

ASSESSMENT REPORT 2020

FDN315118 – FOOD AND NUTRITION

SECTION A - NUTRITION

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

The following are the types of responses required for Section A. Marks have been allocated for variations, depending on the examples used by students to demonstrate their understanding. Students were expected to give clear responses. In some cases, the exam report provides extra information to inform acceptable responses. Answers must be supported by science-based nutrition research to be accepted as valid e.g. NHMRC, AIHW.

Question 1

- (a) Explain the difference between Basal Metabolic Rate (BMR) and Body Mass Index (BMI).

Examples of good answers included:

Basal Metabolic Rate is the minimum amount of energy needed to keep the body functioning while at rest, for metabolic processes other than physical activity e.g. breathing. Around 70% of energy is used for BMR. Body Mass Index is a measure of a person's weight for height. $BMI = \text{weight}/\text{height}^2$ (weight in kg, height in m).

BMR is the rate at which energy is needed for metabolic processes at rest. 70% of energy intake is used for these metabolic processes e.g. thinking. BMI is a weight for height measurement that aims to classify body weight of adults e.g. underweight, normal/healthy, overweight, obese.

Candidates that did not score as well indicated that BMR is the energy needed for all metabolic processes, rather than for those at rest.

2 marks

- (b) Explain ONE reason why BMR might be different for males and females of the same age and weight.

Examples of good answers included:

Males generally have more lean muscle than females, who tend to have more fat due to hormones. This increases BMR for males as lean muscle burns kilojoules rapidly.

If a male or female was more active that could increase their BMR as they may have more lean muscle and energy needs remain higher after physical activity. If a female was pregnant this would increase their BMR as it is a period of growth.

Candidates that did not score as well may have given a valid reason but missed explaining how it might be different for males and females and whether it would increase or decrease the BMR. Some candidates incorrectly stated that males are more active than females so will have a higher BMR.

1 mark

Question 2

- (a) Describe TWO possible health benefits of consuming probiotics.

Examples of good answers included:

Probiotics may enhance the effectiveness of intestinal bacteria which is important for good health. They are believed to aid gastro-intestinal disorders such as diarrhoea, constipation and inflammatory bowel disease.

Probiotics help to maintain the good bacteria in our gut and help maintain a normal healthy immune system. They assist with disorders such as constipation and diarrhoea.

This question was generally well answered.

2 marks

- (b) What are **two** food/drink sources rich in probiotics?

Correct answers included:

- yoghurt
- kefir
- sauerkraut
- tempeh
- kimchi
- miso
- kombucha
- salami
- soy sauce

This question was generally well answered

1 mark

- (c) Is a probiotic a nutrient or a non-nutrient? Explain your answer.

Examples of good answers included:

- Probiotics are a non-nutrient. They are not needed for growth or energy but are believed to benefit health.
- A non-nutrient. They are not essential like nutrients but may have health benefits.

This question was generally well answered.

1 mark

Question 3

- (a) Explain energy intake and energy expenditure and how they are used to calculate energy balance.

Example of a good answer:

Energy intake is the amount of energy consumed through food and drinks. Energy expenditure is the amount of energy used by the body through exercise and BMR. Both are measured in kilojoules. If energy intake is equal to energy expenditure the body has energy balance and weight stays the same. If energy intake is greater than output the body will put on weight over time, if intake is less than output the body will lose weight over time.

Generally well answered. Candidates that did not score as well may have explained how weight gain and weight loss occurs but missed outlining what energy intake and energy expenditure are. Candidates should be referring to kilojoules rather than calories.

2.5 marks

- (b) (i) Explain how Nutrient Reference values are used.

Examples of a good answer included:

- Nutrient Reference Values are used to outline the levels of intake of essential nutrients to meet the known nutritional needs of nearly all healthy people.
- Nutrient Reference Values are a set of daily recommended intakes of energy and nutrients based on age, gender and life stage.
- Nutrient Reference Values are a set of recommendations for daily nutritional intake based on scientific knowledge.

Candidates that scored more successfully on this question used key words such as: 'outline or guide,' 'nutrients,' 'recommended intakes.'

1 mark

- (ii) Explain Upper Level of intake (UL) and Recommended Dietary Intake (RDI).

Example of a good answer:

UL is the highest average daily nutrient intake level likely to pose no adverse health effects. RDI is the daily dietary intake level to meet the nutrient needs of nearly all (97–98%) healthy people.

Candidates that scored more successfully on this question used key words such as: 'highest or maximum,' 'health effects,' 'daily,' 'nutrient,' and 'nearly all.'

1 mark

Question 4

- (a) List **THREE** reasons why we need water daily.

Examples of good answers:

- provides the basis of the body's transport system, carrying nutrients to all cells
- excretes waste as urine
- regulates body temperature
- forms part of the blood, body secretions and digestive juices
- acts as a lubricant to joints and membranes
- assists digestion, absorption and assimilation of food

Markers were looking for specific body functions that water is needed for in the body, rather than water is needed to prevent dehydration.

1.5 marks

- (b) What **two** main factors increase the amount of water individuals need daily?

Examples of good answers included:

- temperature and humidity of the environment
- level of activity undertaken
- air conditioning with low humidity
- travelling in a hot car
- playing sport

Generally well answered.

1 mark

- (c) Provide **two** carbohydrate foods that have a high-water content.

Examples of good answers include:

- Fruit: e.g. watermelon, orange, apricot, blueberries, plums, raspberries, pineapple.
- Vegetable: e.g. celery, cucumber, lettuce, tomato, zucchini, broccoli, cabbage, spinach.

Candidates that scored well included foods such as those above as fruits and vegetables can be up to 95% water. Those that did not score well on this included foods such as meat (50-60% water), bread (58-65%), pasta and rice (less than 13%).

1 mark

Question 5

(a) Describe ONE main function of vitamin D in the body.

Examples of a good answer included:

- Vitamin D is needed for the body to absorb and use calcium and phosphorus, which are needed for strong bones and teeth.
- Vitamin D is needed for the absorption and metabolism of calcium and phosphorus which are vital in the formation of bones and teeth.

Candidates that did not score as well missed that calcium and phosphorus are needed to form strong bones and teeth. *1 mark*

(b) List **two** good food sources of vitamin D.

Examples of good answers included:

- fatty fish
- dairy products
- margarine
- UV-irradiated mushrooms
- beef liver
- cheese
- egg yolks

Candidates that did not score well incorrectly listed fruits and vegetables and sunlight. While sunlight is a good source of vitamin D it is not a food source, as the question asked. *1 mark*

(c) Describe the inter-relationship between vitamin D and calcium.

Examples of good answers included:

- Vitamin D is needed for the body to absorb and use calcium and phosphorus, which are needed for strong bones and teeth.
- Vitamin D helps the body absorb calcium and phosphorus. These combine to make calcium phosphate and deposit mineral in the bones (ossification).

Candidates that did not score as well missed that calcium and phosphorus are needed to form strong bones and teeth. *2 marks*

- (d) Explain why there is a difference between the amount of vitamin A lost and the amount of vitamin C lost from broccoli during boiling.

Example of a good answer:

- Vitamin C is a water-soluble vitamin that dissolves in water and can be lost when foods are cooked in water. Vitamin A is a fat-soluble vitamin and these not lost when foods are boiled. This means more vitamin C would be lost.

Markers were looking for the use of the terms, 'water soluble' and 'fat soluble' and an explanation of how they are affected by boiling. Some candidates mixed up which vitamin was fat soluble and which was water soluble. Candidates that did not score well just spoke about nutrients in general being lost during cooking.

2 marks

Question 6

- (a) Name ONE feature of an unsaturated fat that is different from that of a saturated fat.

Examples of good answers included:

- Unsaturated fats tend to be liquid at room temperature whereas saturated fats tend to be solid.
- Saturated fat contains the maximum amount of hydrogen in each molecule, unsaturated fat does not contain the maximum amount of hydrogen.
- Unsaturated fats have one or more spaces (double bonds) in the molecule where hydrogen could be added.

Many gave a function of unsaturated fat, rather than a feature, which did not score a mark e.g. "unsaturated fat raises HDL cholesterol and lowers LDL cholesterol."

1 mark

- (b) Outline TWO functions of omega-3 fatty acids in the body.

Examples of a good answers included:

- Omega-3 fatty acids help to lower LDL cholesterol and raise HDL cholesterol.
- Help to prevent heart disease.
- Important for blood circulation.

Candidates did not score as well if they just listed general reasons why the body needs fat e.g. for energy, to insulate the body, to protect bones and organs. Some students incorrectly referred to omega 3 and omega 6 as amino acids.

2 marks

- (c) List **two** good food sources of polyunsaturated fats.

Examples of good answers included:

- sunflower oil
- safflower oil
- flaxseed oil
- corn oil
- oily fish
- walnuts
- legumes

A number of candidates incorrectly listed avocado, olives, olive oil. These are good source of monounsaturated fat.

1 mark

Question 7

For **one** diet-related condition of your choice, from the list below, answer the following questions:

- Overweight/obesity
- Heart disease
- Type 2 Diabetes

- (a) (i) Explain what the diet related condition is. Make reference to ONE group of people most at risk of developing this condition.

2 marks

Examples of good answers included:

Overweight and obesity

Overweight and obesity are defined as the abnormal or excessive fat accumulation that presents a risk to health. A BMI of 25.00 – 29.99 is considered overweight, 30+ obese. One group of people most at risk are Indigenous people.

(Other groups accepted included: low socioeconomic, those living in rural areas, children, those that consume a diet high in fat and sugar.)

Heart disease

Coronary heart disease occurs when a coronary artery clogs and narrows because of a build-up of plaque (atherosclerosis). Plaque typically contains cholesterol and causes the arteries to narrow and stiffen and reduce blood flow. This can result in a heart attack.

One group of people most at risk is males.

(Other groups accepted included: older people, those with a family history, Indigenous people, those living in rural areas.)

OR,

Cardiovascular Disease is all diseases of the heart and blood vessels, the main one's being coronary heart disease and stroke. The main underlying causes is atherosclerosis which is the buildup of fatty material in the arteries, which typically includes cholesterol. One group of people most at risk is older people.

Type 2 Diabetes

Type 2 Diabetes occurs when the pancreas either doesn't produce enough of the hormone insulin, or what it produces is ineffective leading to high blood glucose levels.

One group of people most at risk is Indigenous people.

(Other groups accepted included: those living in rural areas, low socioeconomic, family history, aged over 45 years, obese people.)

OR,

Type 2 Diabetes is a progressive condition in which the body becomes resistant to the normal effects of insulin and/or gradually loses the capacity to produce enough insulin in the pancreas. One group of people most at risk include those living in rural areas.

This question was generally well answered. Some candidates missed a group of people most at risk. Some candidates made inaccurate statements e.g. All overweight and obese people come from low socio-economic groups.

2 marks

- (ii) Explain how an overconsumption of saturated fats may contribute to an individual developing your chosen diet-related condition. Use specific food examples in your answer.

Examples of good answers included:

Obesity

Saturated fat, like all fats, is energy dense supplying 37kj/g. This is more than twice the amount of energy supplied by carbohydrate or protein. A diet high in saturated fat can lead to energy imbalance and weight gain over time. Foods high in saturated fat include butter and commercial hamburgers.

Heart disease

Saturated fat raises LDL cholesterol. This is the type of cholesterol that builds up and can block arteries, increasing the risk of heart disease. The build-up of cholesterol in the arteries is known as atherosclerosis. Foods high in saturated fat include chocolate and meat pies.

Type 2 Diabetes

All fats are energy dense (37kj/g) and a diet high in these can lead to energy imbalance and weight gain. Obesity is a risk factor for Type 2 Diabetes because fat can make cells resistant to insulin. Saturated fat also raises LDL cholesterol and high cholesterol is also a risk factor for Type 2 Diabetes. Foods high in saturated fat include cakes and ice-cream.

Candidates that did not score as well on this question didn't make accurate links between saturated fat and their chosen condition. For example, some talked about the effect of saturated fat on cholesterol when their chosen condition was overweight/obesity. A number of candidates incorrectly said that saturated fat contains LDL cholesterol. They should have said that saturated fat raises LDL cholesterol. Markers were looking for at least 2 food examples.

2 marks

- (iii) Outline how TWO dietary factors (aside from saturated fat consumption) may increase an individual's risk of developing your chosen diet-related condition. Use specific food examples in your answer.

Examples of good answers included:

Obesity

Fibre helps to give a feeling of fullness. If a person has a low fibre diet they may overeat leading to energy imbalance and weight gain. Foods lacking fibre include meat pies, chips, chocolate.

Big portion sizes increase the risk of obesity as it means a person is consuming more kilojoules which could lead to energy imbalance and weight gain. One piece of pizza may supply 700kj but having four pieces could supply 2,800 kj.

Consuming high amounts of alcohol can increase the risk of obesity as it is an energy dense drink supplying 29kj/g. This could contribute to energy imbalance and weight gain e.g. beer, wine.

Heart disease

A diet high in sodium could increase the risk of heart disease as it can raise blood pressure which is one of the main risk factors for heart disease. Foods high in sodium include chips, meat pie, canned soup.

A diet low in fibre could be a risk factor as a person would be missing out on the benefit of soluble fibre helping to lower cholesterol. High cholesterol is a risk factor for heart disease. Foods low in fibre include meat pies, chips, chocolate.

A diet high in alcohol. Alcohol is energy dense (29kj/g) and can lead to weight gain and it can also raise blood pressure, both are risk factors for heart disease. Drinks include beer and wine.

Type 2 Diabetes

A diet high in sodium could increase the risk of Type 2 Diabetes as it can raise blood pressure which is a risk factor for Type 2 Diabetes. Foods high in sodium include chips, meat pies, canned soup.

A low intake of fibre. Soluble fibre helps to lower cholesterol, so a diet low in fibre could increase the risk of high cholesterol, a risk factor for Type 2 Diabetes. Foods low in fibre include meat pies, chips, chocolate.

A high intake of discretionary foods could increase the risk of Type 2 Diabetes as these are foods high in saturated fat, added salt, added sugar and/or alcohol increasing the risk of obesity, high cholesterol and high blood pressure, all risk factors. Discretionary foods include chocolate, ice-cream, soft drink.

Candidates who did not score as well on this question, just named a factor without explaining how it could increase the risk of the diet related condition and missed food examples.

2 marks

- (iv) Describe **two** prevention strategies individuals can implement to help reduce the risk of developing your chosen diet-related condition.

Examples of good answers included:

(Note - some strategies are appropriate for all 3 conditions)

- Drink plenty of water as it supplies 0kj/g. This helps to maintain energy balance and prevent weight gain.
- Eat foods high in fibre as these help to give a feeling of fullness and prevent overeating. Foods high in fibre include: fruit, vegetables, wholegrain cereals.

- Eat plenty of fruit and vegetables as these are naturally low in energy and help to maintain energy balance. They are also a good source of fibre which helps to give a feeling of fullness and prevent overeating.
- Participate in regular physical activity as this helps to use up kilojoules and prevent them being stored on the body as fat. 30 minutes of moderate activity a day are recommended for adults and 60 minutes for children.
- Swap saturated fat to unsaturated where possible. Unsaturated fats help to lower LDL cholesterol and prevent the build-up of cholesterol in arteries. Swap butter to margarine, use vegetable oils for cooking, snack on nuts.
- Eat 2 fish meals per week. These are a good source of omega 3 which helps to lower LDL cholesterol and prevent the build-up of cholesterol in arteries.
- Reduce salt intake to reduce the risk of high blood pressure. Flavour foods with herbs and spices instead of salt, eat plenty of fresh foods without salt or choose salt reduced foods.
- Choose lean meat and low-fat dairy as these can contain less saturated fat and less kilojoules. Foods such as lean chicken, beef and lamb, low fat milk.
- Choose low GI foods as these release glucose slowly into the blood and help to maintain steady blood glucose levels. Some are also a good source of fibre. Low GI foods include carrots, milk, wholegrain bread.
- Follow the Australian Dietary Guidelines as these promote consuming foods from the 5 food groups, physical activity and drinking plenty of water. These help to prevent weight gain, high cholesterol and high blood pressure e.g. fruits, vegetables, wholegrain cereals.

Candidates who did well on this question included mainly dietary prevention strategies. Those that did not do as well just listed prevention strategies without describing them. Strategies such as 'stop smoking' or 'using medications' were not accepted in a Food and Nutrition exam.

2 marks

- (v) Describe in detail TWO current community prevention strategies/programs that have been implemented to decrease the prevalence of your chosen diet-related condition.

Examples of good answers included:

LiveLighter is a campaign aimed at encouraging people to make simple changes to reduce the risk of obesity. It aims to educate people on the dangers of toxic fat through advertisements in the media and information on their website. It has recipes and meal plans to help people prepare nutritious meals and a BMI calculator.

Health Star Rating is a front of pack labelling system that rates the nutritional value of foods from ½ to 5 stars. It helps people to quickly and easily compare foods. The more stars the healthier the food. Foods are ranked on their energy, risk and positive nutrients.

The Family Food patch is a program that aims to improve the health and wellbeing of Tasmanian children and families through the promotion of eating well and being active. Participants become peer educators in nutrition and physical activity and then take their knowledge back into communities, to share it.

Community gardens are a shared piece of land in a community where people can grow fruit and vegetables. They can give people access to fresh, nutritious and affordable fruits and vegetables. Community gardens benefit those without space for a garden at home and help people to develop skills in producing their own nutritious food.

Councils are providing places for people to engage in safe and affordable physical activity which helps to prevent obesity. Walking/cycling tracks are provided as well as free gym equipment in parks. Park runs are also held in these spaces. Engaging in these activities helps people to use up kilojoules to maintain energy balance.

Other ideas included: Eat Well Tasmania, Kitchen Gardens, Jump Rope for Heart, healthy canteens, community education programs and reducing the advertising of discretionary foods to children. Candidates that did well clearly explained features of the strategies. (4 marks)

- (vi) Describe TWO links between your chosen diet-related condition and another diet-related condition you have studied.

Examples of good answers included:

Obesity

Obesity increases the risk of cancer as it causes the body to produce extra chemicals and hormones and an excess of these provides an environment where cancer is more likely to grow.

Obesity increases the risk of Type 2 Diabetes due to visceral fat around the stomach. Fat cells are less responsive to insulin, placing someone at a greater risk of insulin resistance and Type 2 Diabetes.

Heart Disease

Being obese can increase the risk of heart disease. If obese people consume a diet high in saturated fat this can raise LDL cholesterol which can build up and block arteries leading to heart disease.

People with high blood pressure are at risk of heart disease as this can damage the inside of arteries, providing a place for cholesterol to build up.

Type 2 Diabetes

The buildup of glucose in the bloodstream from Type 2 Diabetes results in damage to the arteries and blood vessels, leading to an increased risk of heart disease.

People with diabetes are between two and four times more likely to develop heart disease. Almost two-thirds of people with diabetes also have CVD.

Candidates who were less successful on this question just listed the links and didn't describe how they are linked.

2 marks

- (vii) List **two** trends that are either currently or have recently been reported in the media highlighting the rates of your chosen diet-related condition.

Examples of good answers included:

Obesity

- 1 in 4 Australian children were overweight or obese in 2017-18
- 2 in 3 Australian adults were overweight or obese in 2017-18
- By 2025, around 80% of Australian adults are expected to be overweight or obese

Heart Disease

- Coronary heart disease is the leading cause of death in Australia
- 16.6% of Australians are living with CVD
- 5.6% Australian adults had 1 or more conditions related to heart or vascular disease in 2017-18

Type 2 Diabetes

- Almost 1 million Australian adults had Type 2 Diabetes in 2017-18
- Type 2 Diabetes accounts for 85% of all diabetes in Australia and is increasing
- There are more than 4,400 amputations every year in Australia as a result of diabetes

Some candidates seemed confused by the wording of the question and talked about diet trends such as Keto and Paleo.

2 marks

- (viii) Explain how good dietary choices of carbohydrates and fats can reduce an individual's risk of developing your chosen diet-related condition. Use specific food examples to support your answer.

Examples of good answers included:

Carbohydrates:

Nutrient dense carbohydrates help to prevent obesity as they tend to be naturally low in kilojoules and therefore help maintain energy balance e.g. broccoli, spinach, apples.

Low GI carbohydrates help to prevent obesity. Many low GI foods are high in fibre which helps to give a feeling of fullness to prevent overeating e.g. carrots, wholegrain cereals.

Carbohydrate foods high in fibre help to lower cholesterol and prevent heart disease e.g. wholegrain bread, brown rice.

Carbohydrate foods containing fibre help to slow the absorption of glucose and prevent Type 2 Diabetes e.g. vegetables, oats.

Fats:

Choosing foods lower in fat such as lean meat and low-fat dairy can help to reduce the risk of obesity as they can be lower in kilojoules e.g. lean beef, reduced fat milk.

Unsaturated fats help to reduce the risk of heart disease as unsaturated fat lowers LDL cholesterol, the type that can build up and block arteries e.g. oily fish, avocado, nuts.

Choose unsaturated fats, as these help to reduce the risk of high cholesterol, which is a risk factor for Type 2 Diabetes e.g. walnuts, olive oil.

This question was generally not well answered. Candidates that did not score as well didn't name up and explain how an appropriate carbohydrate and fat could help reduce the risk of their chosen diet-related condition. Some candidates mistakenly linked their answer to a different diet-related condition.

4 marks

SECTION B – DIET ANALYSIS

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

Question 8

- (a) What is Anna's EER? Explain what EER is.

Example of a good answer included:

Anna's EER is 10662Kj per day. EER is the average energy intake estimated to maintain energy balance according to age, gender, height, weight and physical activity.

Many candidates provided Anna's EER and what EER stood for but did not provide an explanation of EER.

2 marks

- (b) Based on Anna's EER, is she under eating or overeating?

Example of a good answer included:

Anna is overeating as her DEER is 249% (49% over her EER).

Most candidates answered this correctly.

0.5 marks

- (c) Explain how Anna's energy ratios compare to the AMDR.

Example of a good answer included:

- Protein: AMDR 15-25%, Anna 13% (below the range)
- Fat: AMDR 20-35%, Anna 41% (above the range)
- Carbohydrate: AMDR 45-65%, Anna 46% (within the range)

Generally answered well by candidates.

3 marks

- (d) Which THREE nutrients is Anna deficient in? Explain ONE possible consequence of each deficiency.

Example of a good answer included:

Water – a lack of water can lead to constipation and kidney stones. Water helps to soften stools to prevent constipation.

Folate – a lack of folate can lead to megaloblastic anaemia which is where the red blood cells are larger than normal and there are fewer of them, resulting in less oxygen being transported around the body.

Calcium – a lack of calcium can lead to osteoporosis, which is a condition characterised by porous, brittle bones that can break easily.

Most candidates correctly identified the nutrients Anna is deficient in. Candidates that scored well, identified the nutrient, stated a consequence and then gave a brief explanation of that. This question was misinterpreted by a number of candidates who just listed consequences rather than explaining one deficiency.

Some candidates misinterpreted protein as a deficiency because her % of energy is lower than the AMDR, however, she is not under consuming protein as her RDI is 216%. (4.5 marks)

- (e) (i) Anna appears to be overconsuming sodium, saturated fat and fibre. How much of each is Anna consuming? How much should Anna be consuming of each?

Example of a good answer included:

- Sodium – Anna is consuming 200%AI, she should be consuming 460-920mg/day
- Saturated fat – Anna's ratio for saturated fat is 46%, this should be 33%
- Fibre – Anna is consuming 143%AI, she should be consuming 22g/day.

Most candidates answered this well. Some candidates made the mistake of giving the values for a female 19-30 years old.

3 marks

- (ii) Explain **two** possible short-term consequences of overconsuming sodium, saturated fat and fibre.

Examples of a good answer included:

Sodium – an excess of sodium short term causes the body to lose large quantities of water as sodium attracts water. This then causes the body to become thirsty. Blood pressure may start to rise as sodium attracts water to the outside of cells which can cause an increase in blood volume.

Saturated fat – an excess of saturated fat short term may start to lead to an increase in blood cholesterol levels, particularly LDL cholesterol which can build up in the arteries. Another short-term consequence could be starting to gain weight.

Fibre – an excess of fibre short term could lead to constipation if extra fluid was not consumed. Extra fluid is needed on a high fibre diet as fibre absorbs water like a sponge. Another short-term consequence could be bloating.

This question was poorly answered by candidates. Many just listed a brief answer. Another common mistake was listing a long-term consequence.

4.5 marks

- (iii) Fill in the table providing foods from Anna's daily eating pattern that are contributing to her overconsuming sodium, saturated fat and fibre (**two** examples for each).

Accurate answers included:

	Foods contributing to overconsumption
Sodium	<ul style="list-style-type: none"> • hot chips • tomato sauce • hash browns • Hungry Jacks burger • sausages
Saturated fat	<ul style="list-style-type: none"> • hash browns • fried onion rings • full cream milk • Hungry Jacks burger • hot chips • sausages
Fibre	<ul style="list-style-type: none"> • Nutrigrain cereal • Popcorn • banana • bread

Most candidates scored well on this question. A common error was listing soft drink as a source of sodium.

3 marks

- (f) (i) How much iron is Anna consuming? Is she under or over consuming iron? Explain your answer.

Example of a good answer included:

Anna is consuming 278% RDI for iron. This means she is overconsuming as she is 178% over the RDI. Her RDI is 15mg/day.

Most candidates could recognise that Anna was consuming an excess of iron. For full marks it needed to be stated how much she was consuming compared to her RDI and whether this was too much or not enough. Many didn't state how much she should be consuming (15mg/day).

2 marks

- (ii) List **two** foods sources contributing to Anna's iron intake.

Accurate answers included:

- hamburger
- sausage
- bacon
- Milo
- Nutrigrain

Well answered by candidates.

1 mark

- (g) (i) Explain how Anna's fat intake ratio differs from the recommended.

Example of a good answer included:

The recommended fat ratios are 33% or 1/3 of each fat. Anna's fat ratios are 46% saturated (above the recommendation), 40% monounsaturated (below the recommendation) and 14% polyunsaturated (well below the recommendation).

Very well answered by candidates.

3 marks

- (ii) If Anna continues to consume fats in the current ratios, explain TWO possible long-term consequences.

Example of a good answer included:

A high intake of saturated fat can raise LDL cholesterol which builds up in arteries. This process is known as atherosclerosis and can lead to blockages, heart disease and stroke.

A low intake of polyunsaturated fat could also increase the risk of heart disease as it means someone is missing out on the benefits of it lowering LDL cholesterol.

This question was poorly answered by candidates. Candidates that did not score as well simply listed conditions without explaining them. Many students gave weight gain which was incorrect as each type of fat supplies 37Kj/g. This showed a lack of understanding of the ratios.

2 marks

Question 9

- (i) Compare how many serves of this food group Anna is consuming with the recommendations of the ADG.

Example of a good answer included:

It is recommended that Anna have 3.5 serves from the dairy/alternatives food group. She is consuming 1.5 serves, so is below the recommendation.

Poorly answered by candidates. Most could read the table to obtain the recommended number of serves but a large number of candidates could not determine how many serves a day Anna was consuming. While 1.5-2 serves was accepted, the cheese in the hamburger would not normally be counted as a commercial hamburger is classified as a discretionary food.

1 mark

- (ii) Outline ONE reason why a 70+ year old female requires more serves per day of this food group than Anna.

Example of a good answer included:

A 70+ year old female requires more calcium to support bone density and prevent osteoporosis.

Well answered by candidates.

1 mark

- (iii) Discuss **two** other nutrient requirements that may differ between Anna and a 70+ year old female.

Example of a good answer included:

Anna's would require more iron than a 70+ female as iron is lost during menstruation.

Anna would require more folate if planning a pregnancy in the future to prevent neural tube defects e.g. Spina bifida.

Mostly well answered by candidates. Other common responses included more fibre for the 70+ female to prevent constipation.

2 marks

- (vi) After consuming dairy products, Anna feels unwell. Provide TWO specific changes using alternatives to dairy options that Anna could introduce into her daily eating patterns to comply with this ADG.

Examples of accurate answers included:

- soy milk
- almond milk
- rice milk
- almonds
- broccoli
- fish with bones
- tofu
- seafood
- seeds
- green leafy vegetables

2 marks

- (b) (i) Is Anna meeting the ADG requirement for serves of fruit? How many serves should Anna have per day?

Example of a good answer:

The ADG recommend 2 serves of fruit per day for Anna. She is only having 1 serve so is not meeting the recommendation.

Well answered by candidates.

1 mark

- (ii) How many kilojoules is one serve of fruit? Provide a food example to demonstrate one serve.

Example of a good answer:

1 serve of fruit is 350Kj. 1 medium piece of fruit is a serve e.g. an apple or banana.

(Other accurate answers included 2 small pieces of fruit e.g., apricot or 1 cup of canned or diced fruit with no added sugar.)

Poorly answered by candidates. Many did not know the kilojoule content; therefore, candidates were rewarded for their example of a serve of fruit.

1 mark

- (c) (i) Anna has been considering going on a diet.

Discuss **two** principles Anna should consider when assessing the validity of the food information presented to her about the diet.

Examples of a good answer:

Anna could consider whether the diet information was reliable ie. how trustworthy it is. She could also consider the author ie. are they an expert in the field?

Anna could consider if it included a variety of nutritious foods from the 5 food groups each day and is it based on scientific evidence.

Poorly answered. Candidates either misinterpreted this question or had not learnt the content. Very few referred to checking the reliability, authority, currency or author. Answers such as: Is it a balanced diet? Does it meet her EER? Does it contain all 5 food groups? were rewarded as plausible.

2 marks

- (ii) Explain **two** reasons why using the Australian Dietary Guidelines to assist with planning daily food intake is the better option.

Examples of a good answer:

- The ADG are based on scientific evidence (over 55,000 pieces).
- They recommend consuming a wide variety of nutritious food from the 5 food groups daily and drinking plenty of water.
- They recommend limiting foods high in saturated fat, added salt, added sugar and/or alcohol.
- They provide a visual representation of the 5 food groups, the types of foods in each group and recommended number of daily serves.

This question was answered better than the previous with candidates giving insightful reasons why.

2 marks

- (iii) Anna is overconsuming discretionary choices. The ADG recommend to “limit intake of foods containing saturated fat, added salt, added sugars and alcohol.”

Identify TWO foods or drinks in Anna's daily eating pattern that are discretionary. Suggest TWO alternatives and give a clear reason to justify each suggestion.

Examples of a good answer:

Anna's discretionary foods include:

- pancakes
- maple syrup
- bacon
- McDonalds hash browns
- Coke
- Hungry Jacks cheeseburger
- hot chips
- fried onion rings
- chocolate biscuits
- sausages
- carrot cake
- lemonade

Could swap the pancakes and maple syrup for smashed avocado on wholegrain toast (this would increase her intake of monounsaturated fat and fibre and reduce her intake of added sugar).

Could swap the sausages, tomato sauce and white bread for some lean beef and steamed vegetables. This would reduce her intake of saturated fat and sodium. The vegetables are naturally low in kilojoules so would help with energy balance and are a good source of fibre to help prevent overeating.

Very well answered by candidates. Better answers gave a clear nutritional reason to justify the swap e.g. decreased saturated fat, increased polyunsaturated fat, added more fruit/vegetables to comply with ADG2.

3 marks

SECTION C – FOOD ISSUES

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

- While many candidates used the stimulus in their response, it was important they use it to add meaning to the essay, rather than simply rewriting it as part of the introduction.
- There was a large variation in the quality of responses. It was obvious that many candidates were using pre-learned essays that did not answer the question. It is important that candidates use the essay question as a guide to assist with the formatting of their essay and then adapt their knowledge to the essay question.
- It was obvious that there was a large batch of essays which had a number of commonalities and appeared to follow a formulaic response. This meant that the essay introduction and body paragraphs contained the same content for each candidate. This pattern was apparent for both question 10 and 11. In another setting, this would cause a teacher/Marker to question the academic integrity of the responses. This indicated that the essays did not show evidence of individual research which should be a focus of this unit.
- Terminology was generally used well, although there were some candidates who needed to refine the wording of their definitions. Commonly misspelt words continued to be 'strategy' and 'environment'.
- A longer response did not necessarily mean a quality response. It was more important to ensure that each component of the question was answered and to minimise the repetition within the answer. Quality responses demonstrated links between paragraphs and the focus of the question and were able to include analysis of the ramifications of either ecological sustainability or food security.
- Some handwriting was difficult to read. Candidates need to write clearly, simply and in pen.
- It was important to use paragraphs in the essay to indicate differentiation within the argument. There were a number of candidates who did not use paragraphing in their response, but this section demands candidates use structured paragraphs and sentences which are written in a logical, coherent manner.

Criterion 8: Identify and analyse food related issues.

Question 10

This question proved difficult to answer. The narrow nature of the question restricted the response that candidates were able to provide, given the restricted time allowed for a crafted examination answer.

Many candidates struggled to talk about food waste across the agri-food chain, finding it especially hard to relate food waste to food insecurity.

It was obvious that many candidates had completed some excellent research, but the barriers or strategies on which they had chosen to focus did not address global zero food waste.

Definition/Explanation

- While many candidates were able to define ecological sustainability, for many of these the definition was the only relevant information contained in their introduction.
- Stronger responses explained terminology such as ecological footprint and biocapacity. They also linked this to food security and the importance of reducing food waste.
- An example of how ecological sustainability was linked to food waste or food security included:
"...By the year 2050, the world population is expected to exceed 9.7 billion. To accommodate this, Australia's and the world agricultural industries will need to produce up to 70% more food using less water and land, whilst reducing the ecological footprint and halving food wastage. Ecological sustainability refers to the capacity of the biosphere to meet the needs of the current generation without hindering future generations from being able to meet their needs..."

Impact of food waste on other areas of the food system

- Many candidates found this a difficult concept to discuss and instead talked about the factors that lead to food waste without discussing the impact this has on other areas of the food system. The narrow focus of the questions made it difficult for capable students to show their knowledge and aptitude for the topic.
- Consequently, some candidates did not comment on this at all or only referred to this briefly in the general body of their essay and as such did not achieve their expected outcome.
- Some examples of the impact of food waste on other areas of the food system included issues such as landfill, climate change, wasted inputs (water, chemicals, energy) and income loss. Good responses also talked about the environmental impacts on the atmosphere, water, land and biodiversity.
- An example of how food waste impacted on other areas of the food system included:
"...High levels of food waste can have many impacts on the planet, as well as the three sectors of the food system. Food waste can cause significant levels of greenhouse gas emissions, as much of this food waste ends up in landfill or being composted. When food is rotting, or breaking down it releases high amounts of methane or carbon gas which can be harmful to the earth's atmosphere and lead to climate change which impacts on food production..."

Barriers to global zero food waste

- The nature of the question limited the scope of answers that candidates were able to discuss. Common answers included supermarket cosmetic standards, insufficient storage resources, natural disasters, packaging, individuals purchasing more food than they can consume, restaurants throwing away food, sales promotions to buy more than needed and best before dates. It was important to include statistics to support the examples.
- There were very few global examples used, even though the question asked students to use both global and Australian examples. Some examples did include farmers in Uganda and East Africa.
- While many candidates could identify barriers to a sustainable food system, the barriers identified did not necessarily relate to zero food waste. For example, chemical sprays are a barrier to ecological sustainability, however they can also be useful to reduce food waste as they can kill weeds, pests and fungus that could otherwise lead to food waste. Some candidates were able to explain this interrelationship.

- A number of candidates identified 'food waste' as a barrier itself, however the question asked students to talk about what led to this. It was clear that these candidates were using a pre-learned essay and had made no adjustment to their response to adapt the information to the question. Clearly adapting knowledge to the given question is a much better strategy than 'dumping' an already pre-learned response.

Links to food insecurity

- While a number of candidates were able to define food security or use the pillars, the majority of candidates were unable to explain how wasting food led to food insecurity, a difficult concept to articulate. Some candidates, pleasingly, touched on this concept when they discussed the impact of food waste on climate change, but all too often it required more elaboration.
- Some responses talked about how food wastage was a missed opportunity to improve food security and feed malnourished people. Food waste is, therefore, decreasing the possibility of an individual being able to achieve this. It was, however, not realistic to say that any food that had been wasted in developed countries could be sent to people in developing countries.
- An example of a good response:
"...A major contributor to food insecurity is food waste. There is enough food in the world to feed the entire population, however by 2030 there will be 840 million people who are food insecure. In wealthy countries such as Australia, tonnes of food is wasted each year. This shows the allocation of food sources around the world heavily relates to the income of a country, and the global food waste could be significantly decreased if every person in the population received adequate food sources..."

Strategies to address food waste

- The strategies used were very limited and somewhat simplistic which was partly the result of having to address food wastage. The most common response was the Woolworths "Odd Bunch" and Coles "I'm Perfect". Candidates also talked about food rescue organisations such as Food Bank or Oz Harvest, using a compost system or buying just enough food for each household.
- Strategies that included more depth included GM technology, food innovation (e.g. green banana flour) and insect farms which could create a circular food system. Other ideas could have been using it as stock feed, using waste to create renewable energy and buying less processed food with less inputs to conserve the planet's resources.
- It was good to see that most candidates attempted to evaluate the feasibility of their strategies. Some of the evaluations, however, lacked depth and tended to the very obvious, lacking the depth of research required at this level which was reflected in the quantity of formulaic essays marked.
- A number of candidates used the concept of starch-based packaging materials with companies such as Biopak. In order to use this as a strategy, candidates needed to talk about using waste materials as part of this process as the question asked candidates to analyse how this could address food waste.
- Some candidates talked about reducing the use of power by using solar or wind power or using organic farming methods, however these responses did not necessarily address the issue of food waste and that needed to be included as part of the strategy.
- In theory most of the above strategies are relevant and important, but they all need to be explained in more depth to both evaluate and analyse the value of dealing with food waste.

Question 11

Definition/Explanation

The majority of candidates knew the definition of food security.

Food security is "...when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2009).

Components (the pillars) of food security. In general, most could list the components/pillars, but a large proportion didn't outline them as required by the question. There are five components that contribute to food security including availability (having a sufficient supply of food for all people at all times), accessibility (physical and economic access to food at all times), acceptability (access to culturally acceptable food which is produced and obtained in ways that don't compromise people's dignity, self-respect or human rights), adequacy (access to food that is nutritious, safe and produced in environmentally sustainable ways) and stability (reliability of food supply).

Barriers to food security

Candidates were asked to discuss two barriers using global and Australian examples/statistics to support their analysis.

Good examples included: natural disasters, war and displacement of people, food wastage, production of biofuels, poverty, unstable global food markets, rising food prices, pest infestations.

Common mistakes included: the lack of use of statistics, did not link the barrier to how it impacted food security, and either focused on Australian examples OR global examples not both as stipulated by the question.

Food insecurity and children

Candidates found this challenging to answer. Many candidates did not address the dot point requirement at all. Candidates tended to focus on malnourishment, stunting, attention deficit disorder, delayed learning, intellectual concentration or inability to attend school in the first place. Other elements could have included: increased hospitalisations, iron deficiency, acute infections, poor mental health and chronic diseases (e.g. obesity, diabetes, heart disease).

The following research findings could have been used to support candidates' discussion:

"Food security has been shown to affect academic achievement in children, both in ability upon commencement at school, and in learning over the school year (Wikicki & Jemison, 2003). Food insecurity is especially relevant to the current "obesity epidemic" amongst Australian children (Gill et al., 2009) as Australian data indicate that the risk of obesity is higher in those who experience (mild to moderate) food insecurity (Burns, 2004). While this might seem illogical, it is due to the tendency of food insecure people to purchase cheaper food, which is often much lower in nutritional content and higher in fat, salt and sugar content and refined carbohydrates (starch) (Burns, 2004)."

"Food insecurity is also associated with general poor health, and may worsen other health inequalities that are apparent in disadvantaged groups such as a higher mortality rate, and higher rates of coronary heart disease, type-2 diabetes and some cancers (Turrell & Kavanagh, 2005). Furthermore, poor nutrition is associated with low birth weight and ill health in infancy and childhood (Browne et al., 2009)."

Child Family Community Australia. 2011. *Food Insecurity in Australia: What Is It, Who Experiences It and How Can Child and Family Services Support Families Experiencing It?* [online] Available at:

<https://aifs.gov.au/cfca/publications/food-insecurity-australia-what-it-who-experiences-it-and-how-can-child>

[Accessed 1 December 2020].

Strategies to address food security

- It was clear that many candidates were using a pre-learned essay and had made no adjustment to their response to adapt the information to the question. Clearly, adapting knowledge to the given question is a much better strategy than 'dumping' an already pre-learned response.
- While many candidates were able to identify barriers to food security, many students were not able to analyse the advantages and disadvantages of possible solutions to such barriers.
- Common strategies used included: Plumpy Nut, genetically modified organisms, Love Food, Hate Waste, community gardens and kitchens, food aid, Farmer Managed Nutritional Regeneration (FMNR) and education (which needed more specific detail to explain how this would improve food security).
- Other examples could have included: reforming biofuel mandates, supporting small scale farmers, building the capacity of women, improving food distribution methods, technology (e.g. mobile phones and drones in agriculture), solar energy, ethical/sustainable food production, improving farming practices (e.g. decreasing agricultural chemical use, capturing irrigation water and reusing it).
- Along with identifying these strategies, candidates needed to discuss their potential success and the impact on food security now and in the future. Outstanding candidates would have been expected to include such analysis and evaluation in their response.

SECTION D – FOOD SOCIOLOGY

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

Criterion 6: Analyse factors affecting food choice.

Question 12

Explain **three** social factors that affect the food consumption patterns of adolescents. Use food examples to support your answer.

5 marks

- Markers were looking for use of the food choice factors e.g. 'peers', 'household structure' rather than general terms such as 'friends.'
- Candidates needed to name specific foods or meals like 'chicken and chips' rather than general terms such as 'takeaway' or 'discretionary food'.
- Candidates who discussed factors most relevant to adolescents showed a better understanding (e.g. explaining social media or peers as compared to Christmas traditions).
- Some candidates did not appear to understand the term 'adolescent' and spoke about young children or ignored the term completely.
- Candidates needed to explain why / how the factor affected adolescents, for example, 'adolescents order the same as their friends due to the desire to be accepted/fit in', rather than just 'they will order the same as friends'.

Social factors could include:

- culture and tradition
- media, marketing and advertising, and food regulation
- lifestyle and work pattern (employment, education, household structure and roles, climate and geographic location, travel and other interests)
- social and community interactions (peer, family, community).

Examples might include:

Social and community interactions:

- The influence of peers is strongest during adolescence. The need for acceptance often makes people eat what their friends eat rather than what their family eats, what they would normally eat and what is nutritious. They may choose a burger and fries as that is what their friends have most days after school.
- Fad dieting can be encouraged by peers, so adolescents may begin restricting their food intake to small portions of vegetables such as celery sticks or making smoothies and juices.
- Friends ordering certain foods may cause a person to feel self-conscious and affect their food choice. For example, ordering a salad instead of the hamburger that they would prefer.
- Food is often a central aspect of socialising with others. When adolescents hang out with each other on the weekend watching Netflix they may eat popcorn, chocolate and lollies together, which is brought on by this particular social interaction with others.
- Social gatherings are common for adolescents. They may consume chips, party pies, pizza and soft drinks at parties as these are convenient and cheap foods, easy to serve many people. They may also have a tradition of meeting after sporting events for a meal of chicken parmigiana or nachos.

Marketing and advertising:

- Adolescents are frequent consumers of social media. Instagram posts from their idols or celebrities may encourage them to follow diet trends such as a juice detox, a low carb diet or a high protein diet with lots of chicken, or protein shakes and bars.
- Advertisements for fast food chains often appear in social media feeds at specific times of day, enticing adolescents to purchase new products such as burgers, pizza or iced beverages. For example, the recent 'KFC Slab burger'.
- Many companies target adolescents, especially with cost such as 'meal deals' or very inexpensive products from large fast food chains which are appealing to the price range / disposable income of adolescents. For example, \$1 frozen Coke®.

Lifestyle and work pattern:

- Adolescents may pack foods convenient for a lunchbox during school each day, such as a drink bottle, sandwich/salad roll and fruit, packet of chips or muesli bars.
- Adolescents can have many commitments such as school, work, sport and leisure meaning they may need to eat at different times to their family or may prepare/purchase their own meals. This might include reheating a lasagne for dinner, packing a breakfast drink like 'UP&GO' and a banana to eat on the way to school or training.

Question 13

Explain how the colour of foods may influence an individual's food choice. Provide **three** food examples in your answer.

5 marks

Many candidates used examples which were too similar or simplistic and did not show a range of ways that colour can influence food choice.

Examples might include:

- Colour is an important indicator of quality and nutritional value. We especially use this as an indicator for the freshness of fruit and vegetable products. If a product is dull or discoloured, we reject it in favour of brighter/more vibrant colour.
 - Example: a yellow banana is more appealing than a brown, spotty banana.
 - Example: An iceberg lettuce is more appealing when it is green and crisp rather than brown, saggy and soggy.
- Children often find bright colours appealing and exciting for their novelty, whilst adults may be put off by unnatural colours.
 - Example: Choosing a rainbow coloured ice cream rather than plain vanilla.
- Colour can also be a sign of spoilage
 - Example: Green/blue mould on bread might make a person avoid it and choose a cereal for breakfast instead.
 - Example: black, charred appearance indicates that toast has been burnt and will not taste pleasant
- Colour can often be an indication of taste/flavour. People are likely to select colours which reflect their preferred flavours.
 - Example, a red lolly is used to indicate strawberry flavour or yellow to indicate a lemon flavour or may be associated with a sour flavour.

Question 14

Explain how the social factor of food regulation may influence an individual's food choice. Provide **THREE** food examples in your answer.

5 marks

Few students answered this question, and very few understood what was meant by food regulation and how it impacts food selection.

Examples might include:

- Food regulation encompasses health and safety standards, food labelling, permitted and banned ingredients and food imports under the Food Standards Code and food policies.
- Food regulation can directly or indirectly affect the supply, price, safety and nutritional composition of foods along with the information consumers receive about food via food labelling.
- When travelling overseas, individuals may be concerned about low food safety standards and the risk of food poisoning. Instead of purchasing foods from unregulated street markets, they may opt for pre-packaged snacks like crackers and biscuits and bottled water or soft drink.

- Many products must have date marking and directions for use and storage. If a product such as milk is past its 'use-by' date or has been left out of the fridge for too long, then it will likely be discarded.
- Mandatory fortification of commercial bread flour with folic acid and iodised salt in Australia might encourage people to select these commercial products rather than make their own bread, so they can meet their need for these nutrients.
- Food labelling is regulated in Australia. Information on labels regarding nutrition content or health claims such as 'good source of calcium' or 'lowers cholesterol absorption' can encourage individuals to purchase products such as margarine over butter.
- The Health Star Rating gives individuals the ability to compare all like processed food products. They may use this when buying yoghurt and purchase a natural style yoghurt with 4 stars over a flavoured yoghurt with 1 star.
- Sugar taxes, such as in the UK can act as a deterrent to purchasing sugar-sweetened beverages as the price is increased. An individual may select 100% fruit juice or water instead.

Question 15 – Scenario

- Terms 'physiological and psychological' were frequently misspelled.
- Whilst many candidates were able to identify sub-factors, they were not explained in enough detail. The strongest responses showed, for example, what culture is and how it broadly influences food choice such as reflecting identity and being familiar, rather than just stating 'Hiro has Asian heritage'.
- Many candidates spent far too much time repeating information from the scenario without any analysis.
- Allergies and intolerances were frequently mislabelled as a 'sensory reaction' rather than 'food sensitivity.'
- Many candidates were lacking specific food examples in their analysis or contradicted themselves such as pointing out a lactose intolerance in one section and then later suggesting a cheese sandwich would be a likely choice.
- Terms such as 'take-away' or 'fast food' or 'gluten free alternatives' were too broad. The strongest responses named likely foods/meals such as soy/almond milk or rice crackers.
- Candidates may benefit from greater exposure to common cuisines, as several confused foods such as sushi as being Chinese.
- Candidates are advised to use the terms 'may', 'likely', 'might' instead of definitive terms such as 'Jane eats spinach' or 'Jane will have cereal'. Students should avoid moving into a 'storytelling' mode where they make up information which is not in the scenario.
- The strongest responses focused on the many obvious examples of sub-factors which were evident in the scenario.
- Several candidates gave dietary modification advice or commented on the potential health outcomes of dietary patterns which is neither necessary nor appropriate for this section. This did not gain marks.
- Interrelationships between factors was largely not addressed by students and very few did this well. Candidates needed to explicitly show the interrelationship by naming the sub-factors, discussing how they are connected and how they contribute together to food choices.
 - A good example was: The Social factor of culture being connected to the Physiological factor of Intolerances/allergies. Hiro would be likely to be including a lot of rice in the family's diet (a traditional staple food of China). Rice being gluten free would be suited to the twin's meals.

Criterion 2: General Comments:

Responses which rated the highest in Criterion 2 included:

- Highly accurate spelling, grammar, sentence structure and punctuation.
- Correct and frequent use of terminology (e.g. Physiological, Psychological, Nutritional Requirement, Habit etc).
- A clear structure to the scenario response, with the best using headings, sub-headings and spaces/paragraphs between factors.
- Sophisticated language and complete sentences.
- Introductions and conclusions were not necessary and likely a waste of time as it reduced time spent analysing the scenario without adding content.
- Students who wrote their responses in very long paragraphs tended to rate lower for Criterion 2 as they lacked clarity and moved rapidly from one sub-factor to the next. This often corresponded with lower Criterion 6 marks as they did not include enough detail for each sub-factor.

Jane

Physiological – nutritional requirements

As Jane is pregnant, calcium, protein and folate are important nutrients for the development of the foetus. She may choose to eat good sources of these nutrients e.g. milk, Greek yoghurt (calcium), lean meat, lentils (protein) and leafy green vegetables and legumes (folate).

Physiological - level of physical activity

As Jane is quite active, she would probably eat to meet her energy needs. She may choose to consume more carbohydrates for energy e.g. brown rice, porridge and more protein for muscle growth and repair eg. lean chicken, nuts and seeds.

Psychological – emotions

Emotions are to do with our state of mind and how we feel. Jane is feeling very tired and unmotivated. She may select foods which are very quick and easy to prepare for herself such as pasta with premade sauce, or foods which give her quick energy such as, lollies and chocolate.

Social - social interactions

Food is strongly associated with social gatherings and interactions. At book club this is likely to include finger foods/snacks easy to share amongst people such as cakes, slices or biscuits with dip and cheese.

Economic – income

Income influences the quality, quantity and type of food selected. Jane has a reduced income due to working fewer hours. This means she is likely to select cheaper options such as beef mince/sausages instead of scotch fillet steak or salmon fillets. She may begin to cook more with cheaper carbohydrates such as rice and pasta and include frozen mixed vegetables.

Hiro

Physiological – level of physical activity

Hiro's demanding hands on job, swimming and gym requires him to consume a greater number of kilojoules daily to ensure he has enough energy to maintain his BMR and his high physical activity level. Therefore, he may consume a greater amount of carbohydrates for energy production (e.g. wholegrain bread and pasta, fruit smoothies) and more protein for muscle growth and repair (eggs on toast, tuna salad).

Physiological – sensory reactions

Our reactions to food are based on our sensory perceptions. The colour, shape, turgor and texture of foods will indicate their freshness and nutritional quality. Hiro prefers eating only fresh-looking vegetables. He may select crisp lettuce, firm salad vegetables like cucumber and tomato and celery.

Social – culture

Culture is often reflected and experienced through foods and meals. It helps people feel connected to their culture and heritage. Having Asian heritage, Hiro possibly cooks many of the traditional Chinese foods he grew up eating. He may use lots of rice and noodles as bases to dishes, Asian sauces such as soy, oyster sauce or sesame oil, and perhaps traditional ingredients like Chinese broccoli, pak choy and mushrooms. Common cooking methods such as stir-frying, and steaming could be used.

Social – interests

Personal interests influence the time available for cooking, along with the style and ingredients used. Hiro has a passion for cooking and growing fresh produce. When he is not working, he may enjoy preparing meals such as traditional soups with fresh vegetables and herbs like coriander from his garden.

Social – social interactions

Going out for food or drinks is a common social activity. Hiro catches up with friends at the pool café after swimming. Given that he enjoys fitness, he may be more likely to select healthy options such as a chicken and brown rice salad, a wrap with roasted vegetables or fruit salad with yoghurt and granola. He may order a berry or banana smoothie with low-fat milk.

Psychological – habit

Habits are things that individuals do regularly without thinking. They are often convenient and easy options as minimal planning and effort is required. Hiro likes going to a local bakery for his lunch and morning tea breaks. He may have a habit of selecting foods such as salad rolls or fruit muffins and do this without thinking.

The family also like getting takeaway every Saturday. They may have a habit of choosing a meal such as burgers and chips, or depending on the style of the local shop, takeaway Chinese noodles.

Economic – resources (time)

Time is a key influence on our food choice. When time is limited it may be exchanged for convenience foods. Hiro works long hours, meaning time for food preparation is reduced. He may prepare quick meals such as heating noodles and quickly stir-frying some vegetables and tofu or steaming some frozen dumplings. He may choose powdered or packet stock for soups rather than make his own.

Economic – food availability

Availability refers to where people can get their food. Living in a small, remote country town, food availability may be limited. There might be a smaller marketplace which only stocks a few varieties of products, as compared to a large urban supermarket which is able to offer extensive choice to the consumer. However, Hiro grows fresh produce in his backyard which means he may prepare dishes with lots of fruits and vegetables such as carrots, green beans, Asian greens and pumpkin. He might snack on fresh fruit grown such as strawberries or apples.

Sam and Li

Physiological – food sensitivities (intolerance)

Food intolerances are a chemical reaction to food. Sam and Li both are lactose and gluten intolerant. They may be given gluten free bread and pasta instead of white bread and pasta. Snacks might include gluten and dairy free options such as rice crackers, vegetable sticks or fresh fruit. They may have soy or almond milk instead of cow's milk as it is lactose free.

Physiological – nutritional requirements

Sam and Li are at a key stage of growth. They are also physically active with swimming lessons and playing at the park. Nutrients such as protein, calcium and iron are important for their health. Jane might make them snacks such as rice crackers or gluten free bread with nut butter.

Inter-relationships

Jane's lack of enjoyment for cooking (social – interests) and feeling tired and unmotivated (psychological – emotions), combined with lower income (economic – income) may mean she prefers to purchase cheap, take-away or ready-prepared meals for her family. She does not have to prepare anything, and it is cost-effective for her family. She may buy a roast chicken and chips with a potato salad or coleslaw for dinner.

Hiro's frequent physical activity such as going to the gym and swimming suggest that he values (psychological) his health. When combined with his passion for cooking and growing fresh produce (social – interests) / (economic – resources) this means he is likely to prepare nutritious foods with ingredients from his garden such as a salad with roast pumpkin, green beans and cherry tomatoes or a curry with fresh coriander, snow peas and bean shoots.