GCSE
FOOD PREPARATION AND NUTRITION
8585/W

Paper 1 Food Preparation and Nutrition

Mark scheme

June 2022

Version: 1.0 Final

2 2 6 G 8 5 8 5 / W / M S

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.

Further copies of this mark scheme are available from aqa.org.uk

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	B – 6–8 glasses	AO1	1
01.2	B – Egg	AO1	1
01.3	D – make red blood cells	AO1	1
01.4	A – energy balance	AO1	1
01.5	C – species are protected	AO1	1
01.6	B – Children under 2 years old	AO1	1
01.7	B – Vitamin C	AO1	1
01.8	C – Iodine	AO1	1
01.9	A – Fructose	AO1	1
01.10	D – Scones	AO1	1
01.11	A – 0 to 5°C	AO1	1
01.12	C – Pasteurised milk	AO1	1
01.13	A – Mozzarella cheese	AO1	1
01.14	D – Lecithin	AO1	1
01.15	D – organic	AO1	1
01.16	A - aeration	AO1	1
01.17	B – cheese	AO1	1
01.18	A – Beef	AO1	1

01.19	A – China	AO1	1
01.20	D – Triangle	AO1	1

<table>
<tr><th colspan="4">Section B</th></tr>
<tr><th>Qu</th><th>Part</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>02</td><td>1</td><td>
From the ingredient list:

• name one ingredient with a use-by date
• name one ingredient with a best before date.

Marking guidance

This question is assessed against AO1(a).

Award one mark for each correct response. Allow one word answers linked to ingredients, e.g. milk, chicken, etc.

<table>
<tr><td>Use-by date</td><td>Raw chicken breasts (1)</td></tr>
<tr><td>Best before date</td><td>Any one from: (1)

• can of chopped tomatoes
• curry powder
• canned coconut milk
• oil
• dried rice
• onion.</td></tr>
</table>
</td><td>2</td></tr>
</table>

<table>
<tr><th>Qu</th><th>Part</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>02</td><td>2</td><td>
Explain how the ingredients used to make the chicken curry and rice should be stored.

Do not repeat your answers.

Marking guidance

This question is assessed against AO1(b).

For each ingredient, award one mark per point or two marks for each fully explained point. A maximum of two marks can be awarded for each ingredient.

Do not accept repeated answers. However, you can accept fridge as a storage place for both the raw chicken breasts and leftover canned coconut milk. The additional point/explanation must be different.

<u>Indicative content</u>
<table>
<tr><th>Ingredient</th><th>Explanation</th></tr>
<tr><td>Raw chicken breasts</td><td>• Store in the fridge (1) to slow bacterial growth (1).
• Store at 0 to below 5°C (1) to slow bacterial growth (1).
• Store on the bottom shelf of the fridge (1) to prevent juices dripping onto other foods (1).
• Make sure the chicken is covered/sealed in an airtight container (1) to prevent cross contamination (1).
• Store in the freezer (1) so bacteria is dormant (1).
• Store at -18 to -24°C (1) so bacteria is dormant (1).
• Defrost chicken fully in the fridge before use (1) to control bacteria growth (1).</td></tr>
<tr><td>Dried rice</td><td>• Store sealed/in an airtight container (1) to prevent food spoilage (1).
• Store in ambient conditions/at room temperature/in a cupboard (1) to prevent bacterial growth (1).
• Store in a cool/dry place (1) to prevent bacterial growth (1).</td></tr>
</table>
</td><td>6</td></tr>
</table>

		Leftover canned coconut milk	• Store in the fridge/on the top shelf in the fridge (1) in an airtight container (1). • Store in an airtight container (1) to control bacteria growth (1). • Remove from the can and store in an airtight container (1) to prevent the metal from the can seeping into the coconut milk (1). **Students can specify that the coconut milk should be stored in the fridge. For two marks, they must clarify that the coconut milk must be stored in a separate container.**	

Credit other valid responses.

<table>
<tr><th>Qu</th><th>Part</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>02</td><td>3</td><td>
Analyse the food safety and hygiene rules that should be followed when preparing, cooking and serving the chicken curry and rice.

Evaluate how following the rules will reduce the risk of food poisoning.

Marking guidance

This question is assessed against AO4(a) and AO4(b).

<table>
<tr><td>Responses will include very good knowledge and understanding of food safety and hygiene rules when preparing, cooking and serving the chicken curry and rice. There is frequent and accurate use of specialist terminology. A very good balance between analysis and evaluation is demonstrated.

Analysis is very good with the identification and explanation of a wide range of food safety and hygiene rules when preparing, cooking and serving the chicken curry and rice. All three areas are addressed. Where relevant, accurate reference is made to key temperatures.

Evaluation makes very good judgements and concludes how the food safety and hygiene rules will prevent the risk of food poisoning. Accurate links are made to analysis points. Specific food poisoning bacteria could be identified.</td><td>9–12 Marks</td></tr>
<tr><td>Responses will include good knowledge and understanding of food safety and hygiene rules when preparing, cooking and serving the chicken curry and rice. There is good and accurate use of specialist terminology. A good balance between analysis and evaluation is demonstrated, although one element may be stronger than the other.

Analysis is good with the identification and explanation of a range of food safety and hygiene rules when preparing, cooking and serving the chicken curry and rice.

Evaluation makes good judgements and concludes how the food safety and hygiene rules will prevent the risk of food poisoning. Some links are made to analysis points.</td><td>5–8 Marks</td></tr>
</table>
</td><td>12</td></tr>
</table>

Responses will include basic knowledge and understanding of food safety and hygiene rules when preparing, cooking and serving the chicken curry and rice. There is limited use of specialist terminology. There may be an imbalance between analysis and evaluation where one aspect may be considerably stronger or completely omitted. **Analysis** is basic with the identification of some food safety and hygiene rules when preparing, cooking and serving the chicken curry and rice. Explanation is limited. **Evaluation** makes basic judgements about how the food safety and hygiene rules will prevent the risk of food poisoning. There are basic or no links to analysis.	1–4 Marks
No answer worthy of credit.	0 Marks

Indicative content

Preparing

- Personal hygiene rules followed, eg hands washed, hair tied up, blue plasters to cover cuts, no jewellery, clean clothes/apron, etc to reduce risk of bacterial/physical contamination.
- Work surfaces cleaned and sanitised with antibacterial spray to prevent cross contamination.
- Food and packaging checked for quality and damage before use to ensure no bacterial contamination/growth of yeasts/moulds.
- Use-by date on chicken checked to ensure it is safe to eat.
- Expiry dates to be checked on ingredients to ensure they are safe to eat.
- Packaging and food waste disposed of in suitable bins to prevent risk of bacterial/physical contamination.
- Equipment checked for cleanliness to avoid cross contamination.
- Chicken stored in the fridge until needed (bottom shelf, 0 to below 5°C – accept 0-5°C) to prevent bacterial growth at room temperature.
- Do not wash raw chicken to avoid spreading bacteria.
- Red chopping board used when preparing the raw chicken to prevent cross contamination.
- Brown chopping board used when preparing the onion to prevent cross contamination. (Accept green chopping board).
- Hands washed after handling raw meat to prevent cross contamination.

Cooking

- Curry should be cooked until it is piping hot to destroy bacteria.
- Curry should be stirred regularly when cooking to ensure even cooking/even distribution of heat.

		• Use of temperature probe to ensure curry reaches minimum of 75°C for 30 seconds to destroy bacteria. • Chicken checked to make sure it is white all the way through and therefore cooked thoroughly. • Make sure equipment is washed after use in hot, soapy water to ensure it is clean and to prevent growth of bacteria/moulds. • Failing to follow personal hygiene and food safety rules could result in harmful levels of bacteria, which could lead to food poisoning, (eg campylobacter/salmonella bacteria in undercooked chicken, E. coli/staphylococcus aureus from poor personal hygiene). Accept bacillus cereus bacteria in cooked rice (not in specification). **Serving** • Clean plates and utensils used for serving to avoid cross contamination. • The dish should be served immediately when made to avoid entering the danger zone (5 to 63°C), which would lead to rapid growth of bacteria. • Cooked rice is a high-risk food and should be served immediately to avoid bacterial growth. • If hot-holding, the dish should be held at 63°C to limit bacterial growth. • Any leftovers should be cooled and placed in the fridge at 0 to below 5°C (accept 0-5°C)/ freezer at -18°C within 1–2 hours to slow down the growth of bacteria. • Food should be covered if it is not being served straight away to avoid contamination, eg from insects/pests. • Only reheat once to restrict bacterial growth. • Reheat to 75°C to destroy bacteria. **Credit other valid responses. Do not credit responses that refer to health and safety, eg reference to pan handles, sharp knives, etc.**	

<table>
<tr><th>Qu</th><th>Part</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>03</td><td>1</td><td>
The table below shows three different consumer groups.

• Identify one factor that may influence their food choice.
• Explain your answer.

Do not repeat your answers.

Marking guidance

This question is assessed against AO2.

Award one mark per valid factor and one mark for a relevant explanation. A total of two marks can be awarded for each consumer group.

Clear explanations can be credited if factors are vague or not credited.

Do not accept repeated answers.

<u>Indicative content</u>

A 15-year-old buying food from a school canteen at lunch
<table>
<tr><th>Factor influencing food choice</th><th>Explanation</th></tr>
<tr><td>• Money available/cost of food
• Food availability
• Physical activity level (PAL)
• Influence of peers
• Preferences
• Time of day
• Time available
• Special dietary needs

Healthy eating and nutrition</td><td>• Limited funds may restrict items that can be purchased.
• Can only buy from options available in the canteen on that day.
• If they participate in sport, may need foods higher in carbohydrate and protein.
• More likely to buy the same food as their friends.
• Opt for foods they like and avoid foods they dislike.
• More food options available at the start of lunch.
• Length of lunch break/time of purchase would depend on type of food purchased.
• Choice may be limited if special dietary needs are not accommodated, eg Coeliac.
• May be keen to follow the recommendations of the Eatwell Guide.</td></tr>
</table>
</td><td>6</td></tr>
</table>

An 85-year-old with reduced mobility

Factor influencing food choice	Explanation
• Physical activity level/Healthy eating	• Foods high in fats and sugar/energy dense foods should be limited.
• Food preparation and cooking skills	• Determines if they can prepare food from scratch or if they would rely on ready meals.
• Income	• Influences food that can be bought, eg cheaper food is more likely to be purchased.
• Other family members/friends	• Food purchased may be influenced by preferences of other family members/friends.
• Location	• May only have access to a small local shop.
• Mobility	• May be limited in where they can shop and how much they can purchase at a time.
• Medical conditions	• Following advice from a medical professional.
• Sensory features, eg texture of food	• Foods with a softer texture may be needed to make food more enjoyable and easier to eat.

A 30-year-old who works at night in a hospital

Factor influencing food choice	Explanation
• Time of day	• Snack foods may be required if full meals cannot be eaten at night.
• Time available to prepare/cook	• Limited availability of time may increase need for pre-prepared/ready-to-eat foods.
• Food availability	• May be limited to purchasing food from canteen/vending machines, etc.
• Influence of others	• May be influenced by what colleagues are eating.
• Facilities available	• Eg, hot meals can be eaten if a microwave is available.
• Income	• Lower income may lead to purchase of cheaper foods.
• Nutritional value, eg energy dense	• Energy dense foods will provide energy to last over a longer period of time.
• Tiredness	• May lead to pre-prepared/ready-to-eat foods being chosen.

Credit other valid responses that are linked to each context, which could include:

- ethical/moral beliefs, eg vegan/vegetarian

		• religion, eg certain religions do not allow certain foods to be consumed. Examples may be given. • seasonality • personal preferences, including likes and dislikes • advertising and promotion, eg meal deals • knowledge of nutrition and healthy eating • other personal lifestyle influences, eg social media	

Qu	Part	Marking guidance	Total marks
03	**2**	**University students may have a diet of ready meals and takeaways. They often do not get their 5-a-day.** **Explain the term 5-a-day.** **Marking guidance** This question is assessed against AO1(a). Award one mark per valid point given from the list below. **<u>Indicative content</u>** • 5-a-day is the number of portions of fruit and vegetables that should be eaten on a daily basis. • 5-a-day includes eating 5 fruit and vegetables from the green segment of the Eatwell guide/as part of a balanced diet. • Consuming 5-a-day provides vitamins, minerals and fibre. • Different colour fruit and vegetables should be eaten so a range of vitamins and minerals can be provided. • It does not count if 5 portions of the same fruit/vegetable are eaten. • One portion is 80 g / a handful (30 g for dried fruit) • Fresh, dried, canned and frozen fruit/vegetables all count towards 5-a-day, as do foods containing fruit and vegetables, eg soup. • Beans and pulses count as one of your 5-a-day. • Unsweetened fruit/vegetable juices and smoothies count towards 5-a-day, but only 150 ml. • Fruit and vegetables in convenience foods, such as ready meals and shop-bought pasta sauces, soups and puddings. • Potatoes, plantain, yams, green bananas, dasheens, cocoas, cassava, etc do not count towards your 5-a-day. **Credit other valid responses.**	2

<table>
<tr><th>Qu</th><th>Part</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>03</td><td>3</td><td>
Explain how a diet containing too many ready meals and takeaways could impact a student's long-term health.

Marking guidance

This question is assessed against AO2.

<table>
<tr><td>A wide range of diet-related health conditions are identified and the impact on a student’s long-term health is explained in detail. A very good level of understanding is demonstrated. Very good knowledge and understanding is demonstrated.</td><td>5–6 Marks</td></tr>
<tr><td>A number of diet-related health conditions are identified and the impact on a student’s long-term health is explained. Good knowledge and understanding is demonstrated.</td><td>3–4 Marks</td></tr>
<tr><td>A limited number of diet-related health conditions are identified. Explanation is limited or missing. Limited knowledge and understanding is demonstrated.</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>

• Ready meals and takeaways tend to be high in fat, sugar and salt.
• According to the Eatwell Guide, foods high in fat/sugar/salt should be eaten less often and in small amounts.
• Ready meals and takeaways may be energy-dense. Energy will be stored in the body as fat if it is not used up, leading to weight gain.
• The impact of consuming ready meals and takeaways will depend on physical activity level (PAL), eg if students do not partake in regular exercise, they will not use up the energy.
• On a long-term basis, consuming foods high in fat/sugar/salt can lead to a number of diet-related health conditions.
• High levels of salt in the diet can impact cardiovascular health and lead to hypertension/high blood pressure.
• High levels of fat in the diet can lead to weight gain, which can increase the risk of obesity.
• Obesity increases risk of coronary heart disease/type 2 diabetes/strokes/some cancers.
• High levels of fat in the diet can lead to high cholesterol, which is when fatty deposits build up in arteries.
</td><td>6</td></tr>
</table>

		• High levels of fat/salt in the diet can impact cardiovascular health and increase the risk of coronary heart disease, which can lead to heart attacks. • Diet high in sugar can result in poor dental health. • Ready meals and takeaways can be low in fruit and vegetables and therefore low in fibre, vitamins and minerals. • Lack of antioxidants (vitamins A, C and E) to prevent development of cancer. • Not following dietary guidelines could lead to deficiency diseases due to lack of variety in diet, eg anaemia from iron deficiency, poor bone health from lack of calcium. • May not be eating/eating enough oily fish, which means essential fatty acids/fat soluble vitamins (A, D, E and K) will not be obtained for brain development. • Regular consumption of ready-meals and takeaways can lead to reliance on these foods, decreasing confidence with preparing fresh, homemade meals. • Regular consumption of ready meals and takeaways, and their subsequent contribution to diet-related health conditions, can have a negative impact on mental health. **Credit other valid responses.**	

<table>
<tr><th>Qu</th><th>Part</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>03</td><td>4</td><td>
Discuss how students can use healthy eating guidelines when planning meals to achieve a well-balanced diet.

Marking guidance

This question is assessed against AO2.

<table>
<tr><td>Responses show very good knowledge and understanding of the healthy eating guidelines. Detailed and factual explanations related to planning meals.</td><td>5–6 Marks</td></tr>
<tr><td>Responses show good knowledge and understanding of healthy eating guidelines. Factual explanations, some of which relate to planning meals.</td><td>3–4 Marks</td></tr>
<tr><td>Responses show limited knowledge and understanding of healthy eating guidelines. Limited explanation related to planning meals.</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>

Healthy eating guidelines
• Reference to the 8 tips for healthy eating:
a. base your meals on higher fibre starchy carbohydrates
b. eat lots of fruit and veg (5 portions every day/5-a-day)
c. eat more fish, including one portion of oily fish a week
d. cut down on saturated fat and sugar
e. eat less salt: no more than 6g a day for adults
f. get active and be a healthy weight
g. do not get thirsty (drink 6–8 glasses a day)
h. do not skip breakfast.
• Reference to current healthy eating guidelines, eg the Eatwell guide. The need for plenty of fruit and vegetables and starchy carbohydrates, as well as protein foods, dairy or dairy substitute foods, and a small amount of oils and spreads.
• Males need 2500 kcal per day and females need 2000 kcal per day on average.

Planning
• Choose low fat alternatives, such as reduced fat cheese, skimmed milk, lean meat, etc.
</td><td>6</td></tr>
</table>

		• Eat wholegrain carbohydrates, such as wholemeal bread, to increase fibre intake. • Make meals from scratch using fresh ingredients rather than eating ready meals, which contain high levels of fat, sugar and salt. • Use herbs and spices to add flavour to food rather than salt. • Eat regular meals to minimise the number of snack foods consumed. • Take regular exercise to achieve energy balance. • Maintain energy balance. • Limit the number of processed foods, ready meals and takeaways that are eaten. Consume every now and then as a treat instead. • Make sure portion sizes are correct in relation to PAL. **Credit other valid responses.**	

<table>
<tr><th>Qu</th><th>Part</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>03</td><td>5</td><td>
Good bone health in younger people "helps to prevent osteoporosis in later life" (British Nutrition Foundation, 2019).

• Analyse the dietary factors that can cause osteoporosis.
• Evaluate the nutritional advice that should be followed to improve bone health throughout life.

Marking guidance

This question is assessed against AO4(a) and AO4(b).

<table>
<tr><td>Responses will include very good explanations, demonstrating very good knowledge and understanding of dietary factors causing osteoporosis, and factual understanding of how to improve bone health. There will be a very good balance between analysis and evaluation.

Analysis is very good with multiple factors that can cause osteoporosis identified and explained. Reference is made to key life stages and/or dietary choices.

Evaluation makes very good judgements about how to improve bone health. Specific nutrients and food sources are identified, with functions of nutrients accurately explained.</td><td>7–8 Marks</td></tr>
<tr><td>Responses will include good explanations, demonstrating good knowledge and understanding of the dietary factors causing osteoporosis, and understanding of how to improve bone health. There will be a good balance between analysis and evaluation, although one element may be explored in more detail.

Analysis is good with a range of factors that can cause osteoporosis identified and explained. Some reference is made to key life stages or dietary choices.

Evaluation makes good judgements about how to improve bone health. Specific nutrients are identified. There is consideration of food sources and/or functions of nutrients.</td><td>5–6 Marks</td></tr>
</table>
</td><td>8</td></tr>
</table>

		Responses will include basic explanations, demonstrating some knowledge and understanding of the dietary factors causing osteoporosis, and some understanding of how to improve bone health. The response may focus on just analysis or evaluation. **Analysis** is basic with some of the factors that can cause osteoporosis identified. Explanation may be basic. Specific life stages and/or dietary choices may be vague or absent at this level. **Evaluation** makes basic judgements about how to improve bone health. There is some identification of nutrients needed and/or food sources. — 3–4 Marks Responses will include limited explanations, demonstrating limited understanding of the dietary factors causing osteoporosis, and limited understanding of how to improve bone health. The response will focus on just analysis or evaluation. **Analysis** is limited with limited reference to factors that can cause osteoporosis. There may be little or no explanation. Specific life stages and/or dietary choices are absent at this level. **Evaluation** makes limited judgements about how to improve bone health. There is little or no attempt to identify nutrients needed and/or food sources. — 1–2 Marks No answer worthy of credit. — 0 Marks **<u>Indicative content</u>** **Analysis** • Osteoporosis is a disease that can develop in later life (but also sooner) as bones demineralise and calcium content decreases. This can lead to brittle bones that break easily. • Bone mass is built up throughout childhood and into early adulthood. • After the age of 30–35, bone density starts to decrease as minerals such as calcium and phosphorus are lost from them and not replaced. After the menopause, women lose bone density at an increased rate. • Osteoporosis can develop due to a lack of calcium in the diet. • Osteoporosis can develop from a lack of vitamin D, which is needed to help absorb calcium. • Vitamin D deficiency can occur in people who are housebound/frail, people on a poor diet, pregnant and lactating mothers and people who do not expose themselves to sunlight. • Osteoporosis can develop from a lack of phosphorous and vitamin K in the diet.	

		• Vegans and people with dairy allergies/lactose intolerance may be at higher risk of osteoporosis due to not consuming dairy products, which are a rich source of calcium. • Coeliac disease presents higher risk of calcium deficiency. • Being underweight can increase the likelihood of developing osteoporosis as it is unlikely sufficient levels of nutrients are being consumed. **Evaluation** • Children and teenagers should make sure they consume recommended daily amounts of calcium, vitamin D, vitamin K, protein and phosphorus to develop strong bones and teeth. • Calcium is found in milk and dairy foods (such as cheese, yoghurt, etc), green leafy vegetables (such as kale, broccoli and spinach), seafood (such as canned fish eaten with bones, clams and shrimp), and fortified dairy alternatives (such as soya milk) and juices. • Vitamin D is found in oily fish (eg salmon), red meat, liver, egg yolk, and fortified foods, such as breakfast cereals and fat spread (eg margarine). • Obtaining recommended amounts of vitamin D and calcium can reduce the risk of developing rickets. • Phosphorus is key for healthy bone structure, and can be found in red meat, milk and dairy foods, fish, poultry, bread, rice and oats. • Protein is important for healthy bones, eg from consuming meat, fish, beans, lentils, etc. • Vitamin K supports bone formation. It can be found in liver, eggs, meat and fermented foods. • Vegans and people with dairy allergies/lactose intolerance should look for fortified plant-based products and/or supplements, such as soya milk. • People should maintain a healthy weight following a well-balanced diet to make sure all necessary nutrients are consumed. • Take a daily supplement containing 10 micrograms of vitamin D. • Seek exposure to sunlight in the summer months to aid vitamin D absorption. • Regular exercise, particularly weight-bearing exercises, will help maintain joint movement and bone strength. **Credit other valid responses.**	

Qu	Part	Marking guidance	Total marks
04	**1**	**Explain the process of dextrinisation when baking a pizza.** **Marking guidance** This question is assessed against AO2. Award one mark per valid point given from the list below. **Indicative content** • Dextrinisation occurs when foods containing starch are cooked. • Dextrinisation occurs when starch is cooked by dry heat/baking in the oven. • It causes the outer layer of the starchy food to turn brown, ie the pizza crust and bottom of the base. • The dry heat breaks the starch molecules into smaller groups of glucose molecules called dextrins. • Dextrins give baked foods a baked/sweeter flavour. • The longer food is cooked for, the browner it will become. • If a starchy food turns black, it has gone past the dextrinisation stage. • The heat has driven off the water (hydrogen and oxygen), leaving carbon behind.	2

Qu	Part	Marking guidance	Total marks
04	**2**	**The apple pie is made using shortcrust pastry.** **Explain how the shortening process creates a crumbly texture.** **Marking guidance** This question is assessed against AO2. Award one mark per point or two marks for each fully explained point. **<u>Indicative content</u>** • Rubbing-in is used to rub fat (butter/lard/soft spread/block fat) into flour. • When rubbing-in, the fat coats the flour particles. • The fat creates a waterproof layer on the flour particles. • When water is added, the waterproof layer restricts how much water can be absorbed, keeping gluten molecules short. • Cold water should be used as it is absorbed less easily, keeping gluten molecules short. • Limited water absorption gives the dough plasticity but prevents it becoming too stretchy/elasticated/tough. • Plain flour is used as it has a lower gluten content. **Plain flour without justification should not be credited.**	4

<table>
<tr><th>Qu</th><th>Part</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>04</td><td>3</td><td>
Explain the stages of gelatinisation when making a starch-based custard.

Include key temperatures in your answer.

Marking guidance

This question is assessed against AO2.

<table>
<tr><td>Response shows very good knowledge and understanding of the term gelatinisation and this has been applied to a starch-based custard. Details will include reference to correct temperatures.</td><td>5–6 Marks</td></tr>
<tr><td>Response shows good knowledge and understanding of the term gelatinisation and has applied this to a starch-based custard. Details will include reference to temperatures.</td><td>3–4 Marks</td></tr>
<tr><td>Response shows basic knowledge and understanding of the term gelatinisation and has applied this to a starch-based sauce. There is limited reference to temperatures.</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>

• Custard is made using custard powder or cornflour, which contain starch.
• The custard powder/cornflour would be combined with milk before being heated.
• The mixture would need to be stirred continuously to form a suspension/so the starch granules spread through the liquid.
• Stirring the sauce prevents starch sticking to the bottom of the saucepan causing lumps to form.
• When heated, the starch granules begin to absorb the milk.
• At 60°C, starch granules begin to soften and swell.
• At 80°C, the starch granules will burst releasing the starch into the liquid.
• The starch thickens the mixture.
• At 100°C, gelatinisation/thickening is complete.
• As the custard cools down, a skin can develop and become a solid gel.
</td><td>6</td></tr>
</table>

Qu	Part	Marking guidance	Total marks
04	**4**	**Suggest ways to add dietary fibre to the pizza and apple pie.** **Give two suggestions for each dish.** **Do not repeat your answers.** **Marking guidance** This question is assessed against AO1(b). Award one mark per valid point. **Do not accept repeated answers.** **Indicative content** **Pizza** • Wholemeal/wholewheat/wholegrain/brown/granary/spelt flour/50-50 blend used to make pizza base. • Vegetables and/or fruit slices added as topping. • Beans/pulses added as topping. • Add oats to pizza dough. • Add seeds to pizza dough. **Apple Pie** • Use wholemeal/wholewheat/wholegrain flour. • 50/50 white flour/wholemeal flour blend used to make pastry. • Skins left on apples/fruit in pie. • Berries/dried fruit added to pie filling. • Nuts/seeds added to pie. • Add oats to pastry dough. **Credit other valid responses.**	4

<table>
<tr><th>Qu</th><th>Part</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>04</td><td>5</td><td>
The table shows some problems when making the pizza and apple pie.

Complete the table to show two reasons for each problem.

Do not repeat your answers.

Marking guidance

This question is assessed against AO2.

Award one mark per valid point. Do not accept repeated answers.

<u>Indicative content</u>
<table>
<tr><td>The pizza dough is heavy and has not risen</td><td>• Incorrect proportion of ingredients, eg too much flour.
• Not enough kneading.
• Too much kneading so dough is overworked.
• Not enough liquid to activate the yeast.
• Incorrect temperature of liquid to activate the yeast (eg too hot will kill the yeast).
• Wrong flour used, (eg plain flour rather than strong bread flour).
• Short/insufficient proving time.
• Incorrect recipe/instructions followed.
• Yeast/raising agent not added.
• Insufficient yeast/raising agent added.
• Too much salt/salt in contact with yeast, which killed the yeast.
• Too many toppings.</td></tr>
</table>
</td><td>6</td></tr>
</table>

		The pastry is difficult to roll	• Incorrect proportion of ingredients, eg too much flour making the pastry dry and crumbly, too much fat making the pastry sticky. • Too much liquid added so dough is sticky. • Not enough liquid added so dough is crumbly. • Fat has not been rubbed into flour sufficiently so dough has turned stretchy. • Room is too hot so fat has melted making dough sticky. • Work surface is wet/has not been floured. • Excess flour on work surface makes pastry difficult to roll. • Rolling pin has not been floured. • Dough has not been rested. • Incorrect recipe/instructions followed. • Dough has been over-handled. • Mixture has not been worked/combined into a dough so it is crumbly.	
		The apple pie has a soggy bottom	• Incorrect proportion of ingredients. • Too much liquid in filling/too much filling. • Oven temperature too low when cooking. • Oven temperature too high when cooking, causing lid to cook before the pastry case. • Insufficient cooking time. • Pastry not blind baked. • Holes in base. • Lid not sealed so filling leaked. • Incorrect recipe/instructions followed. • Pastry is too thick to cook all the way through. • Pastry is too thin. • Inappropriate choice of pie dish, eg ceramic material rather than metal, impacting conduction.	
		Credit other valid responses.		

Qu	Part	Marking guidance	Total marks
05		**Explain the functional and chemical properties of the ingredients used in the jam-making process.** **Marking guidance** This question is assessed against AO2. Award one mark per valid point. Students do not need to cover both functional and chemical properties to achieve full marks. A maximum of two marks can be awarded for each ingredient. **Indicative content** **Plums** • Plums will provide flavour/plums are naturally sweet. • Plums will add colour. • Plums contain pectin which will be released when they are simmered. • Plums have a high pectin content. • When boiled, the pectin released by the plums will form a gel-based network and allow the jam to set when boiled. • When boiled, the pectin causes the jam to thicken and set. **Lemon juice** • Lemon juice provides citric acid. • Lemon juice adds a sour/tangy flavour balance to the sweet sugar and fruit. • Lemon juice will reduce the pH level in the jam mixture. • Lemon juice allows the pectin chains to form a network to set the jam. • The lemon juice will make the colour of the final jam brighter.	4

Qu	Part	Marking guidance	Total marks
06	**1**	**Give two examples of free-range foods.** **Marking guidance** This question is assessed against AO1(a). Award one mark per valid example. **<u>Indicative content</u>** • Chicken/turkey/duck • Eggs • Beef • Milk • Dairy products made using milk from free-range animals (eg yoghurt, butter, cheese) • Pork • Sheep at any life stage (eg lamb or mutton) • Goat meat • Venison • Any other named meat. **Marks can be awarded for a valid product that would stem from the above examples, such as bacon, which would come from a free-range pork product. If only 'meat' is stated, this should not be credited.**	2

Qu	Part	Marking guidance	Total marks
06	2	**Give two advantages and two disadvantages of free-range food production.** **Marking guidance** This question is assessed against AO1(a). Award one mark per valid point, with a total of two marks for advantages and two marks for disadvantages. If two relevant points are made in one advantage/disadvantage section, credit with two marks. **<u>Indicative content</u>** **Advantages** • Lack of hormones or chemicals in animal products. • Improved flavour in products. • Improved texture in meat due to improved muscle development. • Supporting the more ethical rearing/wellbeing of animals. • Animals and birds reared outdoors have the greatest range of behavioural opportunities and are generally healthier than those that are intensively reared. • Can be more nutritious as fed a higher protein diet, meat generally has lower saturated fat levels. • Considered more natural as often certified by soil association to contain no antibiotics, growth hormones, chemicals etc. • Free-range animals can roam around freely and less likely to spread disease between each other. • Better reputation for farmer/producer • Customer satisfaction from supporting animal welfare **Do not accept 'better/improved quality' unless explained, eg linked to flavour/texture. Do not accept 'healthier'.** **Disadvantages** • Products are more expensive to purchase. • Products are more expensive to farm. • Products not readily available to purchase in supermarkets. • Free-range products produced in smaller yields, so may need pre-ordering. • Outdoor conditions could potentially expose hens to toxins through wild birds and their disease, eg bird and avian flu. • Animals are exposed to climatic extremes. • Free-range animals at risk from predators. • More land is needed for free-range production. • More time-consuming to farm/longer lead times from farm to fork. • Eggs may be overlooked and be stale when found.	4