



**UNCOVER
LEARNER
POTENTIAL**

WJEC Level 3 Alternative Academic Qualification in
FOOD SCIENCE AND NUTRITION
(Certificate and Extended Certificate)

Teaching from September 2026

Unit 1 Sample Assessment Materials

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Surname	Centre number	Candidate number
First name(s)		0



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**Level 3 Alternative Academic Qualification in
Food Science and Nutrition
(Certificate and Extended Certificate)**

Unit 1: Nutritional needs across the life stages

Time 1 Hour 30 Minutes

SAMPLE ASSESSMENT MATERIALS

Instructions to candidates

Use black ink or black ball-point pen. Do **not** use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces provided at the top of this page.

Answer **all** questions.

For examiner's use only		
Question	Maximum mark	Mark awarded
1.		
2.		
3.		
4.		
5.		
6.		
Total		

Write your answers in the spaces in this booklet. If you need more space, use the additional page(s) at the back of this booklet. Number the question(s) correctly.

Information for candidates

The number of marks is given in brackets at the end of each question or part-question. The total number of marks available is **80**.

You should think carefully about how you use your time.

Your responses must be clear, accurate and well presented.

Section A: Short answer questions

Answer **all** questions.

1. Identify **two** functions of dietary fibre in the human body.

[2]

Examiner
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2. Identify **two** examples of disaccharides.

[2]

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3. Identify **two** potential health consequences of excessive sodium intake.

[2]

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4. Describe the role of salivary amylase in the digestion of carbohydrates including where this process begins.

[4]

Examiner
only

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5. Maria, a 45-year-old office worker, was recently diagnosed with type 2 diabetes. Her doctor advised her to manage her blood sugar levels through dietary changes and regular exercise. Maria is eager to make informed food choices but finds it challenging to understand how different foods affect her blood sugar levels. She has heard about the glycaemic index (GI) but is unsure how to use it effectively in her meal planning.

[4]

Explain how the glycaemic index can be used to make informed food choices for Maria.

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6. State **two** examples of water-soluble vitamins.

[2]

Examiner
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7. State **two** visible characteristics that might indicate a nutritional deficiency.

[2]

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8. A family living in an urban area has limited access to fresh produce and relies heavily on preserved foods. The parents are concerned about providing adequate nutrition for their two children, who are in middle childhood and adolescence. They want to ensure that their children receive the necessary vitamins and minerals for their growth and development, despite their reliance on preserved foods.

[6]

Explain the potential impacts of using canned versus frozen vegetables.

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9. (a) Describe the role of the stomach in protein digestion.

[3] Examiner only

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(b) Outline how proteins are digested and absorbed in the small intestine.

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10. Explain the impact of boiling on the nutritional value of vegetables.

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11. Outline **two** ways in which food production methods can negatively impact the nutritional value of food.

[2]

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Section B: Extended Response Questions

Answer **all** questions.

12. You are a nutritionist advising a government health department on strategies to combat widespread nutritional deficiencies in the population. One proposed strategy is the fortification of common foods such as bread, margarine and cereals with essential vitamins and minerals.

[12]

Examiner
only

Evaluate the effectiveness of food fortification as a strategy to address nutritional deficiencies in a population.

- Consider the benefits and potential drawbacks of fortifying bread, margarine and cereals with vitamins and minerals.
- Draw conclusions on the overall impact of this strategy on public health.

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- 13.** You are a food scientist working for a company that produces pre-packaged meals. The company wants to ensure that their products are both nutritious and appealing to consumers. You have been asked to evaluate the impact of different cooking methods on the nutritional value of the ingredients used in these meals.

[12]

Examiner
only

Evaluate the impact of deep fat frying, roasting and steaming on the nutritional value of the ingredients used in pre-packaged meals.

- Consider both the positive and negative aspects of each cooking method in your response.
- Draw conclusions on the overall impact of the cooking methods on the nutritional value and sensory appeal of the ingredients.

[illegible]

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Examiner
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Section C: Case Study

Answer **all** questions.

Alex, a 16-year-old college student-athlete recently transitioned to a vegan diet motivated by both ethical concerns and the belief that it would enhance their overall health. However, after a few months, Alex has been experiencing fatigue, muscle cramps, dizziness and slower recovery times after practice. Additionally, they have noticed their skin becoming paler and their nails more brittle.

Alex lives in a bustling urban area with their family, who are supportive of their dietary choices but lack in-depth knowledge of vegan nutrition. Due to their busy schedule balancing academic studies and a part-time job, Alex often relies on convenient, processed vegan options like meat substitutes, frozen meals and packaged snacks.

As a nutritionist, you've been asked to assess Alex's situation.

- 14.** (a) State two dietary habits or lifestyle factors and how they could lead to potential nutritional deficiencies contributing to Alex's symptoms [4]

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Examiner
only

- (c) Justify your dietary recommendations for Alex by explaining how the specific foods and meal patterns you have suggested will address their identified nutritional deficiencies and support their active lifestyle as a vegan student-athlete.

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Examiner
only

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END OF QUESTIONS

MARK SCHEME

Guidance for examiners

Generic marking principles

- Marks awarded are always whole marks (not half marks, or other fractions).
- Answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.
- Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
- Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Positive marking

It should be remembered that candidates are writing under examination conditions and credit should be given for what the candidate writes, rather than adopting the approach of penalising candidates for any omissions. It should be possible for a very good response to achieve full marks and a very poor one to achieve zero marks. Marks should not be deducted for a less than perfect answer if it satisfies the criteria of the mark scheme.

For questions that are objective or points-based, the mark scheme should be applied precisely. Marks should be awarded as indicated and no further subdivision made.

Mark schemes often list points which may be included in candidates' answers. The list is not exhaustive. The inclusion of '*Credit any other valid response.*' (or similar instruction) within mark schemes allows for the possible variation in candidates' responses. Credit should be given according to the accuracy and relevance of candidates' answers.

Appropriate terminology is reflected in exemplar responses in mark schemes. However, unless there is a specific requirement within a question, candidates may be awarded marks where the answer is accurate but expressed in their own words.

Banded mark schemes

For band marked questions mark schemes are in two parts; the indicative content and the assessment grid.

The indicative content suggests the range of points and issues which may be included in candidates' answers. It can be used to assess the quality of the candidate's response. As noted above, indicative content is not intended to be exhaustive and candidates do not have to include all the indicative content to reach the highest level of the mark scheme.

However, to reach the highest level of the mark scheme a candidate must meet the requirements of the highest mark band. Where a response is not creditworthy, that is, it contains nothing of any significance to the mark scheme, or where no response has been provided, no marks should be awarded.

The marking of banded mark questions should always be positive. This means that, for each candidate's response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding: they are not deducted from a maximum on the basis of errors or omissions.

Examiners should first read and annotate the candidate's answer to pick out the evidence that is being assessed in that question. The mark scheme can then be applied. This is done as a two-stage process.

Stage 1 – Deciding on the band

Beginning at the lowest band, examiners should look at the candidate's answer and check whether it matches the descriptors for that band. If the descriptors at the lowest band are satisfied, examiners should move up to the next band and repeat this process for each band until the descriptors most closely matches the work.

Stage 2 – Deciding on the mark

Having determined the appropriate band, deciding on the mark within a band will be made on the basis of a 'best fit' procedure, weaknesses in some areas being compensated for by strengths in others.

Examiners should use the full range of marks available to them. Marking should be positive, rewarding achievement rather than penalising failure or omissions. The awarding of marks must be directly related to the marking criteria, and all responses must be marked according to the banded levels provided for each question.

Standardising material that has already been awarded a mark will be provided during standardising and this should be used as a reference material when assessing work. Examiners are reminded of the need to revisit the standardising material as they apply the mark scheme in order to confirm that the band and the mark allocated is appropriate to the work submitted.

This mark scheme instructs examiners to look for and reward valid alternatives where indicative content is suggested for an answer. This is not a checklist for expected content in an answer, or set out as a 'model answer', as responses must be marked in the banded levels of response provided for each question. Where a candidate provides a response that contains aspects or approaches not included in the indicative content, examiners should use their professional judgement to determine the validity of the response in light of the task and reward as directed by the bands. Candidates are free to choose any approach that is relevant to the set task. Candidates can (and will most likely) incorporate ideas other than those mentioned in the mark scheme.

Section A: Short answer questions

Question	Answer	AO1	AO2	AO3	Total Mark
1.	Identify two functions of dietary fibre in the human body.				
	Award one mark for the identification of a correct function, up to maximum of two marks:	2			2
	- Promotes digestive health (1) - Regulates blood sugar levels (1) - Reduces cholesterol levels (1) - Satiety (1)				
	Accept any other suitable response.				

Question	Answer	AO1	AO2	AO3	Total Mark
2.	Identify two examples of disaccharides.				
	Award one mark for each correct example.	2			2
	Sucrose (1)				
	Lactose (1)				
	Maltose (1)				

Question	Answer	AO1	AO2	AO3	Total Mark
3.	Identify two potential health consequences of excessive sodium intake.				
	Award one mark for each health consequence, up to maximum of two marks:	2			2
	- High blood pressure (hypertension) (1) - Increased risk of cardiovascular disease (CVD) (1) - Kidney damage (1) - Dehydration (1) - Excessive thirst (1)				
	Accept any other suitable response.				

Question	Answer	AO1	AO2	AO3	Total Mark
4.	Describe the role of salivary amylase in the digestion of carbohydrates including where this process begins.				
	Award 1 mark for each explanation point, up to a maximum of 4 marks. Saliva contains enzymes responsible for the breakdown of specific nutrients. (1) Salivary amylase is an enzyme found in saliva that begins the process of carbohydrate digestion in the mouth. (1) It breaks down starch, a complex carbohydrate, into smaller sugar molecules like maltose. (1) This is the first step in the breakdown of carbohydrates, making them easier to digest and absorb later in the digestive process. (1) Accept any other suitable response.	4			4

Question	Answer	AO1	AO2	AO3	Total Mark
5.	Scenario Maria, a 45-year-old office worker, was recently diagnosed with type 2 diabetes. Her doctor advised her to manage her blood sugar levels through dietary changes and regular exercise. Maria is eager to make informed food choices but finds it challenging to understand how different foods affect her blood sugar levels. She has heard about the glycaemic index (GI) but is unsure how to use it effectively in her meal planning. Question Explain how the glycemic index can be used to make informed food choices for Maria.				
	Award 1 mark for each explanation point, up to a maximum of 4 marks. The glycemic index (GI) ranks carbohydrates by how quickly they raise blood glucose. (1) High-GI foods and drinks cause rapid spikes, while low-GI foods cause gradual rises. (1) The GI index runs from 0 to 100. Pure glucose has a GI of around 100. Low GI foods with a rating of 55 or below include most fruits and vegetables, unsweetened milk, nuts, pulses, some wholegrain cereals and bread. (1) For Maria, with type 2 diabetes, choosing low-GI foods helps manage blood sugar levels, preventing dangerous fluctuations. This improves glycemic control, reduces risk of complications and may lessen medication needs. (1) Incorporating low-GI foods like whole grains and legumes into her diet will promote stable energy levels and better health. (1) Accept any other suitable response.		4		4

Question	Answer	AO1	AO2	AO3	Total Mark
6.	State two examples of water-soluble vitamins.				
	Award one mark for each correct example.	2			2
	• Vitamin C (Ascorbic Acid) (1) • Vitamin B1 (Thiamine) (1) • Vitamin B2 (Riboflavin) (1) • Vitamin B3 (Niacin) • Vitamin B9 (Folate) • Vitamin B12 (Cobalamin) (1)				
	Accept any other suitable response.				

Question	Answer	AO1	AO2	AO3	Total Mark
7.	State two visible characteristics that might indicate a nutritional deficiency.				
	Award one mark for each correct example.	2			2
	• Hair loss (1) • Brittle nails (1) • Pale or yellowish skin (1) • Mouth sores or cracks at the corners of the mouth (1) • Swollen or bleeding gums (1)				
	Accept any other suitable response.				

Question	Answer	AO1	AO2	AO3	Total Mark
8.	Scenario: A family living in an urban area has limited access to fresh produce and relies heavily on preserved foods. The parents are concerned about providing adequate nutrition for their two children, who are in middle childhood and adolescence. They want to ensure that their children receive the necessary vitamins and minerals for their growth and development, despite their reliance on preserved foods. Question: Explain the potential impacts of using canned versus frozen vegetables. The impact of using canned versus frozen vegetables on the family's nutritional intake involves several considerations: Nutritional Content: • Canned vegetables often undergo a heating process during canning, which can lead to some loss of heat-sensitive nutrients like vitamin C and certain B vitamins (1). • Many canned vegetables contain added sodium as a preservative, which can contribute to high blood pressure if consumed in excess (1). • Frozen vegetables are typically flash-frozen soon after harvest, which helps to preserve most of their original nutrient content, including vitamins and minerals (1). • Due to the preservation in nutrients, frozen foods will give more nutrients than canned vegetables, ensuring that the children receive sufficient nutrients to support healthy growth and development (1). Convenience and Shelf Life: • Canned vegetables have a long shelf life and do not require refrigeration until opened, so may be a better option when there is limited fresh fruit and vegetables (1). • They are a convenient option for families with limited storage space and ready to eat (1). • They are often pre-chopped and can be quickly prepared, offering convenience similar to canned vegetables (1). Award any other suitable response.		6		6

Question	Answer	AO1	AO2	AO3	Total Mark
9.	(a)	Describe the role of the stomach in protein digestion-			
		Award one mark for each descriptive statement.			
			3		3
		The stomach plays a crucial role in protein digestion by secreting gastric juices, including hydrochloric acid (1). Hydrochloric acid lowers the pH, which disrupts the proteins (denaturing), this unfolds the protein structure making them easier for enzymes such as pepsin, to break down (1). This enables the process of breaking down protein molecules into smaller peptides (1). Accept any other suitable response.			
	(b)	Outline how proteins are digested and absorbed in the small intestine.			
		Award one mark for each outline statement.			
			3		3
		In the small intestine, pancreatic enzymes (such as chymotrypsin, trypsin, protease) further break down proteins into smaller peptides (1). These peptides are then broken down into amino acids by enzymes on the intestinal lining (1). The amino acids are absorbed through the intestinal walls into the bloodstream via active transport (1). Accept any other suitable response.			

Question	Answer	AO1	AO2	AO3	Total Mark
10.	Explain the impact of boiling on the nutritional value of vegetables. Award one mark for each correct example. Boiling can lead to the loss of water-soluble vitamins, such as vitamin C and some B vitamins, due to leaching into the water (1). While some nutrients are lost, boiling does not significantly affect the mineral content of vegetables, such as potassium, magnesium and calcium, as these minerals are more stable during the cooking process and do not dissolve as readily in water. (1) Prolonged boiling can degrade certain antioxidants, such as flavonoids and polyphenols, which are sensitive to heat. This can reduce the health benefits associated with these compounds. (1) Boiling can soften the fibre in vegetables, making them easier to digest and increasing the bioavailability of certain nutrients, such as beta-carotene from carrots. (1) Accept any other suitable response.		4		4

Question	Answer	AO1	AO2	AO3	Total Mark
11.	Outline two ways in which food production methods can negatively impact the nutritional value of food.				
	Award one mark for impact statement, up to maximum of two marks: Boiling vegetables can leach water-soluble vitamins (like vitamin C and B vitamins) into the cooking water (1), reducing their content in the vegetables (1). The refining process removes the bran and germ from grains, leaving behind the endosperm (1). This process strips away significant amounts of fibre, vitamins, and minerals (1). Deep-frying involves submerging food in hot oil, which can lead to the absorption of fat, increasing the calorie content and potentially the intake of unhealthy fats (1). Additionally, some nutrients, like vitamin E, can be destroyed at high temperatures (1). While pasteurisation is important for food safety as it kills harmful bacteria (1), it can also reduce the levels of some heat-sensitive vitamins, such as vitamin C and some B vitamins (1). Accept any other suitable response.	2			2

Section B - Extended Response Questions

Question	Answer
12.	Scenario: You are a nutritionist advising a government health department on strategies to combat widespread nutritional deficiencies in the population. One proposed strategy is the fortification of common foods such as bread, margarine and cereals with essential vitamins and minerals. Question: Evaluate the effectiveness of food fortification as a strategy to address nutritional deficiencies in a population. - Consider the benefits and potential drawbacks of fortifying bread, margarine and cereals with vitamins and minerals. - Draw conclusions on the overall impact of this strategy on public health.
Indicative Content	
Food fortification is a strategic public health intervention aimed at addressing nutritional deficiencies by adding essential vitamins and minerals to commonly consumed foods. This strategy has been implemented with varying degrees of success. In evaluating the effectiveness of fortifying bread, milk, and cereals, it is essential to consider both the benefits and potential drawbacks. Fortifying bread with calcium, iron and B vitamins can significantly reduce the prevalence of deficiencies in these nutrients. Calcium is vital for bone health, iron is crucial for preventing anaemia, and B vitamins are necessary for energy metabolism and neurological function. Bread, being a staple food, ensures widespread intake of these nutrients across different population groups. Cereals, often consumed as breakfast foods, provide an excellent vehicle for delivering B vitamins and iron. Fortified cereals can contribute to meeting daily nutritional requirements, particularly in children, who are at a higher risk of deficiencies due to their growth needs. The addition of these nutrients can help improve cognitive function and overall energy levels, supporting better performance in school and daily activities. Despite its benefits, food fortification comes with potential risks. Overconsumption of fortified nutrients can lead to toxicity. For example, excessive vitamin A intake can cause liver damage and other health issues, while too much iron can result in conditions like hemochromatosis. Therefore, it is crucial to monitor and regulate the levels of fortification to avoid such risks. Cost implications are another consideration. The process of fortifying foods can increase production costs, which may be passed on to consumers. This could potentially make fortified foods less accessible to low-income populations, who are often the most in need of these nutrients. Governments and manufacturers may need to provide subsidies or financial support to ensure affordability and accessibility. Changes in taste and texture can also affect consumer acceptance. Fortifying foods must be done in a way that does not alter their sensory attributes significantly. For example, high levels of certain vitamins or minerals can impart undesirable tastes, which might discourage consumption, defeating the purpose of fortification.	

Overall, food fortification can have a profound positive impact on public health by reducing the prevalence of nutrient deficiencies. In countries where fortification programs have been implemented, significant reductions in conditions such as neural tube defects, anaemia and vitamin D deficiency have been observed. For instance, the fortification of flour with folic acid has led to a substantial decrease in neural tube defects in newborns.

To maximise the benefits, it is essential to combine fortification with public education campaigns. Educating the public about the importance of consuming fortified foods can enhance acceptance and ensure that the population reaps the full benefits of the program.

Conclusion: In conclusion, food fortification is an effective strategy to combat nutritional deficiencies, particularly when implemented with careful consideration of nutrient levels, cost and consumer preferences. The benefits of addressing widespread deficiencies and improving public health outcomes far outweigh the potential drawbacks, provided there is appropriate regulation and public education. Fortification of bread, milk, and cereals can play a crucial role in enhancing the nutritional status of the population, contributing to overall better health and well-being.

Band	A03
4	10-12 marks • Excellent and comprehensive evaluation of the effectiveness of food fortification. • Highly detailed and accurate analysis of the benefits and potential drawbacks of fortifying bread, milk and cereals. • Thorough consideration of public health impact with relevant examples. • Draws highly justified and well-supported conclusions on the effectiveness of food fortification. • Demonstrates excellent understanding and application of nutritional science and public health principles.
3	7-9 marks • Good evaluation of the effectiveness of food fortification. • Detailed and mostly accurate analysis of the benefits and potential drawbacks of fortifying bread, milk and cereals. • Considers public health impact with some relevant examples. • Draws justified and supported conclusions on the effectiveness of food fortification. • Demonstrates good understanding and application of nutritional science and public health principles.
2	4-6 marks • Basic evaluation of the effectiveness of food fortification. • Some analysis of the benefits and potential drawbacks of fortifying bread, milk and cereals, though may lack detail or accuracy. • Limited consideration of public health impact. • Draws some conclusions on the effectiveness of food fortification, but may lack support or justification. • Demonstrates basic understanding of nutritional science and public health principles.
1	1-3 marks • Limited evaluation of the effectiveness of food fortification. • Minimal or inaccurate analysis of the benefits and potential drawbacks of fortifying bread, milk and cereals. • Little to no consideration of public health impact. • Draws limited or unsupported conclusions on the effectiveness of food fortification. • Demonstrates limited understanding of nutritional science and public health principles.
0	No response attempted or nothing worthy of credit.

Question	Answer
13.	Scenario: You are a food scientist working for a company that produces pre-packaged meals. The company wants to ensure that their products are both nutritious and appealing to consumers. You have been asked to evaluate the impact of different cooking methods on the nutritional value of the ingredients used in these meals. Question: Evaluate the impact of deep fat frying, roasting and steaming on the nutritional value of the ingredients used in pre-packaged meals. - Consider both the positive and negative aspects of each cooking method in your response. - Draw conclusions on the overall impact of the cooking methods on the nutritional value and sensory appeal of the ingredients.

Indicative Content

Deep Fat Frying:

Positive Aspects:

- Flavour and texture: Deep fat frying enhances the flavour and texture of food, making it more appealing to consumers. The crispy exterior and tender interior resulting from this cooking method can improve the overall eating experience.
- It is a very quick and convenient cooking method. The coating protects the food from drying out during cooking.
- Nutrient retention: Some fat-soluble vitamins, such as vitamins A, D, E and K, are retained during frying because they are less likely to be leached out compared to water-soluble vitamins.

Negative Aspects:

- Increased caloric content: Deep fat frying significantly increases the caloric content of food due to the absorption of oil. This can lead to higher fat intake, contributing to weight gain and potential obesity if consumed in excess.
- Formation of harmful compounds: High-temperature frying can lead to the formation of harmful compounds, such as acrylamides and trans fats. These compounds have been associated with increased health risks, including cancer and cardiovascular diseases.
- Nutrient degradation: Prolonged exposure to high heat can degrade certain nutrients, especially heat-sensitive vitamins like vitamin C and some B vitamins. This reduces the overall nutritional value of the food.
- Potential for overconsumption: The appealing taste and texture of fried foods can lead to overconsumption, further exacerbating the negative health effects associated with high fat and calorie intake.

Roasting:

Positive Aspects:

- Flavour development: Roasting can enhance the natural flavours of food through caramelization and Maillard reaction, making it appealing to consumers.

- Retains nutrients: Roasting generally retains more nutrients compared to boiling, especially if the food is roasted with its skin on, which can help preserve vitamins and minerals.
- Reduced fat content: Compared to deep frying, roasting usually requires less added fat, which can make the food lower in calories and healthier overall.

Negative Aspects:

- Potential nutrient loss: High roasting temperatures can still lead to some nutrient loss, particularly heat-sensitive vitamins like vitamin C and certain B vitamins.
- Formation of harmful compounds: Like deep frying, roasting at high temperatures can produce harmful compounds such as acrylamides and polycyclic aromatic hydrocarbons (PAHs), which are linked to health risks.
- Dryness: Roasting can sometimes result in dry food, which may be less appealing to some consumers.

Steaming:

Positive Aspects:

- Nutrient retention: Steaming is one of the best methods for preserving the nutritional value of food, especially water-soluble vitamins like vitamin C and B vitamins, as there is no leaching into water.
- Low-calorie cooking: Steaming does not require added fats or oils, making it a low-calorie cooking method that can support weight management and heart health.
- Preserves natural flavour and texture: Steaming maintains the natural flavour and texture of food, which can be appealing to health-conscious consumers.

Negative Aspects:

- Limited flavour development: Steaming does not enhance flavours through caramelization or Maillard reactions, which may result in less flavourful food compared to roasting or frying.
- Texture preferences: Some consumers may find steamed food less appealing due to its softer texture compared to the crispy texture achieved by frying or roasting.

In conclusion, each cooking method has its own set of advantages and disadvantages. Deep fat frying can enhance flavour but increases caloric content and potential health risks. Roasting balances flavour development and nutrient retention but can also form harmful compounds at high temperatures. Steaming preserves the most nutrients and is the healthiest option but may lack the flavour complexity achieved through other methods. A balanced approach that combines these methods appropriately can help create pre-packaged meals that are both nutritious and appealing.

Band	A03
4	10-12 marks • Excellent and comprehensive evaluation of the impact of deep fat frying, roasting and steaming on nutritional value in pre-packaged meals. • Highly detailed and accurate analysis of both the positive and negative aspects of each cooking method, considering nutrient retention, changes in nutrient composition and potential formation of harmful compounds. • Thorough consideration of the impact on consumer health, referencing specific nutrients and their role in disease prevention or promotion. • Draws highly justified and well-supported conclusions based on scientific evidence, weighing the pros and cons of each method for different food groups. • Demonstrates excellent understanding and application of food science principles, culinary techniques and nutritional implications.
3	7-9 marks • Good evaluation of the impact of each cooking method on nutritional value. • Detailed and mostly accurate analysis of positive and negative aspects, though may lack some depth or nuance compared to Band 4. • Considers consumer health impact, but examples may be less comprehensive or specific. • Draws justified and supported conclusions but may not fully explore all aspects or offer the same level of nuanced reasoning as Band 4. • Demonstrates good understanding and application of relevant concepts but may have minor gaps or inaccuracies.
2	4-6 marks • Basic evaluation of the impact of each cooking method, demonstrating some understanding of the key issues. • Analysis of benefits and drawbacks may lack detail or accuracy, with potential generalisations or oversimplifications. • Limited consideration of consumer health impact, possibly focusing on broad statements rather than specific nutrient changes. • Draws some conclusions, but these may be weakly supported or lack clear justification. • Demonstrates basic understanding of relevant concepts but may show significant gaps in knowledge or application.
1	1-3 marks • Limited evaluation, with minimal or inaccurate analysis of the impact of cooking methods. • Little to no consideration of positive aspects, focusing mainly on negative impacts or potential health risks. • Consumer health impact is largely ignored or mentioned superficially. • Conclusions are limited or unsupported, relying on personal opinions or anecdotal evidence rather than scientific reasoning. • Demonstrates limited understanding of food science and nutrition principles, with significant errors or misconceptions.
0	No response attempted or nothing worthy of credit.

Section C - Case study

Scenario

Alex, a 16-year-old college student-athlete recently transitioned to a vegan diet motivated by both ethical concerns and the belief that it would enhance their overall health. However, after a few months, Alex has been experiencing fatigue, muscle cramps, dizziness, and slower recovery times after practice. Additionally, they have noticed their skin becoming paler and their nails more brittle.

Alex lives in a bustling urban area with their family, who are supportive of their dietary choices but lack in-depth knowledge of vegan nutrition. Due to their busy schedule balancing academic studies and a part-time job, Alex often relies on convenient, processed vegan options like meat substitutes, frozen meals, and packaged snacks.

As a nutritionist, you've been asked to assess Alex's situation.

Question	Answer	AO1	AO2	AO3	Total Mark
14.	(a) State two dietary habits or lifestyle factors and how they could lead to potential nutritional deficiencies contributing to Alex's symptoms.				
	Award one mark for the stating a habit or lifestyle factor, up to maximum of two marks. Award one additional mark for how it could lead to a deficiency, up to a maximum of two marks: Vegan Diet: A vegan diet excludes all animal products, which are the primary sources of certain nutrients like vitamin B12 and iron. (1) Reliance on Processed Foods: Alex's food diary reveals a heavy reliance on processed vegan options like meat substitutes, frozen meals, and packaged snacks. These products are often low in nutrient density, high in sodium, sugar and unhealthy fats, and may not provide adequate amounts of essential vitamins and minerals. (1) Athlete: Alex's active lifestyle as a soccer player increases their requirements for certain nutrients, particularly iron for oxygen transport, B vitamins for energy metabolism, and protein for muscle repair and growth. (1) Busy Schedule: Living in a busy urban area and having a hectic schedule can limit access to fresh, whole foods and lead to reliance on convenient, less nutritious options. This can further exacerbate the risk of deficiencies in a vegan diet, which already requires careful planning to ensure adequate nutrient intake. (1) Accept any other suitable response.	2	2		4

Question	Answer	AO1	AO2	AO3	Total Mark
14.	(b) Propose meal options and nutritional guidance for Alex that addresses their specific needs as a vegan student-athlete. Consider their busy schedule, limited cooking skills, and the importance of nutrient-dense, whole-food sources to support their active lifestyle. Award one mark for relevant nutritional guidance, up to maximum of ten marks: Breakfast Options: • Smoothies: A blend of fruits (bananas, berries), spinach, fortified plant-based milk (for calcium and vitamin D) and a scoop of vegan protein powder (for protein). (1) • Oatmeal: Made with fortified plant-based milk, topped with chia seeds, nuts, and fruits. Add a spoonful of flaxseed for omega-3 fatty acids. (1) Lunch Options: • Whole Grain Wraps: Filled with hummus, mixed vegetables (e.g., bell peppers, spinach, cucumbers), and a source of protein such as tempeh or tofu.(1) • Quinoa Salad: Mixed with black beans, corn, avocado, cherry tomatoes, and a lemon-tahini dressing. Include a handful of pumpkin seeds for added zinc and iron.(1) Dinner Options: • Stir-Fry: A mix of tofu, colorful vegetables (broccoli, carrots, bell peppers), and a soy-based sauce, served over brown rice or whole grain noodles.(1) • Lentil Soup: Made with a variety of vegetables (carrots, spinach, tomatoes), lentils (for protein and iron), and whole grain bread on the side.(1) Snacks: • Nuts and Seeds: Almonds, walnuts, sunflower seeds, or a trail mix without added sugars.(1) • Fresh Fruit: Apples, oranges, berries, or bananas.(1) • Vegetable Sticks: Carrot, celery, and cucumber sticks with hummus or a nut butter dip.(1) Supplements: • Vitamin B12: A daily supplement to ensure adequate intake.(1)		10		10

		• Iron: Consider a plant-based iron supplement if blood tests show a deficiency, paired with vitamin C-rich foods (e.g., citrus fruits) to enhance absorption.(1) • Omega-3 Fatty Acids: Algal oil supplements can be a good source of DHA and EPA.(1) Meal Prep Tips: • Batch Cooking: Prepare large quantities of grains (quinoa, rice) and legumes (lentils, chickpeas) on weekends to use throughout the week.(1) • Simple Recipes: Focus on easy-to-make meals that require minimal cooking skills, such as salads, stir-fries, and sandwiches.(1) • Convenient Healthy Options: Keep a stock of frozen vegetables, pre-washed greens, and canned beans for quick meal preparation.(1) Accept any other suitable response.				
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Question		Answer
14.	(c)	Justify your dietary recommendations for Alex by explaining how the specific foods and meal patterns you have suggested will address their identified nutritional deficiencies and support their active lifestyle as a vegan student-athlete.
Band		AO3
3		5-6 marks • An excellent justification that thoroughly explains the rationale behind each dietary recommendation. • The answer clearly links specific food choices and meal patterns to addressing Alex's identified deficiencies. • The response demonstrates an excellent understanding of nutrient interactions and the unique nutritional needs of the scenario. • It also considers specific lifestyle factors in tailoring the recommendations.
2		3-4 marks • A good justification that explains the rationale behind several key recommendations. • Demonstrates a good understanding of nutrient interactions and the specific needs of the scenario, but may not fully address all deficiencies or lifestyle factors to the same extent. • Provides some evidence of considering the scenario but the recommendations may not be fully tailored to their individual circumstances.
1		1-2 marks • A basic justification that provides some rationale for the recommendations, but may be superficial or lack sufficient evidence. • Demonstrates a basic understanding of the topic, but may not make links to the specific needs of the scenario. • May not adequately address the identified deficiencies or consider their lifestyle factors in the recommendations.
0		No response attempted or nothing worthy of credit.

Mapping of questions to specification content and assessment objectives: Unit 1

Question		Mark allocation											
		Topic and Section								Total Marks	AO1 Marks	AO2 Marks	AO3 Marks
		1.1.1	1.1.2	1.1.3	1.1.4	1.2.1	1.2.2	1.2.3	1.3.1				
Section A													
1			X							2	2		
2		X								2	2		
3						X				2	2		
4			X							4	4		
5				X						4		4	
6		X								2	2		
7						X				2	2		
8					X					6		6	
9			X							6		6	
10					X					4		4	
11					X					2	2		
Section B													
12				X	X	X	X						12
13					X								12
Section C													
14	(a)		X				X			4	2	2	
	(b)					X		X	X	10		10	
	(c)		X		X					6			6
Total marks											18	32	30
											22.5%	40%	37.5%