
GCSE FOOD PREPARATION AND NUTRITION 8585/W

Paper 1 Food Preparation and Nutrition

Mark scheme

June 2024

Version 1.0 Final



Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

No student should be disadvantaged on the basis of their gender identity and/or how they refer to the gender identity of others in their exam responses.

A consistent use of 'they/them' as a singular and pronouns beyond 'she/her' or 'he/him' will be credited in exam responses in line with existing mark scheme criteria.

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Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly Level 3 with a small amount of Level 4 material it would be placed in Level 3 but be awarded a mark near the top of the level because of the Level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Section A

Question	Answer Key	Assessment Objective	Total marks
01.1	D – Wholemeal flour	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.2	D – Vitamin E	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.3	A – 6 g	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.4	D – Gelatinisation	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.5	C – Iron	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.6	D – Yorkshire pudding	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.7	D – moist	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.8	C – plasticity	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.9	A – Baking and grilling	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.10	D – Potato	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.11	C – Osteoporosis	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.12	C – 35%	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.13	B – 5 °C to 63 °C	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.14	C – Pasteurised milk	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.15	B – Serving suggestions	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.16	A – Vitamin A	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.17	B – Rotation of crops	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.18	C – Lasagne	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.19	C – PAL	AO1	1

Question	Answer Key	Assessment Objective	Total marks
01.20	B – Vitamins B and C	AO1	1

Section B

Qu	Part	Marking guidance	Total marks
02	1	Name two food poisoning bacteria. Marking guidance This question is assessed against AO1(a). Award 1 mark for each correct response. <u>Indicative content</u> • Campylobacter. • E. coli (Escherichia coli). • Salmonella. • Listeria. • Staphylococcus/staphylococcus aureus/staphylococcal food poisoning. • Clostridium botulinum. • Clostridium perfringens. • Bacillus cereus. • Shigella. • Other named food poisoning bacteria. Do not accept reference to other microorganisms, eg moulds, fungus, viruses (such as norovirus) or parasites as the question specifies food poisoning bacteria.	2

Qu	Part	Marking guidance	Total marks
02	2	Identify two symptoms of food poisoning. Marking guidance This question is assessed against AO1(a). Award 1 mark for each correct response. <u>Indicative content</u> • Vomiting/sickness. • Diarrhoea. • Stomach/abdominal pains/cramps. • Nausea/feeling sick. • Fever-like symptoms, eg sweating, high/low body temperature, aches, chills. • Fatigue/tiredness/weakness/lack of energy. • Light-headed/feeling faint/dizziness. • Dehydration. • Pale skin. • Loss of appetite. • Headache. Credit other valid responses.	2

Qu	Part	Marking guidance	Total marks						
02	3	For each possible cause of food poisoning: Give one example of how food poisoning could occur. Explain why. Marking guidance This question is assessed against AO2. Award 1 mark for each correct example and 1 mark for a clearly linked explanation. Answers should not be repeated unless points are clearly validated. <u>Indicative content</u> <table><tr><th>Possible cause of food poisoning</th><th>Example</th><th>Explanation</th></tr><tr><td>Personal hygiene</td><td> • Hands not washed/hands not washed thoroughly/ </td><td> • Meaning bacteria is not removed/causing transfer of bacteria. </td></tr></table>	Possible cause of food poisoning	Example	Explanation	Personal hygiene	• Hands not washed/hands not washed thoroughly/	• Meaning bacteria is not removed/causing transfer of bacteria.	6
Possible cause of food poisoning	Example	Explanation							
Personal hygiene	• Hands not washed/hands not washed thoroughly/	• Meaning bacteria is not removed/causing transfer of bacteria.							

			hands not washed with warm water and antibacterial soap before handling food/after going to toilet. • Coughing/sneezing over food. • Food handled when/after feeling unwell, eg with sickness, diarrhoea, etc. • Dirty clothing/apron worn. • Jewellery worn when preparing/cooking/serving food. • Hair not tied up/hair and/or beard nets not worn, etc when preparing/cooking/serving food. • Nail varnish/false nails worn. • Double-dipping/licking fingers or equipment and returning to food when tasting.	• Causing transfer of bacteria. • Causing transfer of bacteria/sickness to be passed on. • Causing transfer of bacteria. • Causing jewellery to fall into food/harbour bacteria. • Causing hair to fall into food, resulting in transfer of bacteria. • Causing nails/nail varnish to fall into food/harbour bacteria. • Causing bacteria to be transferred from mouth to food.	
		Food storage	• Foods not stored in recommended storage place, eg chilled foods stored outside of the fridge. • Temperature of fridge outside of 0 °C to below 5 °C range. • Food stored incorrectly in fridge, eg raw meat above cooked meat, etc.	• Causing growth of bacteria/causing food to enter the danger zone of 5 °C to 63 °C. • Causing growth of bacteria. • Causing cross-contamination/causing juices/blood to drip onto other foods.	

			• Temperature of freezer not between -18°C to -24°C. • Foods not covered/sealed correctly. • Cupboards not cool and dry/cupboards are warm and damp. • Food left in damp conditions/in direct sunlight where it is warm. • Use by dates of food not checked before use. • Food not cooled and refrigerated within 90 minutes. • Foods left to thaw/defrost at room temperature rather than in the fridge.	• Causing growth of bacteria. • Causing cross-contamination/transfer of bacteria. • Encouraging growth of bacteria/key conditions for growth of bacteria. • Causing growth of bacteria. • Resulting in expired food with high levels of bacteria being eaten. • Leading to growth of bacteria. • Encouraging growth of bacteria/causing food to enter the danger zone of 5°C to 63°C.	
		Preparation and cooking of food	• Fruit/vegetables not washed before use. • Raw meat and vegetables prepared on the same chopping board/same knife used to prepare raw meat and vegetables, etc. • Raw meat washed in the sink.	• Fruit and vegetables may be covered in soil/carry bacteria/viruses, which will cause cross-contamination. • Causing cross-contamination/transfer of bacteria. • Causing cross-contamination/transfer of bacteria.	

		• Hands not washed after handling raw meat/eggs, etc. • Food has not been cooked thoroughly/to 75 °C or higher/food is undercooked. • Raw meat is undercooked/not cooked thoroughly, eg chicken is pink in the middle. • Food is re-heated and cooled multiple times. • Food is not re-heated thoroughly/to 75 °C or higher. • Food preparation areas are not cleaned and sanitised. • Equipment is not washed using hot, soapy water. • Poor systems in place for storage and disposal of food waste/dirty rubbish bins. • Recipe/method/instructions not followed accurately/thoroughly when making the dish.	• Causing cross-contamination/transfer of bacteria. • Meaning bacteria has not been killed/bacteria will continue to multiply. • Meaning bacteria has not been killed/bacteria will continue to multiply. • Encouraging growth of bacteria. • Meaning bacteria is still present/bacteria has not been killed. • Meaning bacteria is present/able to multiply. • Meaning bacteria is present. • Meaning unwanted pests, rodents, birds, etc may be attracted. • Meaning cross-contamination has occurred/the dish has not been made accurately/the dish has not been cooked thoroughly to kill bacteria.	
		Credit other valid responses.		

Qu	Part	Marking guidance	Total marks
02	4	Explain how to use a food temperature probe to check that cooked food is safe to eat. Include key temperatures in your answer. Marking guidance This question is assessed against AO1(b). Award 1 mark for each valid point. For full marks, a temperature/temperatures must be stated. <u>Indicative content</u> • Turn the food temperature probe on to see if it is working/displaying room temperature. • Wait for the display to stabilise before taking a reading. • Wipe the probe using an antibacterial wipe/clean the end of the probe to disinfect it. • Insert the food temperature probe into the centre/thickest/core/middle part of the food you are checking. • Make sure you do not touch the bottom of the pan/tray as this will make the temperature reading incorrect. • The temperature should read 75 °C or higher for 30 seconds if the food is cooked. Please note, 2 minutes can also be accepted. 75 °C can be credited without reference to time. • If 75 °C is not reached/if temperature is between 5 °C to 63 °C, cook the food for longer and then check it again. • After using the food temperature probe, clean it again so it is disinfected. • Make sure the food temperature probe is turned off when not in use. Credit other valid responses.	4

Qu	Part	Marking guidance	Total marks								
03	1	Identify one function for each of the following nutrients. Do not repeat your answers. Marking guidance This question is assessed against AO1(a). Award 1 mark for each valid point. Answers should not be repeated. <u>Indicative content</u> <table><tr><th>Nutrient</th><th>Function</th></tr><tr><td>Carbohydrate</td><td> • Source of energy/main source of energy. • Removal of waste from the body (fibre). Candidates can be awarded for referencing quick/fast-release and long-lasting/slow-release energy. </td></tr><tr><td>Fat</td><td> • Provides a source of energy. • Provides a store of energy (under the adipose tissue under the skin). • Warmth/insulation. • Protection of bones/organs, eg kidneys, by providing them with a protective cushion. • Aids absorption of fat-soluble vitamins: A, D, E and K. • Provides essential fatty acids: omega 3 and omega 6. • Monounsaturated and polyunsaturated fats help maintain high-density lipoprotein cholesterol whilst lowering low-density lipoprotein cholesterol. • Aids production of hormones. </td></tr><tr><td>Protein</td><td> • Growth of cells, eg muscles, tissues, bones, hair, nails, etc. • Repair of cells. • Maintenance of cells, eg maintains muscle mass. • Secondary source of energy. • Aids the production and function of enzymes, eg digestive enzymes. • Aids the production and function of hormones. • Aids the production and function of antibodies/helps the body fight infections. ‘Growth’, ‘repair’ and/or ‘maintenance’ can be credited without further clarification. </td></tr></table>	Nutrient	Function	Carbohydrate	• Source of energy/main source of energy. • Removal of waste from the body (fibre). Candidates can be awarded for referencing quick/fast-release and long-lasting/slow-release energy.	Fat	• Provides a source of energy. • Provides a store of energy (under the adipose tissue under the skin). • Warmth/insulation. • Protection of bones/organs, eg kidneys, by providing them with a protective cushion. • Aids absorption of fat-soluble vitamins: A, D, E and K. • Provides essential fatty acids: omega 3 and omega 6. • Monounsaturated and polyunsaturated fats help maintain high-density lipoprotein cholesterol whilst lowering low-density lipoprotein cholesterol. • Aids production of hormones.	Protein	• Growth of cells, eg muscles, tissues, bones, hair, nails, etc. • Repair of cells. • Maintenance of cells, eg maintains muscle mass. • Secondary source of energy. • Aids the production and function of enzymes, eg digestive enzymes. • Aids the production and function of hormones. • Aids the production and function of antibodies/helps the body fight infections. ‘Growth’, ‘repair’ and/or ‘maintenance’ can be credited without further clarification.	6
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		<table><tr><td>Iron</td><td> • Aids production of red blood cells. • Helps oxygenate blood. • Aids production of haemoglobin (a protein in red blood cells that carries oxygen from the lungs to all parts of the body). • Aids production of myoglobin (a protein that provides oxygen to muscles). • Boosts the immune system. • Helps convert blood sugar into energy. • Assists production of enzymes/hormones. • Aids cognitive function. • Supports growth of healthy hair and nails. • Helps prevent anaemia. • Helps reduce fatigue/tiredness. ‘Red blood cells/helps red blood cells’ can be credited without further clarification. </td></tr><tr><td>Vitamin D</td><td> • Aids development/strengthening/maintenance of bones/teeth. • Helps heal broken bones. • Helps prevent bone diseases, eg rickets/osteoporosis. • Aids the absorption of calcium in the body/helps control the amount of calcium absorbed from food. • Aids depositing of calcium in bones and teeth. • Helps calcium be absorbed from the small intestine during digestion. • Aids the absorption of phosphorus in the body. • Helps keep muscles healthy. • Helps reduce inflammation. • Helps improve/reduce the risk of skin conditions, eg acne. ‘Healthy skin’ can be credited. • Helps strengthen/maintain nails. • Supports immune functions/helps strengthen the immune system. </td></tr><tr><td>Sodium</td><td> • Helps maintain balance of water. • Helps muscles contract and relax. • Supports and controls nerve and muscle function. • Helps the body use energy. • Maintain healthy/normal blood pressure. Do not credit ‘blood pressure’. </td></tr></table>	Iron	• Aids production of red blood cells. • Helps oxygenate blood. • Aids production of haemoglobin (a protein in red blood cells that carries oxygen from the lungs to all parts of the body). • Aids production of myoglobin (a protein that provides oxygen to muscles). • Boosts the immune system. • Helps convert blood sugar into energy. • Assists production of enzymes/hormones. • Aids cognitive function. • Supports growth of healthy hair and nails. • Helps prevent anaemia. • Helps reduce fatigue/tiredness. ‘Red blood cells/helps red blood cells’ can be credited without further clarification.	Vitamin D	• Aids development/strengthening/maintenance of bones/teeth. • Helps heal broken bones. • Helps prevent bone diseases, eg rickets/osteoporosis. • Aids the absorption of calcium in the body/helps control the amount of calcium absorbed from food. • Aids depositing of calcium in bones and teeth. • Helps calcium be absorbed from the small intestine during digestion. • Aids the absorption of phosphorus in the body. • Helps keep muscles healthy. • Helps reduce inflammation. • Helps improve/reduce the risk of skin conditions, eg acne. ‘Healthy skin’ can be credited. • Helps strengthen/maintain nails. • Supports immune functions/helps strengthen the immune system.	Sodium	• Helps maintain balance of water. • Helps muscles contract and relax. • Supports and controls nerve and muscle function. • Helps the body use energy. • Maintain healthy/normal blood pressure. Do not credit ‘blood pressure’.	
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Qu	Part	Marking guidance	Total marks								
03	2	Explain the difference between high biological value (HBV) and low biological value (LBV) proteins. Include examples in your answer. Marking guidance This question is assessed against AO2. If no example is stated, a maximum of 4 marks can be awarded. <table><tr><td>Responses show thorough knowledge and understanding of HBV and LBV proteins. HBV and LBV proteins are both discussed in detail. Clear examples of HBV and LBV proteins are provided.</td><td>5–6 Marks</td></tr><tr><td>Responses show good knowledge and understanding of HBV and LBV proteins. Some examples of HBV and LBV proteins are provided.</td><td>3–4 Marks</td></tr><tr><td>Responses show basic knowledge and understanding of HBV and LBV proteins. Examples of HBV and LBV proteins may be provided.</td><td>1–2 Marks</td></tr><tr><td>No answer worthy of credit.</td><td>0 Marks</td></tr></table> <u>Indicative content</u> • HBV proteins provide all of the essential amino acids. • HBV proteins can also be called complete/high quality proteins Helps keep muscles healthy. • HBV proteins include animal proteins, such as meat, dairy products and eggs. • HBV proteins also include soya beans and quinoa. • LBV proteins are missing one or more of the essential amino acids. • LBV proteins can also be called incomplete/low quality proteins. • LBV proteins are plant proteins, such as beans, lentils, nuts, seeds, etc. • Combining two or more LBV proteins together in a meal is known as protein complementation. • Protein complementation helps ensure that all of the essential amino acids are consumed. • Examples of protein complementation include: beans on toast, rice and bean salad, peanut butter on toast, etc. • Vegetarians and vegans need to eat a combination of LBV proteins each day to ensure that all of the essential amino acids are consumed. Credit other valid responses.	Responses show thorough knowledge and understanding of HBV and LBV proteins. HBV and LBV proteins are both discussed in detail. Clear examples of HBV and LBV proteins are provided.	5–6 Marks	Responses show good knowledge and understanding of HBV and LBV proteins. Some examples of HBV and LBV proteins are provided.	3–4 Marks	Responses show basic knowledge and understanding of HBV and LBV proteins. Examples of HBV and LBV proteins may be provided.	1–2 Marks	No answer worthy of credit.	0 Marks	6
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No answer worthy of credit.	0 Marks										

Qu	Part	Marking guidance		Total marks						
03	3	Analyse the suitability of each meal for an older person. Evaluate which meal is the healthier choice, justifying your reasons. Marking guidance This question is assessed against AO4(a) and AO4(b). Micronutrients have been included in the indicative content to ensure a wide coverage of potential responses from candidates. Candidates may choose to only focus on the nutrients identified in the nutritional analysis table. Full marks can be awarded with either approach. <table><tr><td>Responses include very good knowledge and understanding of the dietary needs of older people to assist in identifying the most suitable meal for the life stage. There are very good justifications related to the nutritional information for both meals. There is a very good balance between analysis and evaluation. Analysis of the meals is very good and refers to a wide range of points related to current healthy eating guidelines and the nutritional needs of older people. Evaluation makes very good judgements and conclusions to identify which meal is most suitable for older people. A wide range of justified and accurate points are made, with links to current healthy eating guidelines and the nutritional needs of older people.</td><td>9–12 Marks</td></tr><tr><td>Responses include good knowledge and understanding of the dietary needs of older people to assist in identifying the most suitable meal for the life stage. There are good justifications related to the nutritional information for both meals. There is a good balance between analysis and evaluation. Analysis of the meals is good and refers to a range of points related to current healthy eating guidelines and the nutritional needs of older people. Evaluation makes good judgements and conclusions to identify which meal is most suitable for older people. A range of justified and mostly accurate points are made, with links to current healthy eating guidelines and the nutritional needs of older people.</td><td>5–8 Marks</td></tr><tr><td>Responses include basic knowledge and understanding of the dietary needs of older people. The most suitable meal for the life stage may be identified. There are basic justifications related to the nutritional information for at least one of the meals. There is an imbalance between analysis and evaluation.</td><td>1–4 Marks</td></tr></table>		Responses include very good knowledge and understanding of the dietary needs of older people to assist in identifying the most suitable meal for the life stage. There are very good justifications related to the nutritional information for both meals. There is a very good balance between analysis and evaluation. Analysis of the meals is very good and refers to a wide range of points related to current healthy eating guidelines and the nutritional needs of older people. Evaluation makes very good judgements and conclusions to identify which meal is most suitable for older people. A wide range of justified and accurate points are made, with links to current healthy eating guidelines and the nutritional needs of older people.	9–12 Marks	Responses include good knowledge and understanding of the dietary needs of older people to assist in identifying the most suitable meal for the life stage. There are good justifications related to the nutritional information for both meals. There is a good balance between analysis and evaluation. Analysis of the meals is good and refers to a range of points related to current healthy eating guidelines and the nutritional needs of older people. Evaluation makes good judgements and conclusions to identify which meal is most suitable for older people. A range of justified and mostly accurate points are made, with links to current healthy eating guidelines and the nutritional needs of older people.	5–8 Marks	Responses include basic knowledge and understanding of the dietary needs of older people. The most suitable meal for the life stage may be identified. There are basic justifications related to the nutritional information for at least one of the meals. There is an imbalance between analysis and evaluation.	1–4 Marks	12
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	Analysis of the meals is basic, with some reference to current healthy eating guidelines and/or the nutritional needs of older people. Evaluation makes basic judgements and conclusions. The most suitable meal for the life stage may be identified, but limited points are made, with limited links to current healthy eating guidelines and/or the nutritional needs of older people.	
	No answer worthy of credit.	0 Marks

Indicative content

Analysis

- Energy: The pasta bake meal is within the recommended daily calorie intake for a main meal in a day with just under a third of the recommended daily amount of energy. The fish and chip meal provides more energy/calories and would therefore be unsuitable for an older person with a sedentary lifestyle. In both meals, most energy will be provided by the starchy carbohydrates, eg pasta and potato.
- Carbohydrates: The pasta bake has more carbohydrate than the fish and chip meal due to pasta being the main ingredient. However, the potatoes used for the chips, and the flour in the batter for the fish, also provide a source of carbohydrate.
- Sugar: Sugar content in the pasta bake is higher than the fish and chip meal; however, sugar content in both meals is natural rather than from free sugars.
- Protein: Both meals provide a good source of protein, with more than half of the reference nutrient intake (RNI) of protein for males and females.
- Fibre: Wholemeal pasta from the pasta bake provides a good source of fibre, along with the sweetcorn and spinach. The fish and chip meal does not contain much fibre, which suggests the potatoes have been peeled before making the chips.
- Fats: Older people need some fat for insulation. However, the fish and chip meal has considerably more fat than the pasta bake meal. This is due to the oil that will be used to cook the chips and battered fish. The fish and chip meal contains more than double the amount of saturated fat. The fat in the pasta bake meal mainly comes from the cheese. Omega 3, an essential fatty acid, will be provided by the tuna.
- Vitamin B12: Both meals provide a source of B12 due to the fish components.
- Vitamin A: The tomatoes and spinach in the pasta bake meal will provide a source of vitamin A. The fish and chip meal has limited vitamin A content.
- Vitamin C: The onion and tomatoes in the pasta bake meal will provide a source of vitamin C. Peas will provide a source of vitamin C in the fish and chip meal.
- Vitamin D: Tuna is a good source of vitamin D. The pasta bake meal will therefore contain more vitamin D. However, the egg yolk in

		the egg used to make the batter for the fish and chip meal will provide some vitamin D. • Vitamin E and K: Spinach is found in the pasta bake meal, providing a source of vitamin E and vitamin K. • Calcium: The fish and chip meal will provide more calcium due to the milk, which is used to make the batter. The grated cheese on the pasta bake meal will provide a small source of calcium, as will the spinach. • Fluoride and Phosphorus: In both meals, the fish will provide fluoride and phosphorus. • Iron: Both meals contain limited sources of iron. • Sodium: The amount of sodium provided by both meals is within the daily recommended amount. However, additional salt may be added to the fish and chips meal prior to eating, which would increase the sodium content of the dish. • Fish and chips may be a more popular meal amongst older people. Evaluation • The pasta bake meal is the healthier choice for the care home to serve to its residents as it meets healthy eating guidelines, such as the Eatwell Guide, more closely. It provides a good source of wholemeal carbohydrate, at least two portions of fruit and vegetables, a source of protein, and a source of dairy. The fish and chip meal uses too much oil to cook the fish and chips for it to be considered as healthy. It also has fewer fruit and vegetables, and uses white carbohydrates rather than wholemeal, highlighting limited fibre content. • Energy: Older people need fewer calories as they are less active. A diet high in calories could lead to weight gain, which, over time, can lead to obesity and other diet-related health problems. The pasta bake is therefore more suitable for the residents at the care home. • Protein: Both meals provide a source of HBV protein, meaning all of the essential amino acids will be provided. Protein is needed by older people for growth, repair and maintenance of cells. It can also provide a secondary source of energy. Both meals contain fish, which links to the recommendation of two portions of fish each week. However, the pasta bake meal provides a source of oily fish, which should be eaten once a week due to the omega 3 that it provides. It is therefore more suitable for the residents at the care home. • Fats: The fat content in the fish and chip meal could put older people at risk of heart disease, strokes and obesity if eaten on a regular basis. The pasta bake meal is therefore a much better choice. The omega 3 provided by the tuna can help control arthritis and high blood pressure, and can help to prevent heart disease and strokes, which may be more prevalent in older people. • Fibre: The higher fibre content in the pasta bake would help aid digestion and prevent constipation, which older people may be more prone to. • Vitamin B12: Vitamin B12 is beneficial to older people as it plays a role in helping with memory, red blood cells and nerves. Both meals contain fish and therefore provide a source of Vitamin B12.	
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	However, the pasta bake meal provides a source of oily fish, which should be eaten once a week. • Vitamins A and C: These vitamins are antioxidants and can help to prevent heart disease and some cancers. Vitamin A can help prevent age related eye conditions in older people. Vitamin C helps with general good health and fighting infections so is valuable to older people. The pasta bake meal is more suitable for the residents at the care home as it provides sources of vitamins A and C. • Vitamin E and K: The pasta bake meal uses spinach, which provides a source of vitamin E, an antioxidant, and vitamin K, which enables blood to clot effectively. The fish and chips meal would have a lower vitamin E and K content, making it less suitable for older people. • Iron: Older people need to maintain a good amount of iron in the diet to help prevent anaemia, to aid with the absorption of vitamin C and to prevent gum disease. As there is a limited source of iron in both meals, the care home will need to provide other meals that provide a good source of iron. • Vitamin D and Calcium: Calcium is needed by older people for healthy bones and teeth, both of which deteriorate with age. Vitamin D is needed to aid the absorption of calcium, which helps to prevent osteoporosis. As tuna is a good source of vitamin D, the tuna and tomato pasta bake is more suitable for the residents at the care home. The vitamin D will also aid the absorption of calcium provided by the cheese and spinach. • Fluoride and Phosphorus: Fluoride and phosphorus assist in strengthening bones and enamel in teeth. • Sodium: Although the amount of sodium provided by both meals is within the daily recommended amount, which would assist in management of blood pressure, the pasta bake meal has a lower sodium content and would therefore be more suitable for the residents at the care home. • As older people age, they may prefer softer foods that are easier to chew. The pasta bake meal would therefore be a more suitable option for the care home residents. Credit other valid responses.	
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Qu	Part	Marking guidance	Total marks
04	1	Identify two advantages and two disadvantages of genetically modified food. Marking guidance This question is assessed against AO1(b). Award 1 mark for each valid point. <u>Indicative content</u> Advantages • Better resistance to disease. • Faster/stronger growth rates. • Increased supply of food/yield. • Increased income due to increased yield. • Improved colour. • Uniformed size. • Improved flavour. • Higher nutritional profile/more nutritious, e.g. vitamin A in golden rice. • Longer shelf life. • Less expensive for farmers. • Less expensive for consumers. • Fewer pesticides used. • Food can grow in extreme weather conditions, eg drought. • Food can grow out of season. • In the long term, food becomes cheaper. Do not accept reference to GM foods being healthier. Do not accept reference to appearance unless colour or size is stated. Do not accept reference to improved texture/aroma profiles as this is not widely proven. Disadvantages • Interferes with natural reproduction. • Biological altering of animals and crops may be seen as unethical. • Risk of allergic reactions/could affect people with allergies in unpredictable ways. • Long-term side effects and issues are unknown, particularly in relation to consumer health. • Impact on natural ecology and the environment where GM animals are reared/plants are grown. • Seeds from many GM crops cannot be used to plant the next crop. • It is difficult to tell if a product is GM by its appearance, so GM foods may be consumed without realising. • Over time, pests may become resistant to GM food. • GM process may include testing on animals, which breaches animal rights. • GM crop seeds may be more expensive.	4

		Credit other valid responses.	
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Qu	Part	Marking guidance	Total marks								
04	2	Analyse how environmental factors and the production of food can impact food security. Evaluate how food and consumer choices can be more sustainable. Marking guidance This question is assessed against AO4(a) and AO4(b). <table><tr><td>Responses include very good knowledge and understanding related to food security and sustainability. There is a very good balance between analysis and evaluation. Analysis of the impact of environmental factors and the production of food on food security is very good and refers to a wide range of points from the indicative content. Evaluation makes very good judgements about how food can be produced and consumed in a more sustainable way. A wide range of justified and accurate points are made.</td><td>7–8 Marks</td></tr><tr><td>Responses include good knowledge and understanding related to food security and sustainability. There is a good balance between analysis and evaluation. Analysis of the impact of environmental factors and the production of food on food security is good and refers to a range of points from the indicative content. Evaluation makes good judgements about how food can be produced and consumed in a more sustainable way. A range of justified and accurate points are made.</td><td>5–6 Marks</td></tr><tr><td>Responses include basic knowledge and understanding related to food security and sustainability. There is an imbalance between analysis and evaluation. Analysis of the impact of environmental factors and the production of food on food security is basic, with some points made. Evaluation makes basic judgements about how food can be produced and consumed in a more sustainable way. Some points are made.</td><td>3–4 Marks</td></tr><tr><td>Responses include limited knowledge and understanding related to food security and sustainability. There may only be analysis or evaluation points presented. Analysis of the impact of environmental factors and the production of food on food security is limited or missing.</td><td>1–2 Marks</td></tr></table>	Responses include very good knowledge and understanding related to food security and sustainability. There is a very good balance between analysis and evaluation. Analysis of the impact of environmental factors and the production of food on food security is very good and refers to a wide range of points from the indicative content. Evaluation makes very good judgements about how food can be produced and consumed in a more sustainable way. A wide range of justified and accurate points are made.	7–8 Marks	Responses include good knowledge and understanding related to food security and sustainability. There is a good balance between analysis and evaluation. Analysis of the impact of environmental factors and the production of food on food security is good and refers to a range of points from the indicative content. Evaluation makes good judgements about how food can be produced and consumed in a more sustainable way. A range of justified and accurate points are made.	5–6 Marks	Responses include basic knowledge and understanding related to food security and sustainability. There is an imbalance between analysis and evaluation. Analysis of the impact of environmental factors and the production of food on food security is basic, with some points made. Evaluation makes basic judgements about how food can be produced and consumed in a more sustainable way. Some points are made.	3–4 Marks	Responses include limited knowledge and understanding related to food security and sustainability. There may only be analysis or evaluation points presented. Analysis of the impact of environmental factors and the production of food on food security is limited or missing.	1–2 Marks	8
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No answer worthy of credit.	0 Marks						
		<u>Indicative content</u> Analyse how environmental factors and the production of food can impact food security. • Food production produces greenhouse gases. For example, farming results in the production of methane gas from animals, transportation of food results in the production of carbon dioxide, etc. • Greenhouse gases contribute to raising the earth's temperature as they form a layer of insulation, which traps heat. This leads to global warming. • Global warming is contributing to climate change, which is resulting in unpredictable and extreme weather conditions. These weather conditions have a significant impact on food production. • Droughts, caused by a lack of rainfall, can lead to: failed plant crops; rivers and streams drying out (impacting fish, causing death of livestock as they cannot drink from natural water supply, etc); and, forest and bush fires (which can destroy farmland, crops and livestock). • Flooding can lead to the: pollution of soil and farmland (eg by sewage and rubbish), pollution of water supplies (which can cause waterborne diseases); and, drowning of livestock. • Flooding can lead to landslides, which can destroy plant crops, livestock and farmland. • Extreme storms/gales/hurricanes can lead to: damaged crops; pollution of water and soil; and, death of livestock. • Extreme weather conditions can result in food shortages, which can lead to hunger, starvation and thirst. • Extreme weather conditions can result in higher food costs because food needs to be imported. • Climate change is affecting growing seasons for plant crops, which impacts pollination. • Consumer diets are reliant on meat and dairy consumption, which increases need for animal rearing and dairy farming. • Meat and dairy farming requires plenty of land for animals to be reared and for animal feed to be grown. This leads to deforestation. • Farming may use pesticides and fertilisers, which leads to pollution of land, water and air. • Processing and manufacturing of food products uses non-renewable fossil fuels, such as coal and oil, which produce carbon dioxide. • Refrigeration causes the release of greenhouse gases. • Production of food packaging, particularly plastic packaging, contributes to greenhouse gas emissions. • Importation and transportation of food contributes to food miles (the distance that food is transported from where it is produced to where					

		it is consumed), with non-renewable energy used to transport food by land, sea and air. • A lot of food waste ends up in landfill, where it produces greenhouse gases as it rots. • Food production may be impacted by conflict within a country. Evaluate how food and consumer choices can be more sustainable. • Food producers could be encouraged to switch to using renewable energy sources and more energy-efficient manufacturing equipment. • Food producers could increase use of biodegradable packaging/reduce use of unnecessary food packaging. • Food producers could increase the availability of organic food. • Consumers could be encouraged to reduce the amount of meat and dairy produce they consume, with switches made to increasingly plant-based diets. • Consumers could reduce the number of car journeys taken for food shopping, eg by planning one big supermarket visit instead of multiple visits. • Consumers could use alternative methods of transports when food shopping, eg walk/cycle. • Consumers could be encouraged to support local farmers and/or buy local foods to reduce food miles. • Consumers could be encouraged to buy seasonal foods to reduce importation of food and subsequent food miles. • Consumers could buy loose produce to reduce packaging waste. • Consumers could be encouraged to grow their own fruit and vegetables and/or produce their own homegrown foods, eg eggs, herbs, honey, etc. • Consumers could invest in home composting systems to reduce food waste. • Consumers could be encouraged to buy and freeze reduced price food items to prolong their shelf-life. • Consumers could go shopping using a shopping list so that they only buy what is needed to avoid food waste. • Consumers could be encouraged to buy imperfect/wonky fruit and vegetables to reduce food waste. • Consumers and/or producers could take advantage of food waste reduction schemes and initiatives, eg utilising apps, such as 'Too Good To Go'. • Consumers could be encouraged to buy sustainable fish/fish products, eg those that are certified by the Marine Stewardship Council (MSC). • Increased education about carbon footprint is needed to encourage consumers to be more responsible. Credit other valid responses.	
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Qu	Part	Marking guidance	Total marks
04	3	State how food allergens are identified on food labels. Explain why. Marking guidance This question is assessed against AO1(b). Award 1 mark for the correct identification of how food allergens should be identified on food packaging. Award 1 mark for a clear explanation of why food allergens should be identified. <u>Indicative content</u> Identify how food allergens are identified on food labels. • Food allergens must be highlighted in bold. • Manufacturers will include 'contains'/'may contain'/'made in a factory using'/'not suitable for someone with' labelling. • Food allergens could be underlined/highlighted in a contrasting colour. Explain why. • Allergens are easy to identify. • Allergy/food intolerance sufferers/consumers needing to avoid certain foods can identify if foods are safe to eat/should be avoided. • Allergy/food intolerance sufferers/consumers needing to avoid certain foods can make informed decisions. Credit other valid responses.	2

Qu	Part	Marking guidance	Total marks																		
04	4	Using the packaging label for the strawberry trifle: Identify one ingredient that is linked to each food intolerance/allergy. Suggest an alternative ingredient that could be used. Marking guidance This question is assessed against AO2. Award 1 mark for each valid point. <u>Indicative content</u> <table><tr><th>Food intolerance/allergy</th><th>Ingredient identified</th><th>Alternative ingredient</th></tr><tr><td>Gluten intolerance</td><td>Self-raising flour</td><td> • Gluten-free flour. • Rice flour. • Buckwheat flour. • Almond flour. </td></tr><tr><td rowspan="3">Lactose intolerance</td><td>Whipping cream</td><td> • Whipped soya/oat/coconut cream. </td></tr><tr><td>Milk</td><td> • Lactose-free milk. • Soya/almond/coconut/oat milk. • Any other named, plant-based milk alternative. </td></tr><tr><td>Butter</td><td> • Plant-based spread, eg sunflower, soya, etc. • Oil, eg sunflower, olive, vegetable, etc. </td></tr><tr><td rowspan="2">Nut allergy</td><td>Flaked almonds</td><td> • Sugar strands. • Chocolate shavings. • Fresh/dried/candied fruit. • Any other named decoration that is suitable. </td></tr><tr><td>Almond extract</td><td> • Vanilla extract/essence. • Any other named essence/extract that is nut-free, eg lemon. • Cocoa powder. </td></tr></table> Credit other valid responses.	Food intolerance/allergy	Ingredient identified	Alternative ingredient	Gluten intolerance	Self-raising flour	• Gluten-free flour. • Rice flour. • Buckwheat flour. • Almond flour.	Lactose intolerance	Whipping cream	• Whipped soya/oat/coconut cream.	Milk	• Lactose-free milk. • Soya/almond/coconut/oat milk. • Any other named, plant-based milk alternative.	Butter	• Plant-based spread, eg sunflower, soya, etc. • Oil, eg sunflower, olive, vegetable, etc.	Nut allergy	Flaked almonds	• Sugar strands. • Chocolate shavings. • Fresh/dried/candied fruit. • Any other named decoration that is suitable.	Almond extract	• Vanilla extract/essence. • Any other named essence/extract that is nut-free, eg lemon. • Cocoa powder.	6
Food intolerance/allergy	Ingredient identified	Alternative ingredient																			
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Nut allergy	Flaked almonds	• Sugar strands. • Chocolate shavings. • Fresh/dried/candied fruit. • Any other named decoration that is suitable.																			
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Qu	Part	Marking guidance	Total marks
05	1	Identify four different reasons why food is cooked. Marking guidance This question is assessed against AO2. Award 1 mark for each valid point. One-word responses should be credited when they link to indicative content on the mark scheme, e.g. flavour, texture, etc. <u>Indicative content</u> • Makes food safe to eat/prevents food poisoning bacteria by destroying harmful/pathogenic bacteria. • Improves the shelf-life of food/preserves food to make it last longer. • Develops and intensifies flavours due to chemical reactions that take place, eg caramelisation. • Develops and intensifies flavours due to evaporation of water, eg roasting vegetables. • Improves the texture of food, eg dried rice becomes soft when boiled, white sauce goes from runny to thick, etc. • Softens the cells in fruit and vegetables, making them easier to eat and digest. • Improves the appearance of food making it more aesthetically pleasing, eg golden brown bread. • Tenderises meat, making it easier to chew and digest. • Turns raw doughs and batters into cooked foods, eg cake mixtures rise and set. • Develops and intensifies aromas to make food smell more appetising. • Heats up food to make it more aesthetically pleasing/enjoyable to eat. • Improves the nutritional value of food, eg fat drips away when meat is grilled. • Adds variety to the diet. Credit other valid responses.	4

Qu	Part	Marking guidance	Total marks
05	2	Explain how food is cooked by radiation as a method of heat-transfer. You may include labelled diagrams. Marking guidance This question is assessed against AO2. Award 1 mark for each valid point, or 2 marks for each explained point. Relevant diagrams with labelling that shows key words from the indicative content can be credited. <u>Indicative content</u> • Foods are cooked by radiation when they are grilled, toasted, barbecued or microwaved. • Radiation is transferred by a heat source. Grilling/toasting/barbecuing • Infra-red rays/radiation transfer energy. • Infra-red rays travel through the air and get absorbed into food. • Infra-red rays/radiation heats up the food. • The temperature is very hot. • Food cooks on the outside before it is cooked on the inside. • Food should be no more than 3.5 cm thick when it is being grilled/barbecued to avoid the outside cooking/burning before the inside is cooked. Microwaving • The magnetron in a microwave oven transfers electromagnetic waves, which heat and cook food. • In a microwave oven, electromagnetic waves transfer energy, causing water molecules in the food to vibrate. Credit can be given for reference to thermal energy/waves. Credit other valid responses.	4

Qu	Part	Marking guidance	Total marks						
06	1	Identify two functions for each of the ingredients listed in the table. Marking guidance This question is assessed against AO2. Award 1 mark for each valid point. Answers should not be repeated unless points are clearly validated. <u>Indicative content</u> <table><tr><td>Butter</td><td> • Adds moisture. • Adds colour. • Enriches the flavour. • Extends shelf-life/makes the cake last longer. • Helps aerate the cake batter/mixture when creamed with sugar. </td></tr><tr><td>Eggs</td><td> • Help set the cake batter/mixture when cooked/heated. Credit reference to eggs making the cake solid/firm/harden. • Eggs coagulate, turning the batter/mixture from runny to firm/set. • Coagulation enables air bubbles to be suspended so the cake is well-risen. • Adds moisture. • Adds colour (due to egg yolk). • Assist with aeration if whisked before being added to the cake batter/mixture. </td></tr><tr><td>Self-raising flour</td><td> • Helps aerate the cake batter/mixture due to added raising agent/baking powder. • Helps aerate the cake batter/mixture when sifted. • Forms the structure of the cake/gluten content helps develop the structure of the cake. • Dextrinisation of starch causes browning when the cake is cooked. • Bulking ingredient. </td></tr></table> Credit other valid responses.	Butter	• Adds moisture. • Adds colour. • Enriches the flavour. • Extends shelf-life/makes the cake last longer. • Helps aerate the cake batter/mixture when creamed with sugar.	Eggs	• Help set the cake batter/mixture when cooked/heated. Credit reference to eggs making the cake solid/firm/harden. • Eggs coagulate, turning the batter/mixture from runny to firm/set. • Coagulation enables air bubbles to be suspended so the cake is well-risen. • Adds moisture. • Adds colour (due to egg yolk). • Assist with aeration if whisked before being added to the cake batter/mixture.	Self-raising flour	• Helps aerate the cake batter/mixture due to added raising agent/baking powder. • Helps aerate the cake batter/mixture when sifted. • Forms the structure of the cake/gluten content helps develop the structure of the cake. • Dextrinisation of starch causes browning when the cake is cooked. • Bulking ingredient.	6
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Qu	Part	Marking guidance	Total marks
06	2	Explain the process of caramelisation when making a cake. Marking guidance This question is assessed against AO2. Award 1 mark for each valid point, or 2 marks for each explained point. <u>Indicative content</u> • Caramelisation of sugar causes the cake to turn golden brown when cooked. • Sugar melts and turns brown when heated, making the cake golden brown. • Sugar is a disaccharide called sucrose, which is made from glucose and fructose. • Caramelisation occurs when sugar is heated between 160 °C and 170 °C. • As it is heated, sugar (sucrose) molecules start to break up. • As the heating continues, the hydrogen and oxygen atoms in the sugar form water, which evaporates and is released as steam. • The evaporation of water causes the colour of the sugar to gradually change to golden brown, which enhances the colour of the cake, particularly its surface. • The flavour of the cake will also develop as the sugar cooks so that it tastes sweet and caramelised. • If overcooked, the sugar in the cake will go from golden to black, and from sweet to bitter. This is because at 200 °C, sugar burns and breaks down into carbon.	4

Qu	Part	Marking guidance	Total marks						
06	3	Problems have occurred when making the cake. Complete the table to identify two different reasons for each problem. Do not repeat your answers. Marking guidance This question is assessed against AO2. Award 1 mark for each valid point. Answers should not be repeated. <u>Indicative content</u> <table><tr><th>Problem</th><th>Reason for problem</th></tr><tr><td>Cake has not risen</td><td> • Incorrect flour is used, eg plain flour. • No raising agent added/not enough raising agent added. • Self-raising flour/raising agent out of date. • Incorrect proportion/ratio of ingredients, eg too much flour. • Insufficient creaming of butter and caster sugar. • Butter was too hard for creaming. • Flour not sifted. • Cake batter was overmixed/air was beaten out. • Method not followed accurately, eg flour not folded in sufficiently. • Mixture was left for too long before cooking. • Oven temperature was too low. • Insufficient cooking time/cake was undercooked. • Oven door opened part-way through cooking time. </td></tr><tr><td>Cake has a dry texture</td><td> • Oven temperature was too high. • Cooking time was too long/cake was overcooked. • Incorrect proportion/ratio of ingredients, eg too much flour, not enough butter. • Insufficient liquid, eg not enough egg • Method not followed accurately. • Insufficient mixing of ingredients. </td></tr></table> Credit other valid responses.	Problem	Reason for problem	Cake has not risen	• Incorrect flour is used, eg plain flour. • No raising agent added/not enough raising agent added. • Self-raising flour/raising agent out of date. • Incorrect proportion/ratio of ingredients, eg too much flour. • Insufficient creaming of butter and caster sugar. • Butter was too hard for creaming. • Flour not sifted. • Cake batter was overmixed/air was beaten out. • Method not followed accurately, eg flour not folded in sufficiently. • Mixture was left for too long before cooking. • Oven temperature was too low. • Insufficient cooking time/cake was undercooked. • Oven door opened part-way through cooking time.	Cake has a dry texture	• Oven temperature was too high. • Cooking time was too long/cake was overcooked. • Incorrect proportion/ratio of ingredients, eg too much flour, not enough butter. • Insufficient liquid, eg not enough egg • Method not followed accurately. • Insufficient mixing of ingredients.	4
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