) The body **does not** produce the enzymes required to break down one polysaccharide. Name this polysaccharide. (1 mark)

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Question 1 continues.

Question 1 (continued)

(c) (i) What are trans fats? (1 mark)

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(ii) What makes a fat 'saturated' or 'unsaturated'? (1 mark)

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(iii) Give one food example of a saturated fat and one unsaturated fat. (1 mark)

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(iv) Polyunsaturated fatty acids are considered essential for health. What are the **two** categories of these fatty acids? (1 mark)

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(d) (i) Health professionals can assess the intake of essential nutrients by individuals or demographic groups in Australia by using which set of values? (1 mark)

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(ii) What does AI stand for and why is it important? (1 mark)

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(e) (i) Why do we need water? List **two** functions of water. (1 mark)

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(ii) List **two** foods that individuals can obtain water from. (1 mark)

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(iii) How much water is recommended for moderately active adults? (1 mark)

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SECTION B

Answer **ALL** questions in this section.

This section is worth **25 marks**.

It is recommended you spend approximately **25 minutes** on this section.

Question 2

(5 marks)

(a) Describe **two** functions of protein.

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(b) List the **two** main classes of protein and **two** good food sources for each type.

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(c) Explain why individuals who choose a vegan lifestyle need to ensure that they eat a wide variety of protein foods.

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Section B continues.

Section B (continued)

Question 3

(5 marks)

(a) Name **one** water soluble vitamin.

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(b) Name **two** good food sources of the vitamin from part (a) above.

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(c) What is the main function of the vitamin from part (a) above?

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(d) Describe how a deficiency in the vitamin named in part (a) can have an effect on an individual's health.

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Section B continues.

Section B (continued)

Question 4

(5 marks)

The two fruits in the table below contain carbohydrate and therefore have a Glycaemic Index (GI) rating.

Orange	Watermelon
Low GI = 42 Sugar content = 8g/100g	High GI = 72 Sugar content = 6.4g/100g

(a) Explain what GI is a measure of.

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(b) Why do the fruits in the above table have different GI ratings?

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(c) List **two** groups of people for which a knowledge of GI might be useful. Explain why.

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Question 4 continues.

Question 4 (continued)

- (d) A person could eat a diet containing many low GI foods but still have a Body Mass Index (BMI) of over 25. Explain with reference to energy balance how this is possible?

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Section B continues.

Section B (continued)

Question 5

(5 marks)

(a) Explain how Calcium and Vitamin D work together in the body.

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(b) List **two** other factors that influence bone mass.

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(c) Give **two** good food sources (other than dairy products) of Calcium and **two** food sources of Vitamin D.

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Section B (continued)

Question 6

(5 marks)

(a) What is the main function of probiotics in the body?

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(b) Give **two** good food sources of probiotics.

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(c) Name **two** gastro-intestinal conditions/diseases that may develop from a deficiency in probiotics.

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(d) Explain the difference between a nutrient and a non-nutrient.

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SECTION C

Answer **ALL** questions in this section.

This section is worth **30 marks**.

It is recommended you spend approximately **30 minutes** on this section.

Question 7

Hypertension (high blood pressure) is a common disorder of the circulatory system affecting around one in seven adult Australians. It becomes more common with age. Hypertension means that the blood is pumping with more force than normal through the arteries.

- (a) Hypertension is closely linked as a risk factor for developing atherosclerosis. What is atherosclerosis? (1 mark)

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- (b) Explain how hypertension increases an individual's risk of developing atherosclerosis. (2 marks)

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- (c) Discuss **two** poor dietary choices that may lead to the development of hypertension and atherosclerosis. (2 marks)

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Question 7 continues.

Question 7 (continued)

- (d) Discuss **two** factors other than diet that increase the risk of developing hypertension and atherosclerosis. (2 marks)

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- (e) Detail **three** prevention strategies the community has put in place to promote the importance of healthy diets and lifestyles in order to reduce the prevalence of hypertension and atherosclerosis. (3 marks)

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Question 7 (continued)

(f) Unhealthy diets contribute to the overall burden of disease in Australia. Improving the nutritional status of Australians can play an important role in decreasing many diet-related health conditions/diseases.

Describe **one** other diet-related health condition / disease (**not hypertension or atherosclerosis**).

In your answer:

- Discuss dietary and lifestyle risk factors and the effects on health of the condition/disease.
- Highlight how prevalent it is in Australia.
- Suggest possible individual and community based strategies to reduce the incidence of this condition/disease. (20 marks)

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Question 7 continues.



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FOOD and NUTRITION

(FDN315113)

Pages:	12
Questions:	2

PART 2

Time: 35 minutes

Candidate Instructions

1. You **MUST** make sure that your responses to the questions in this examination paper will show your achievement in the criterion being assessed.
2. This paper is divided into **TWO** sections.
3. Answer **ALL** questions in this part.
4. Answers must be written in the spaces provided on the examination paper.
5. You should make sure you answer all parts within each question so that the criterion can be assessed.
6. It is recommended that you spend approximately 35 minutes in total answering the questions in this booklet.
7. All written responses must be in English.

On the basis of your performance in this examination, the examiners will provide results on the following criterion taken from the course statement:

Criterion 5 Analyse and evaluate diets using Nutrient Reference Values and recognised food selection tools.

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SECTION A

Answer **ALL** parts of this question.

Use your knowledge of nutrition and the information provided in Julie's Dietary Analysis to answer **Question 8** and **Question 9**.

Question 8 – Julie's typical eating pattern over **one** day:

Meal	Food	Portion
Breakfast	Toast, white bread	1 regular slice
	Butter	1 Tb
	Raspberry Jam	2 Tb
	Coffee with milk	1 coffee cup (180ml)
Morning Snacks	Jam and cream filled doughnut coated in sugar	1 doughnut
Lunch	McDonalds Big Mac Burger	1 burger
	Energy drink	1 large can (500ml)
Afternoon Snacks	Pringles potato crisps, chicken flavour	10 chips
Dinner	Potato wedges (takeaway shop)	2 cups
	Full fat sour cream	3 tsp

Julie's Nutritional Profiles

Personal Details

Age (years):	17
Gender:	Female
Weight (kg):	48
Height (cm):	175
Body Mass Index (BMI):	16
Activity:	Very Heavy
Estimated Energy Requirement (EER):	12394 kj
Basal Metabolic Rate (BMR):	5585 kj

Energy Ratios

Protein	8.499%
Total Fat	34.624%
Carbohydrates	53.382%

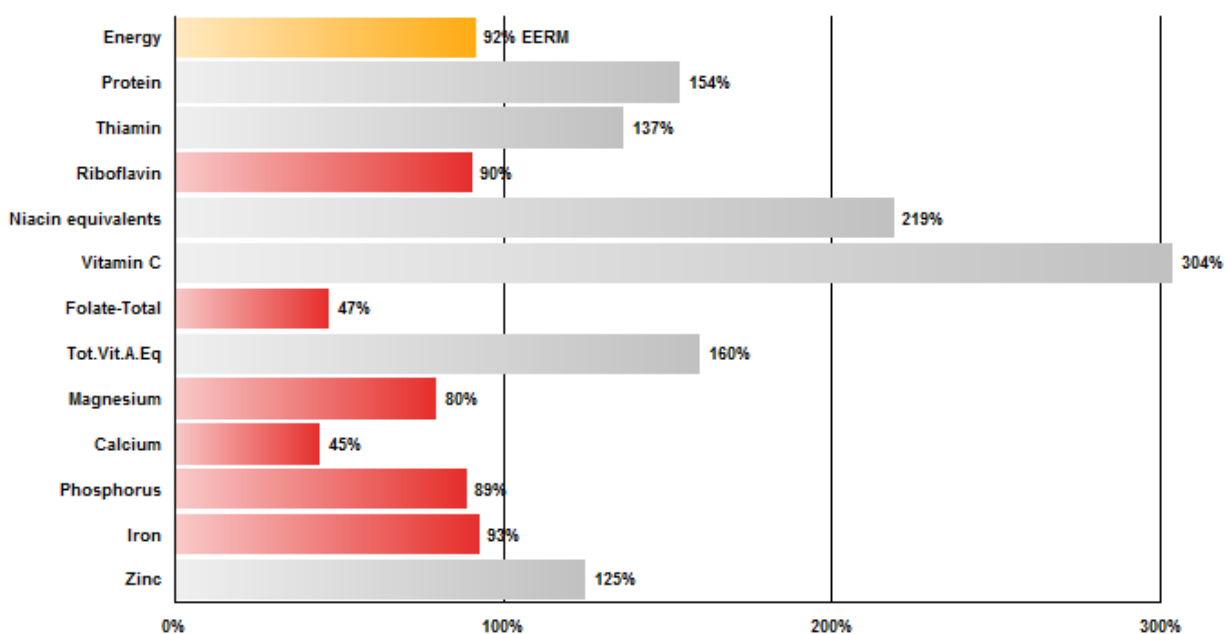
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Data (continued)

Analysis summary

	Avg/Day
Energy (KJ)	11361.32
Protein (g)	56.797
Total fat (g)	106.317
- Saturated	41.488
- Polyunsaturated	21.749
- Monounsaturated	35.402
Cholesterol (mg)	213.669
Total Carbohydrate (g)	374.893
- Sugars (g)	146.579
- Starch (g)	218.801
Water (g)	875.183
Alcohol (g)	0.000
Dietary Fibre (g)	28.496
Vitamins	
Thiamin (mg)	1.504
Riboflavin (mg)	0.995
Niacin (mg)	19.664
Niacin equivalents (mg)	30.626
Vitamin C (mg)	121.343
Folate (total) (µg)	188.208
Total Vit A Equivalent (µg)	1120.942
Retinol (µg)	343.305
B Carot. Eq. (µg)	4662.248
Minerals	
Sodium (mg)	1690.944
Potassium (mg)	3669.568
Magnesium (mg)	286.999
Calcium (mg)	579.331
Phosphorus (mg)	1110.401
Iron (mg)	13.196
Zinc (mg)	8.763

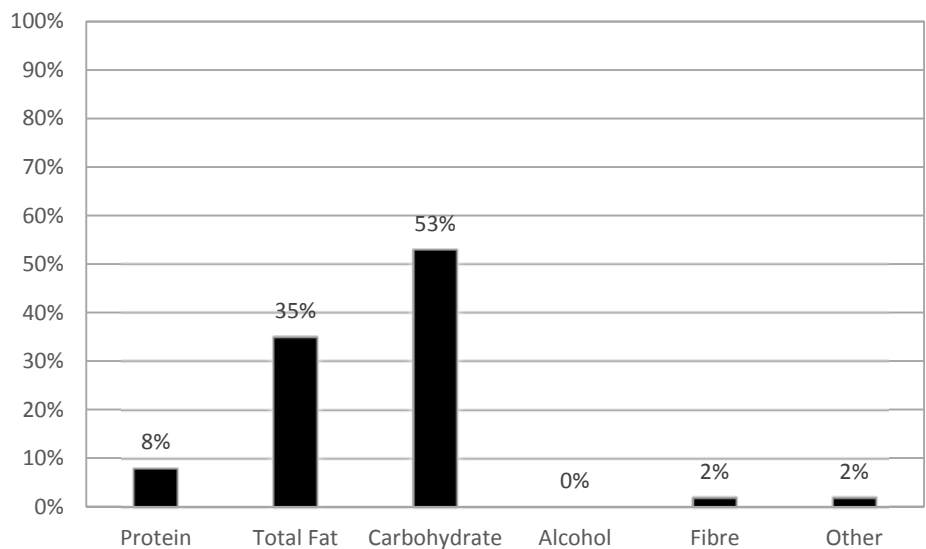
Recommended Dietary Intakes



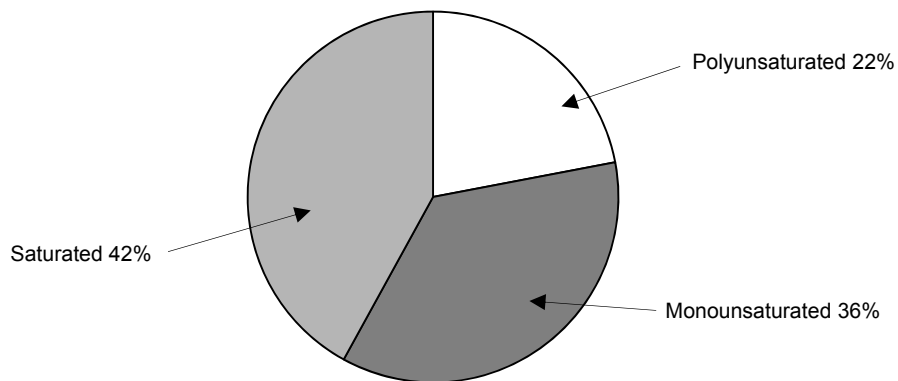
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Data (continued)

Percentage Energy Derived from Protein, Total Fat, Carbohydrate, Alcohol, Fibre and Other



Fat Intake
(percent Polyunsaturated, Monounsaturated, Saturated)



Section A continues.

Section A (continued)

Question 8

Answer the following questions using your knowledge of nutrition and the information provided in Julie's dietary analysis.

- (a) (i) Identify **two** micronutrients which Julie is deficient in and describe the possible consequences of each deficiency. (2 marks)

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- (ii) Compare how many kilojoules Julie needs per day to meet her Estimated Energy Requirement (EER) compared with how many kilojoules she is actually consuming. (1 mark)

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- (b) Julie's saturated fat consumption is in excess of the recommended amount.

In the table below, identify **four** foods in Julie's diet that have a high saturated fat content and suggest appropriate alternatives. (4 marks)

Food with high saturated fat content	Alternative
1.	
2.	
3.	
4.	

Question 8 continues.

Question 8 (continued)

- (c) How do Julie's energy intake ratios compare to the Acceptable Macronutrient Distribution Range's (AMDR)? Make reference to protein, fat and carbohydrate in your answer. (3 marks)

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- (d) Explain how Julie's fat intake ratios differ from the nutritional recommendations. (2 marks)

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- (e) What is Julie's Body Mass Index (BMI) classification? Explain how this is possible given the amount of energy dense food she consumes. List **one** possible short-term and **one** possible long-term consequence of this daily eating pattern. (4 marks)

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SECTION B

Answer **ALL** parts of this question.

Use your knowledge of nutrition and the information provided in Julie’s Dietary Analysis to answer **Question 9**.

Question 9

The Australian Dietary Guidelines (ADG) number 2 states:

‘Enjoy a wide variety of nutritious foods from all food groups’.

As part of this guideline, it is recommended that individuals eat plenty of vegetables, including different types and colours. Julie’s daily food intake does not meet this recommendation.

- (a) (i) How many serves of vegetables should Julie be consuming daily? (1 mark)

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- (ii) Discuss **four** ways Julie could introduce or swap more vegetables into her daily food intake to comply with the amount recommended by the ADG. (4 marks)

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- (iii) List **two** health benefits of eating more vegetables for Julie. (2 marks)

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Question 9 continues.

Question 9 (continued)

(b) Choose **two** food groups (other than vegetables) that the ADG 2 recommends and discuss:

- If Julie is meeting the recommendation.
- How much of each group she should be consuming daily.
- **Two** specific food modifications she can make to meet the recommendation. Provide a nutritional reason for each change. (8 marks)

Group 1:

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Group 2:

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Question 9 continues

Question 9 (continued)

- (c) The Australian Guide to Healthy Eating (AGHE) was developed based on the principles of the ADG. Describe **two** ways in which the AGHE reflects any **two** of the guidelines. (2 marks)

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- (d) Despite the ADG, obesity and chronic rates of disease are still rising. What are **two** limitations of the ADG? (2 marks)

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FOOD and NUTRITION

(FDN315113)

Pages:	12
Questions:	2

PART 3

Time: 30 minutes

Candidate Instructions

1. You **MUST** make sure that your responses to the questions in this examination paper will show your achievement in the criterion being assessed.
2. This paper is divided into **TWO** sections.
3. Answer **ALL** questions in this part.
4. Answers must be written in the spaces provided on the examination paper.
5. It is recommended that you spend approximately 30 minutes in total answering the questions in this booklet.
6. All written responses must be in English.

On the basis of your performance in this examination, the examiners will provide results on the following criterion taken from the course statement:

Criterion 6 Demonstrate knowledge and understanding of factors affecting food choice.

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SECTION A

Answer **ALL** questions in this section.

This section is worth **15 marks**.

It is recommended you spend approximately **15 minutes** on this section.

Question 10

Our individual food choices are influenced by a wide variety of complex and inter-related factors.

- (a) Explain each factor below and how it influences food choice. Give a specific example to illustrate each of your answers. (5 marks)

Flavour of food

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Level of physical activity

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Media

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Stress

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Accessibility

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Question 10 continues.

Question 10 (continued)

- (b) Explain **two** ways an individual's level of education may influence their daily food choices. (2 marks)

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- (c) Explain **two** social factors that may have an impact on an adolescents daily food choices whilst at school. (2 marks)

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- (d) Using examples, explain how the appearance of food (colour, shape, texture, portion size, packaging) effects the food choice of individuals and groups. (3 marks)

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Question 10 (continued)

(e) Using examples, explain how culture influences food choice.

(3 marks)

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SECTION B

Answer **ALL** questions in this section.

This section is worth **15 marks**.

It is recommended you spend approximately **15 minutes** on this section.

Question 11

The Rossi family are of Italian heritage.

Billy, a 16 year old male, is lactose intolerant. He has been a vegetarian for the last three years. He is extremely active, training for football and basketball five times a week and playing in a competition most weekends. Before and after training he drinks a Powerade (flavoured sugar drink). He only likes the red Powerade. The night before every sporting competition, his mum, Maria cooks him a large pasta meal. The night after every sporting competition, Maria orders in a family sized takeaway pizza. The pizza cannot have pineapple on it as Maria doesn't like the idea of hot pineapple. There is no meat or cheese on the pizza because of Billy's dietary requirements. Maria is concerned about Billy's diet. He does not eat breakfast, has a small lunch and often has unhealthy food during the evening.

Billy's father, Carlo, has been unemployed for three years due to a workplace injury. He spends each day at home watching television and gets depressed about his situation. He eats a lot of junk food, has become obese and has developed Type 2 Diabetes.

Maria works in a restaurant of an evening and earns the minimum hourly rate. She therefore buys groceries every three weeks. They have limited fresh produce and rely on frozen foods and pre-packaged meals.

On the weekend, Maria likes to go out for lunch with her friends at the Italian club. She leaves Carlo and Billy at home together. Maria is concerned Carlo is not a good role model for Billy as they both binge on junk food while she is out.

Identify the factors affecting the food choices of Billy, Maria and Carlo. Provide examples of likely food choices in your answer. (15 marks)

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Question 11 continues.

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FOOD and NUTRITION

(FDN315113)

PART 4

Pages:	8
Questions:	2

Time: 45 minutes

Candidate Instructions

1. You **MUST** make sure that your responses to the questions in this examination paper will show your achievement in the criteria being assessed.
2. Answer **ONE** question from this part.
3. You **MUST**:
 - Communicate ideas and information in the form of extended written expression.
 - Demonstrate knowledge and understanding of food related issues.
 - Respond using the form of extended written expression.
 - Use structured paragraphs and sentences, which must be written in a logical, coherent manner, using specialised terminology and appropriate English grammar. Candidates must provide clear and reasoned arguments supported by examples.
4. Answers must be written in the spaces provided on the examination paper.
5. You should make sure you answer all parts within each question so that the criteria can be assessed.
6. It is recommended that you spend approximately 45 minutes in total answering the questions in this booklet.
7. All written responses must be in English.

On the basis of your performance in this examination, the examiners will provide results on each of the following criteria taken from the course statement:

Criterion 2 Communicate ideas and information in a variety of forms.

Criterion 8 Demonstrate knowledge and understanding of food related issues.

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Answer: EITHER

Question 13

OR

Question 14

Question 13

Goal number two of the United Nations (UN) Sustainable Development Goals (SDG's) is 'Zero Hunger'. This encompasses the mission to end hunger, achieve food security and improved nutrition and promote sustainable agriculture globally. The UN recognises that a profound change of the global food and agriculture system is needed if we are to nourish today's 795 million hungry people and the additional 2 billion expected by 2050.

Write an extended response that:

- Explains the term 'food insecurity' and why there are so many hungry people.
- Discusses how hunger and malnutrition are a barrier to food security and can lead to being 'trapped' in a cycle of poverty.
- Discusses **two** inter-related barriers that cause hunger and food insecurity.
- Explains what individuals, governments and non-government organisations can do to help.
- Explores **two** possible solutions evaluating their potential advantages and disadvantages.

Question 14

For ecological sustainability to be achieved, it is necessary for all those involved in the production, processing, transportation and marketing of foods to work together. However, it has been predicted that by the middle of the 21st century, current food production methods will not supply enough food for the world's population.

Write an extended response that:

- Explains the term 'ecological sustainability'.
- Discusses the impact an individual's food waste has on the diminishing food supply.
- Discusses a range of specific strategies individuals can implement in their household to limit food waste.
- Discusses **two** environmental impacts and/or ethical issues in relation to Australia's food system (other than food waste).
- Explores **three** possible solutions that government and non-government organisations could implement to achieve ecological sustainability in the food system. Evaluate the potential advantages and disadvantages of each possible solution.

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