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Examiners' Report

June 2012

GCE Design & Technology: Food Technology 6FT02 01

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Introduction

This paper focuses on examining candidates' knowledge and understanding of a wide range of ingredients, components, additives and processes used in the design and production of food products. There is a particular emphasis on the physical nature and working properties of food components. This includes the key areas of the industrial application of food technology, including: food safety and hygiene, food quality control, preparation, processing, preservation and packaging of food and good manufacturing practice in the food industry.

In this examination, candidates have made good progress with the specification and there were a range of levels of outcome, as would be expected with the mixed cohort of students. The coverage of the subject content was broad and varied, effectively testing the candidates' technical knowledge and understanding of GCE Food Technology. The 'ramped' nature of the exam paper, and the variety of questions styles and command words promoted accessibility to students of all ability levels. Progression and application of knowledge and understanding within the subject area was evident, promoting stretch and challenge opportunities for higher ability candidates.

Marks were scored evenly across all areas of the paper, with effective differentiation throughout the paper.

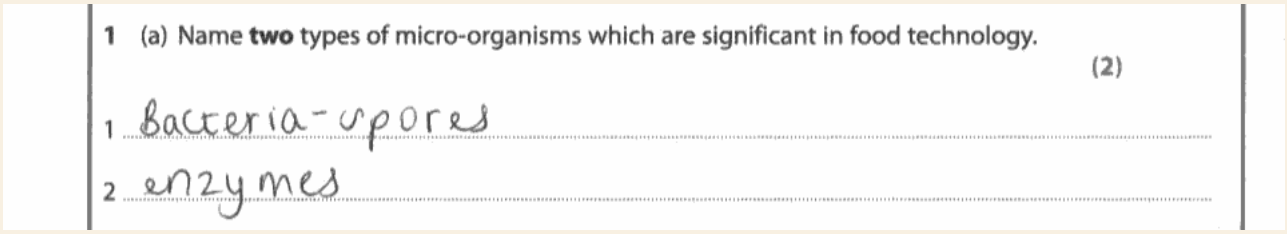
Centres need to be aware of the necessity to prepare candidates for this exam by ensuring that they have a full understanding of the requirements of different question types: 'name', 'state', 'give', 'describe', 'outline', 'evaluate' and 'explain'. Often, candidates had difficulty in achieving the full marks for questions that asked for an explanation, because their answers were not supported with relevant linked examples or reasoning. Extended writing answers were much better organised this year, with good planning and use of terminology presented by most candidates.

Application and detail, rather than length, is the key to high marks. Additional pieces of paper are unhelpful to the marking process, and centres should note that the amount of space provided in the booklet for answers, is more than we would expect any answer to take, and not a recommendation about the amount candidates should write. Technical terminology in written answers was significantly better, with some outstanding responses particularly to the extended writing tasks.

Question 1 (a)

This question focused on the nature and application of microbiology through the identification of the types of organisms that are significant in food technology. Any **two** from the following types of micro-organisms listed below, were acceptable and this was answered well by the cohort of candidates.

- Bacterium / bacteria
- Moulds
- Yeast / yeasts
- Fungi



1 (a) Name **two** types of micro-organisms which are significant in food technology. **(2)**

1 bacteria - spores

2 enzymes

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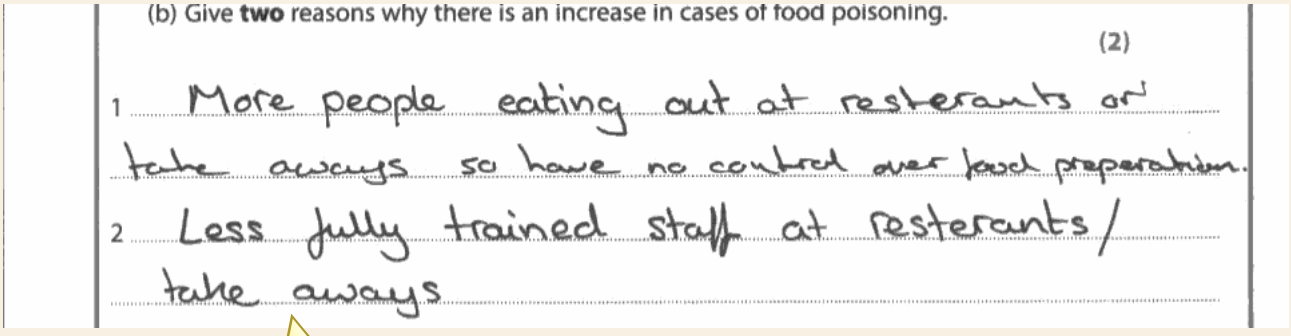
Examiner Comments

Enzymes are not micro-organisms, so only 1 mark was achieved for this response.

Question 1 (b)

This was a very well answered question with a wide range of accurate responses focusing on the reasons for the increase in the incidence of food poisoning. The most popular answers related to the increased production of food and meals outside of the home, lack of basic cooking skills amongst groups of the population, misunderstandings about date marks on the food packaging and issues of personal hygiene. Many references to the source and origin of foods, cross contamination with high risk foods and inaccurate reheating of foods provided an acceptable range of responses. It was pleasing to observe that students are aware of how lifestyle changes have impacted upon our eating habits, and the way food is prepared and processed, giving rise to some reflective answers that showed good depth and application of understanding in their answers.


(b) Give **two** reasons why there is an increase in cases of food poisoning.

(2)

1 More people eating out at resteraunts or take aways so have no control over food preparation.

2 Less fully trained staff at resteraunts / take aways

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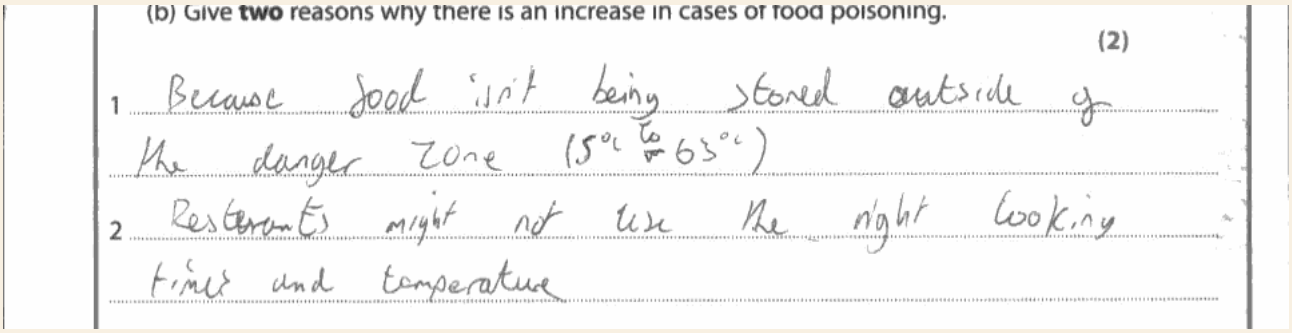
Examiner Comments

Two excellent answers linked to the preparation of foods outside of the home and insufficient training given to catering staff, are rewarded with full marks.


(b) Give **two** reasons why there is an increase in cases of food poisoning.

(2)

1 Because food isn't being stored outside of the danger zone (5°c to 63°c)

2 Resteraunts might not use the right cooking times and temperature

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Examiner Comments

Good reference to danger zone temperature range and an understanding of temperature control during cooking, is rewarded with 2 marks.

(b) Give **two** reasons why there is an increase in cases of food poisoning.

(2)

1 contaminated water supplies from pesticides

2 mixed food products between raw and cooked meats

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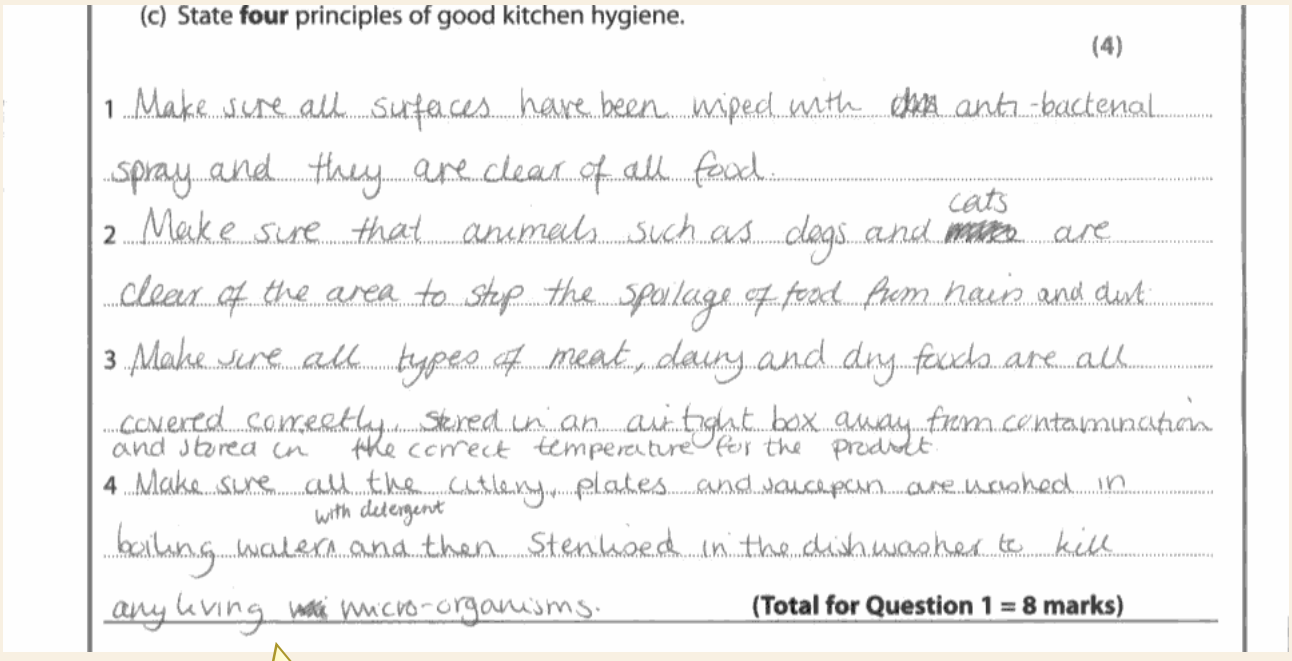
Examiner Comments

A good answer demonstrating an understanding of cross contamination between foods and chemical contamination from pesticides in our water supply.

Question 1 (c)

The key to success with this question was reading the question carefully and using kitchen hygiene as the focus for the answer, rather than general hygiene issues. Some candidates purely focused on personal hygiene, and as a result limited their access to marks. However, there was some excellent application of knowledge linked to waste management, industrial kitchen design (hand washing, storage facilities, running water, location of doors and waste), HACCP, code of conduct and food storage areas.



(c) State **four** principles of good kitchen hygiene.

(4)

1 Make sure all surfaces have been wiped with ~~the~~ anti-bactenal spray and they are clear of all food.

2 Make sure that animals such as dogs and ~~mice~~ cats are clear of the area to stop the spoilage of food from hairs and dust

3 Make sure all types of meat, dairy and dry foods are all covered correctly, stored in an air tight box away from contamination and stored on the correct temperature for the product

4 Make sure all the cutlery, plates and saucepan are washed in with detergent boiling waters and then Sterilised in the dishwasher to kill any living ~~wit~~ micro-organisms.

(Total for Question 1 = 8 marks)

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Examiner Comments

A detailed, thorough and accurate answer identifying four principles of good kitchen hygiene.

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Examiner Tip

A significant number of responses contained a wide range of knowledge. Candidates were aware of requirements such as two doors between toilets and kitchen, plus other kitchen design issues. Other incorrect answers that appeared frequently were "notices telling staff to wash hands" and a vague response "store foods correctly". Many lost a mark by repeating "clean surfaces" and then "clean equipment".

(c) State **four** principles of good kitchen hygiene.

(4)

1 Ensure there is a continue flow of fresh water provided

2 Ensure that all toilets are maintained and clean, ensuring that they are not near the kitchen

3 Ensure that staff are provided with lockers and ~~correct clothing~~ Hand washing facilities

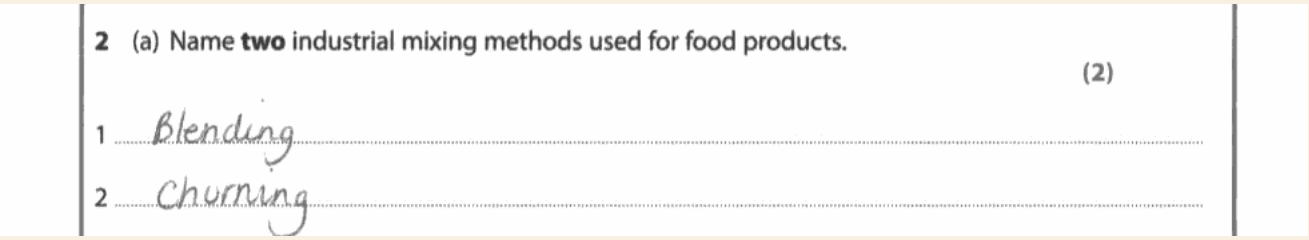
4 Ensure that the kitchen is cleaned and maintained storing food correctly

ResultsPlus
Examiner Comments

The focus on water supply, location of toilets away from the industrial food preparation area, provision of hand washing facilities and lockers for staff achieves full marks for this answer.

Question 2 (a)

The mixing stages in the commercial manufacture of food products was a focus for this question, linked specifically to different mixing methods. Answers could have been related to mixing methods for liquids or solids. A popular question, with some good answers focusing on ribbon mixing and tumbling were seen by examiners, but a number of candidates commented on domestic preparation or cleaning methods, and were therefore unable to access the full marks.


2 (a) Name **two** industrial mixing methods used for food products.

(2)

1 Blending

2 Churning

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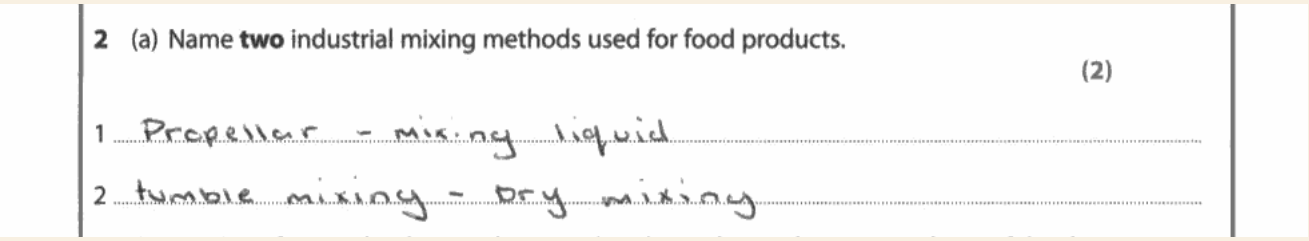
Examiner Comments

Two acceptable answers rewarded with full marks.


2 (a) Name **two** industrial mixing methods used for food products.

(2)

1 Propellar - mixing liquid

2 tumble mixing - dry mixing

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Examiner Comments

Mixing was not included as an acceptable answer on the mark scheme, as this was in the question.

This response received full marks with two good answers.

Question 2 (b)

Following on from the previous question, this question provided a ramped style to allow candidates to apply their knowledge and understanding of the principles of the mixing processes. The question focused on the factors that have to be considered in order to obtain a good mix of dried ingredients.

Most candidates knew this topic well, with some excellent depth and detail provided in their responses.

(b) Give **two** factors that have to be considered in order to obtain a good mix of dried ingredients.

(2)

1 The Size of the food particles which are being mixed

2 The weight / amount of each ingredient which is being mixed.

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Examiner Comments

Two accurate responses are awarded with 2 marks.

Question 2 (c)

Continuing with the theme of the question related to the stages in the commercial manufacture of food products in Unit 2.4, the style of the question changed from the previous 'name' and 'give' command words to 'outline'. This created the opportunity for candidates to consider the benefits of the homogenisation of liquids and show more technical knowledge. Homogenisation was not fully understood and some candidates incorrectly believed it to be a method of preservation rather than a process that alters consistency or sensory properties. Many responses included accurate, well explained information showing knowledge on emulsions and stability, as well as the resulting sensory properties. However, where candidates confused sterilisation and homogenisation, answers were muddled and lacked clarity or accuracy.

(c) Outline the benefits of the homogenisation of liquids.

(4)

The addition of fats into the liquid will increase shelf-life as well as provide some degree of flavour to the product, and also possibly colour and texture.

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Examiner Comments

A short, concise answer focusing on the main benefits of homogenisation linked to storage and sensory properties.

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Examiner Tip

Bullet pointed answers could have organised the candidates answer.

(c) Outline the benefits of the homogenisation of liquids.

(4)

Homogenisation is used in milk to reduce the size of the fat droplets for an equal mix throughout. Its a benifit because as a heat treatment it can kill various bacteria. The distribution of the fat droplets will be equal providing a good consistant texture, flavour and colour. Also milk is a emulsion of fat and water so the droplets need to be small for a perishable emulsion.

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Examiner Comments

Reduced fat globule size creating an even mix gains the initial two marks, followed by a link to a good consistency in texture and flavour being rewarded with full marks.

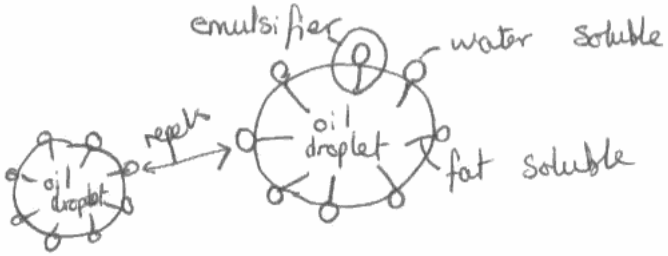
Question 3 (a)

Emulsifying agents is a key topic within the materials, components/ingredients and working properties section of Unit 2.3, linked to the nature, functional properties and uses of additives. Candidates were asked to outline how an emulsifier can prevent the separation of oil and water. Many candidates created an accurate and correctly labelled diagram of an emulsifier and gained two marks this way. Few candidates wrote an explanation which was worthy of two marks – most could describe the two parts of an emulsifier, but not explain in words how it worked by surrounding the droplets. Other candidates showed excellent knowledge of GMS and mono/triglycerides, whilst at the other end of the ability spectrum, some candidates just discussed what happened when oil and water were shaken.

3 (a) Outline, using notes and/or sketches, how an emulsifier can prevent the separation of oil and water.

(2)

The emulsifier attaches to the oil droplet and the head is water soluble and the tail is fat soluble, The emulsifier's repel one another so that the oil doesn't stick together.



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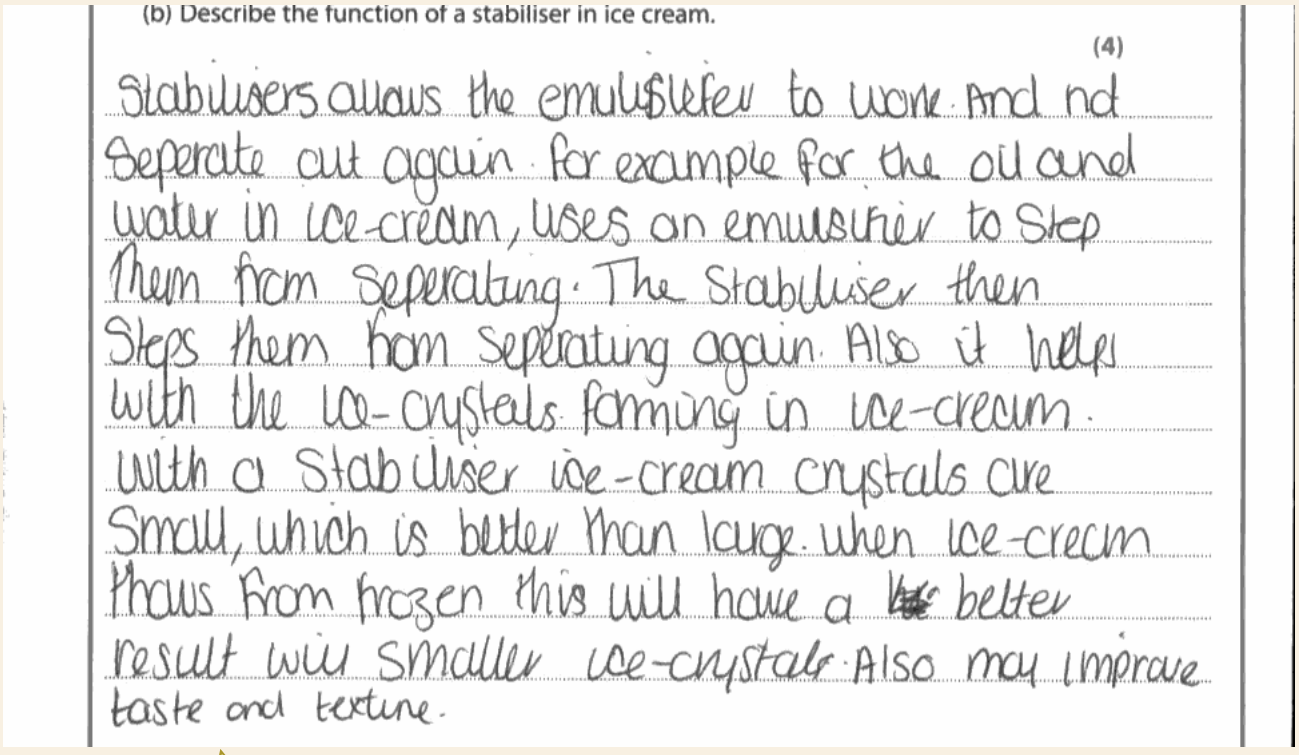
Examiner Comments

The correctly labelled diagram shows the emulsifier joining substances that contain both hydrophylic and hydrophobic molecules, preventing droplets joining up.

Question 3 (b)

This question focused on the description of the working characteristics of a stabiliser in ice cream, linked to sensory properties, performance and user requirements, from Unit 2.3. A range of responses were seen across the cohort of students, with many showing a good understanding of stabilisers in commercial food preparation.

A range of good descriptions were given about the ability of stabilisers to absorb and hold water, and the consequent effect on texture. Candidates showed good knowledge of the functions of stabilisers, discussing slow thaw and reducing drip.



(b) Describe the function of a stabiliser in ice cream.

(4)

Stabilisers allows the emulsifiers to work and not seperate out again for example for the oil and water in ice-cream, uses an emulsifier to stop them from seperating. The stabiliser then stops them from seperating again. Also it helps with the ice-crystals forming in ice-cream. With a stabiliser ice-cream crystals are small, which is better than large. when ice-cream thaws from frozen this will have a ~~bet~~ better result will smaller ice-crystals. Also may improve taste and texture.

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Examiner Comments

This answer reflects the general responses to this question from the cohort of candidates, where some additional technical language and terminology (bind/ hold large qualities of water/ reduce drip) would have secured full marks. 3 marks awarded for this answer.

(b) Describe the function of a stabiliser in ice cream.

(4)

In ice cream stabilisers prevent the ice-cream from 'dripping' over your hand. It helps stabilise the ice crystals. Stabilisers work by binding up or absorbing water, so in ice cream this would have the effect of preventing the melting/dripping (for a longer time) As the stabilisers would be holding the water content, so it can't drip. (Obviously the ice cream will eventually melt under certain temperatures but stabilisers slow this effect down).

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Examiner Comments

3 marks awarded for this answer linked to binding or holding of water by the stabiliser to prevent melting /drip and the link to ice crystal formation.

Question 3 (c)

This question related to Unit 2.3, nature and functional properties affecting the characteristics of foods. It focused on how four named additives are used as aids in food processing. Most candidates achieved at least 1 mark for nutrients and/or anti caking agents. Solvents and sequestrants were answered poorly.

(c) State why the following **four** additives are used in food processing.

(4)

Anti-caking agents - these are used to prevent the bulking or clumping together of compenents (particularly used for cake mixes).

Solvents may be added to improve the smell of a product, making it more fresh/pleasant to consumes.

Sequestrants improve the flavour of the food product.

Nutrients Some foods e.g margarine have to be fortified with nutrients by law: Margarine with A+D. This is to increase a products nutritional value.

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Examiner Comments

2 marks awarded for the correct use of anti-caking agents and nutrients. Many candidates were able to support their answer with an example, and this was helpful to the response.

(c) State why the following **four** additives are used in food processing.

(4)

Anti-caking agents Additives (e.g. magnesium carbonate) allow free flow in mixtures. They prevent moisture making the mixture stick together. e.g. icing sugar

Solvents help the food last longer by preserving it. e.g. the use of sorbic acid - uses salt to kill bacteria, salt absorbs moisture and destroys the bacteria present. keeps it safer.

Sequestrants Stop the oxidation of food occuring when oxygen goes into fats which makes the fat go rancid e.g. absorbic acid

Nutrients additives can be used to put nutrients inside of products. For example they add flouride into water or vitamin C, D into breakfast cereals.

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Examiner Comments

Some confusion about the use of solvents in this answer, but the addition of an example (flouride in water) aiding the nutritional content of the product, shows understanding of fortification. Vitamin C and D are not added to breakfast cereals.

The answers for anti-caking agents, sequestrants and nutrients are accurate and rewarded with 3 marks.

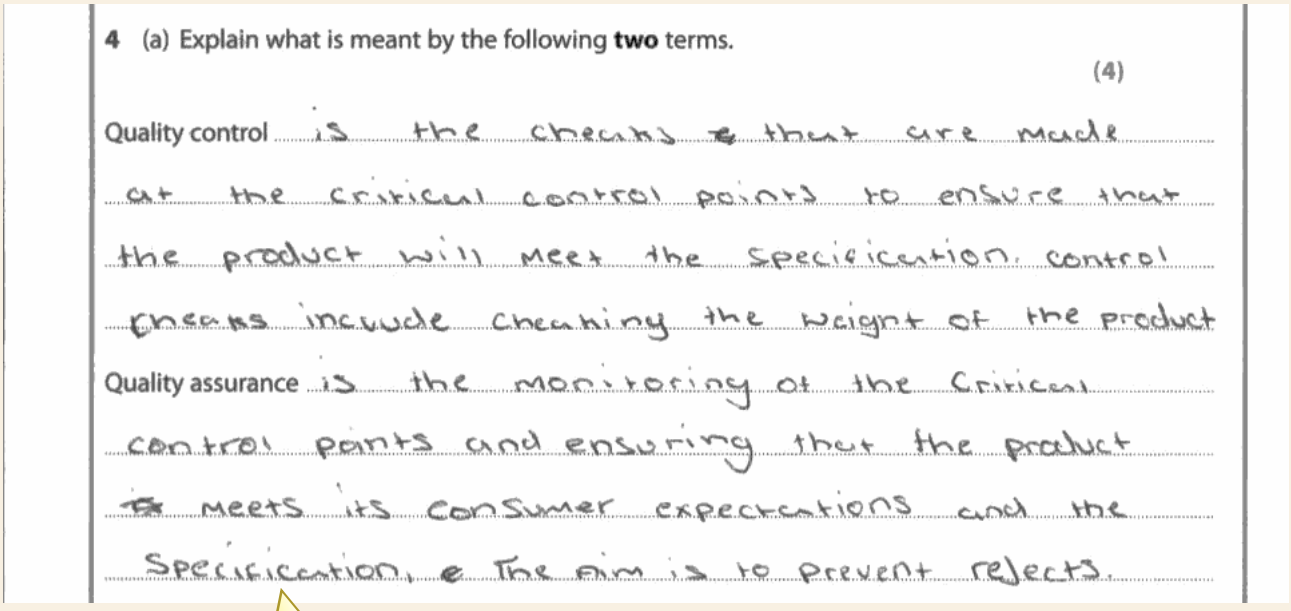
Question 4 (a)

This question focussed on Unit 2.5 Quality, linked to the principles and application of good manufacturing practice when manufacturing a range of different food products, detailed in the subject specification. The safety of food and consistent quality are two expectations that consumers have when they purchase food. The different stages in product design and manufacture need to meet these demands, to ensure that consumers are happy with their purchase and the food industry is confident that they have delivered on their promises.

In the food industry, **standards** are met and maintained through the application and use of **quality control** and **quality assurance** procedures. This is called **good manufacturing practise (GMP).** It is a term that covers the total manufacturing process and quality assurance procedures aimed at maintaining quality, ensuring that food products are produced to consistent standards.

There was some confusion between QA and QC in candidate's responses, and this was quite surprising given the emphasis placed upon 'quality' in coursework tasks for 6FT01 and 6FT04.

Many candidates described quality controls as steps along the production line rather than being the checks or tests carried out to ensure products meet the expected quality / specification. Many were able to give good examples of quality controls. Quality assurance was less well explained with a lot of repetition of the response for quality control. Good answers referred to the promise or guarantee to the consumer that the product had met certain standards, with some high level responses identifying examples of QA standards used in food manufacturing.



4 (a) Explain what is meant by the following **two** terms.

(4)

Quality control is the checks that are made at the critical control points to ensure that the product will meet the specification. control checks include checking the weight of the product

Quality assurance is the monitoring of the Critical control points and ensuring that the product meets its consumer expectations and the Specification. The aim is to prevent rejects.

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Examiner Comments

This is an example of a good answer achieving 4 marks

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Examiner Tip

Quality control is the checking and testing of a product during and at the final stage of the production system against the specification, to ensure it meets consumer expectations and that it is safe to eat.

Quality Assurance is used to define the standard of a food product, and gives the guarantee or promise of the quality and safety of the product.

Question 4 (b)

Continuing the theme of Unit 2.5 (Quality), the focus for this question was application of the Food Safety Act 1990, with responses showing good technical knowledge and understanding. However, some candidates focused on a limited part of food manufacture or retail, rather than considering the impact on the whole of the food industry. Discussion answers tended to achieve higher marks where candidates referred to advantages and disadvantages linked to different areas of the Act.

Examiners also observed that candidates demonstrated an understanding of the application of the Food Safety Act throughout the food chain, the need for accurate information in descriptions/advertising and many candidates were able to explain the consequences of breaking the law. No one mentioned that all food premises should be registered with the local authority, and many candidates were unable to name the organisations that enforce the law.

(b) Outline the impact that the Food Safety Act 1990 has had on the food industry.

(6)

By setting out specific food safety laws for all of the food industry must to follow, it ensures the safety of products being delivered to the consumers. It also looks after the safety of the workers involved in the industry. By covering all areas and laying out basic standards for food preparation it protects against the spread of disease and illness. By giving food safety inspectors power to enforce the laws all areas of the industry must conform or they may end up closed if deemed unfit for the purpose. It makes neglect to food safety a criminal offence and so must by law, be intended.

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Examiner Comments

A concise technical response outlining the impact of the Food Safety Act 1990 on the food industry, and being rewarded with high marks.

(b) Outline the impact that the Food Safety Act 1990 has had on the food industry.

(6)

This means that all food manufacturers must keep records eg where they have sourced all of their ingredients and each stage that has been completed with the product. In addition, records must be kept of any test products that are chosen, aswell as cooking records. This is to ensure that if there is a problem with the final product when the consumer recieves it, the food standard agencies or other body can trace it back to its original source to prevent further outbreak, this may result in the recall of some of its products. This also allows the health agency to conduct visits to any food premises to inspect facilities.

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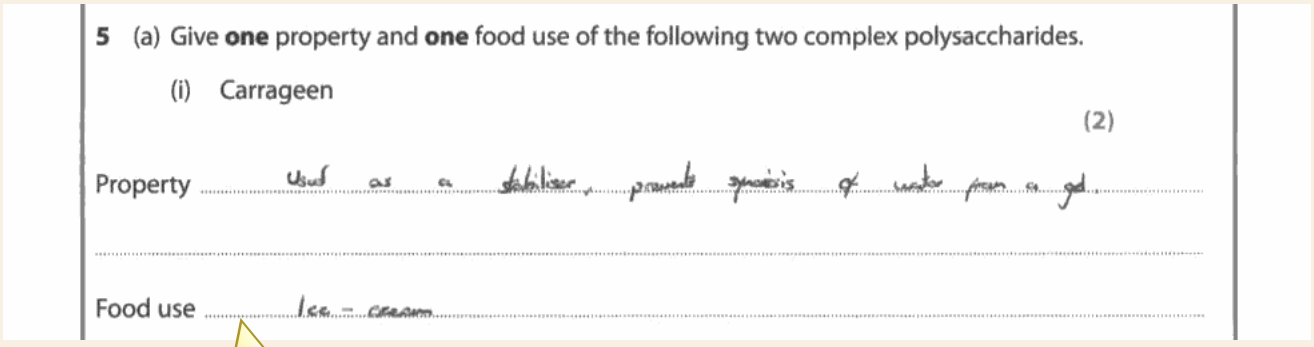
Examiner Comments

The general detail to this response focuses on record keeping, traceability, recall of products and visits to premises linked to the safety of food products during their manufacture and sale.

Question 5 (a) (i)

The question required candidates to give one property and one food use for the two complex polysaccharides: carrageen and pectin. This question was generally answered well, with candidates demonstrating a good knowledge base related to the working characteristics of two complex polysaccharides used as gelling agents in commercial food manufacture.


5 (a) Give **one** property and **one** food use of the following two complex polysaccharides.

(i) Carrageen

(2)

Property Used as a stabiliser, prevents synaeresis of water from a gel

Food use Ice - cream

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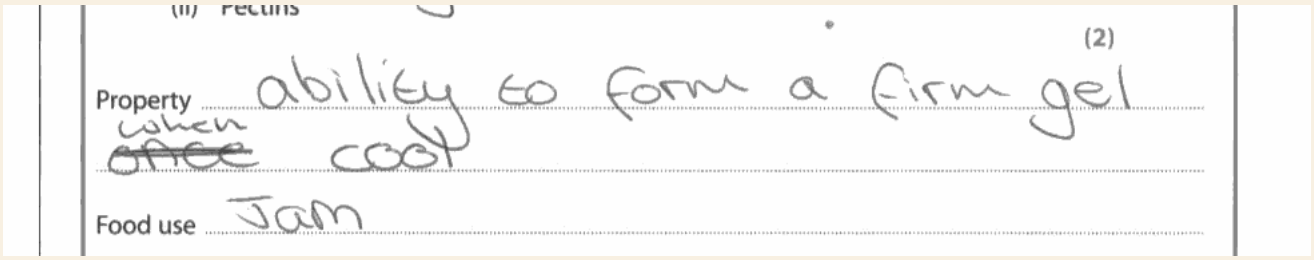
Examiner Comments

Two correct responses with property and food use linked in this answer.

Question 5 (a) (ii)

The question required candidates to give one property and one food use for the two complex polysaccharides: carrageen and pectin. This question was generally answered well, with candidates demonstrating a good knowledge base related to the working characteristics of two complex polysaccharides used as gelling agents in commercial food manufacture.


(ii) Pectins

(2)

Property ability to form a firm gel ~~when once~~ cool

Food use Jam

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Correct response for property and food use.

Question 5 (b)

The area of focus for this question was taken from Unit 2.3, linked to the fundamental working properties of carbohydrates. Some detailed, technically accurate answers gained maximum marks. Syneresis was described well and many candidates knew the process was the opposite of gelatinisation, and that it is irreversible. Some candidates referred to where it was likely to occur, rather than its features, but in the main this was well answered by the majority of the cohort.

(b) State **three** features of retrogradation.

(3)

retrogradation is the reverse of gelatinisation.
retrogradation is the weeping of water
making the product eventually return to liquid
and an unstable form. retrogradation spoils
the properties of the food- water leaves from
the starch granules.

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Examiner Comments

An accurate response demonstrating some good technical vocabulary.

(b) State **three** features of retrogradation.

(3)

- Retrogradation occurs in canned products that have been gelatinised by starch *
- It is know as 'the weeping of water' or Syneris in canned products and is the opposite of gelatinisation
- Amylopectin is resistant to retrogradation.

* It is the liquid escaping from canned product.

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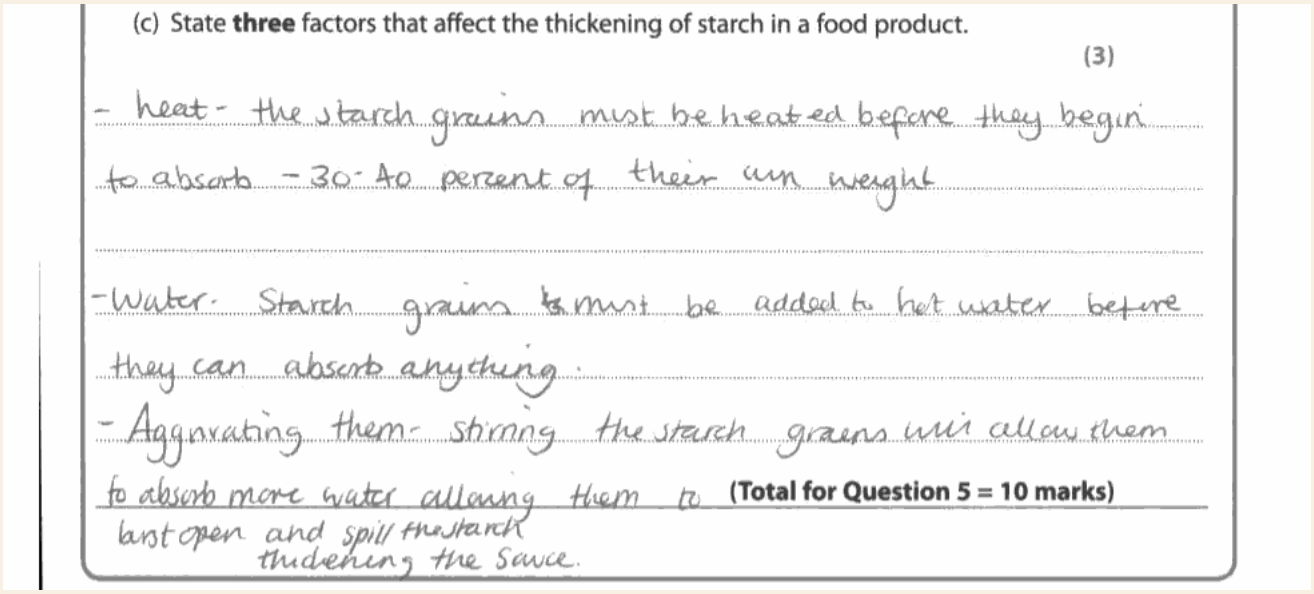
The features show a pleasing understanding of retrogradation. By bullet pointing the answers, the candidate has organised the answers with clarity.

Question 5 (c)

Continuing with the carbohydrate theme to this linked question, good knowledge was shown here by the cohort of candidates, who provided technical answers to the question. Where candidates focused their answers on the practical application of ingredients, the

most common responses were related to the amount/type of starch and amount of liquid, with the need for agitation. It was pleasing to see the practical application of theory being illustrated, with some good examples of food products that have been made at school e.g. lemon meringue pies. By using such examples, candidates demonstrated good technical understanding, and were able to link their response to acidity and sugar content affecting gelatinisation. Many candidates showed excellent knowledge, referring to the types of starch (amylose & amylopectin) but some then moved away from the question and discussed the properties of the starches in too much depth.



(c) State **three** factors that affect the thickening of starch in a food product.

(3)

- heat - the starch grains must be heated before they begin to absorb - 30-40 percent of their own weight

-Water. Starch grains must be added to hot water before they can absorb anything.

- Aggravating them - stirring the starch grains will allow them to absorb more water allowing them to last open and spill the starch thickening the sauce.

(Total for Question 5 = 10 marks)

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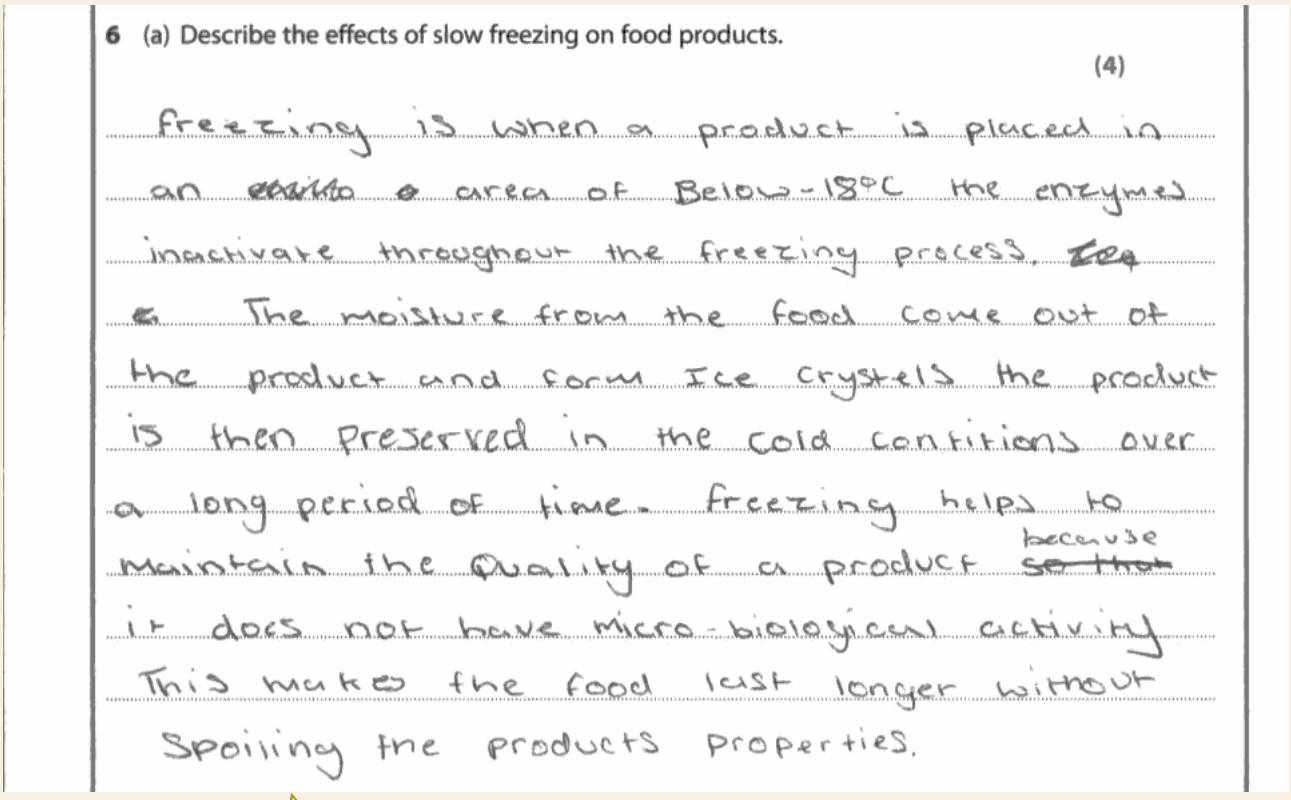
Examiner Comments

Some satisfactory understanding shown with this answer, although there is some confusion with the temperature of the water for the second response.

Question 6 (a)

This question produced some of the most disappointing responses across the exam paper. Many candidates failed to read the question correctly, or considered the benefits of slow freezing on food products, of which there are none. The use of the command word required a description of the effects of slow freezing. This required the candidates to make at least two statements about the slow freezing, and then to describe the effects on food products.

Many candidates discussed this topic with accuracy, providing technical detail in describing the reasons for large ice crystals forming, and the subsequent change to texture.



6 (a) Describe the effects of slow freezing on food products.

(4)

freezing is when a product is placed in an ~~exact~~ area of Below -18°C the enzymes inactivate throughout the freezing process. ~~The~~ The moisture from the food come out of the product and form Ice crystels the product is then preserved in the cold contitions over a long period of time. freezing helps to maintain the Quality of a product ~~so that~~ because it does not have micro-biological activity This mates the food last longer without Spoiling the products properties.

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Examiner Comments

Some accuarcy shown in this answer, with links to texture changes, shelf life and micro-biological activity.

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Examiner Tip

The 'describe' command word in the question requires the candidates to make two statements about slow freezing, and describe the effects of slow freezing on foods, to access the higher marks.

6 (a) Describe the effects of slow freezing on food products.

(4)

If you slow freeze a product it can cause ice crystals to form. This then leads to the denaturing of a food product and breaks the structure of it. For example if you slow freeze a strawberry it destroys the structure and when you defrost it. The strawberry turns to mush and is then inedible.

ResultsPlus

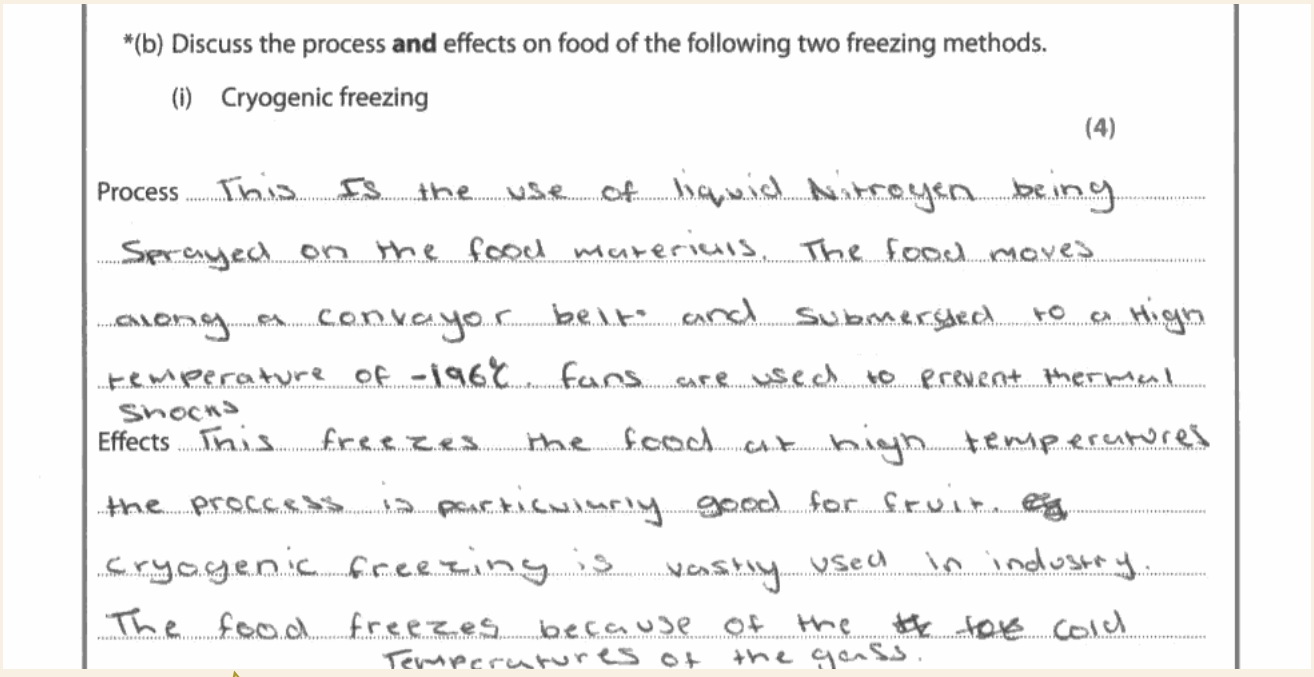
Examiner Comments

The reference to ice crystal formation altering the structure of the fruit, causing cellular damage and an undesirable texture is rewarded with high marks.

Question 6 (b) (i)

This question required a discussion response focusing on the process and effects on food of two freezing methods: cryogenic and plate freezing, from Unit 2.4 - Industrial and commercial practice.

A few candidates gave very detailed descriptions, whilst others received no marks because of lack of important details such as "liquefied" gases being used. Plate freezing was often described as a meal put on a plate and then frozen. The processes were clearly very different, but it is likely some candidates got marks in the "effects" section for making reference to the changes in sensory characteristics, and repeating responses such as "retains texture".



*(b) Discuss the process **and** effects on food of the following two freezing methods.

(i) Cryogenic freezing

(4)

Process This is the use of liquid Nitrogen being Sprayed on the food materials. The food moves along a conveyor belt and submersed to a High temperature of -196°C. fans are used to prevent thermal shocks

Effects This freezes the food at high temperatures the process is particularly good for fruit. eg cryogenic freezing is vastly used in industry. The food freezes because of the ~~the~~ low cold Temperatures of the gass.

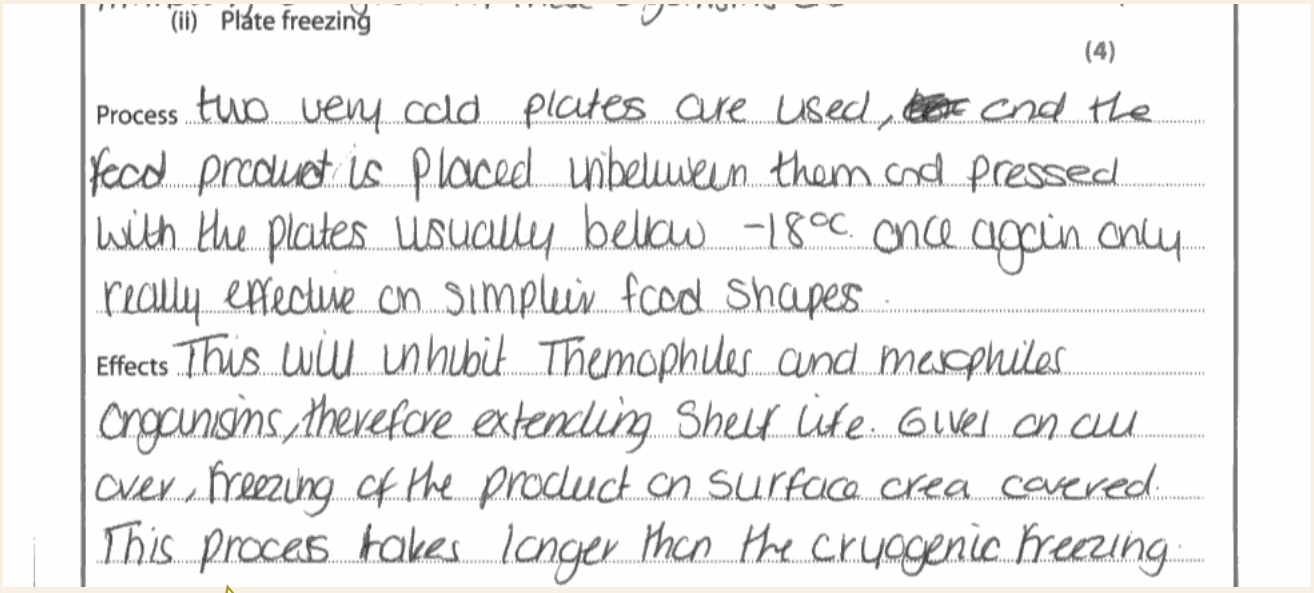
ResultsPlus

Examiner Comments

This candidate's initial response demonstrates good understanding of the cryogenic process, but the effect is slightly muddled, as the reference to high temperatures is inaccurate. However, the response states -196°C, so full marks are awarded.

Question 6 (b) (ii)

A range of pleasing responses were seen to this part of question 6(b)(ii), with most candidates achieving marks for the use and application of plate freezing in the food industry and how it is achieved through vertical or horizontal plates, through conduction by pressing plates tightly against the packs, and where air gaps delay heat transfer. The examples were generally accurate and most candidates could discuss in detail the physical and sensory effects on foods.



(ii) Plate freezing

(4)

Process two very cold plates are used, ~~and~~ and the food product is placed inbetween them and pressed with the plates usually below -18°c. once again only really effective on simple food shapes.

Effects This will inhibit Themophiles and mesophiles organisms, therefore extending Shelf life. Gives an all over, freezing of the product on surface area covered. This process takes longer than the cryogenic freezing.

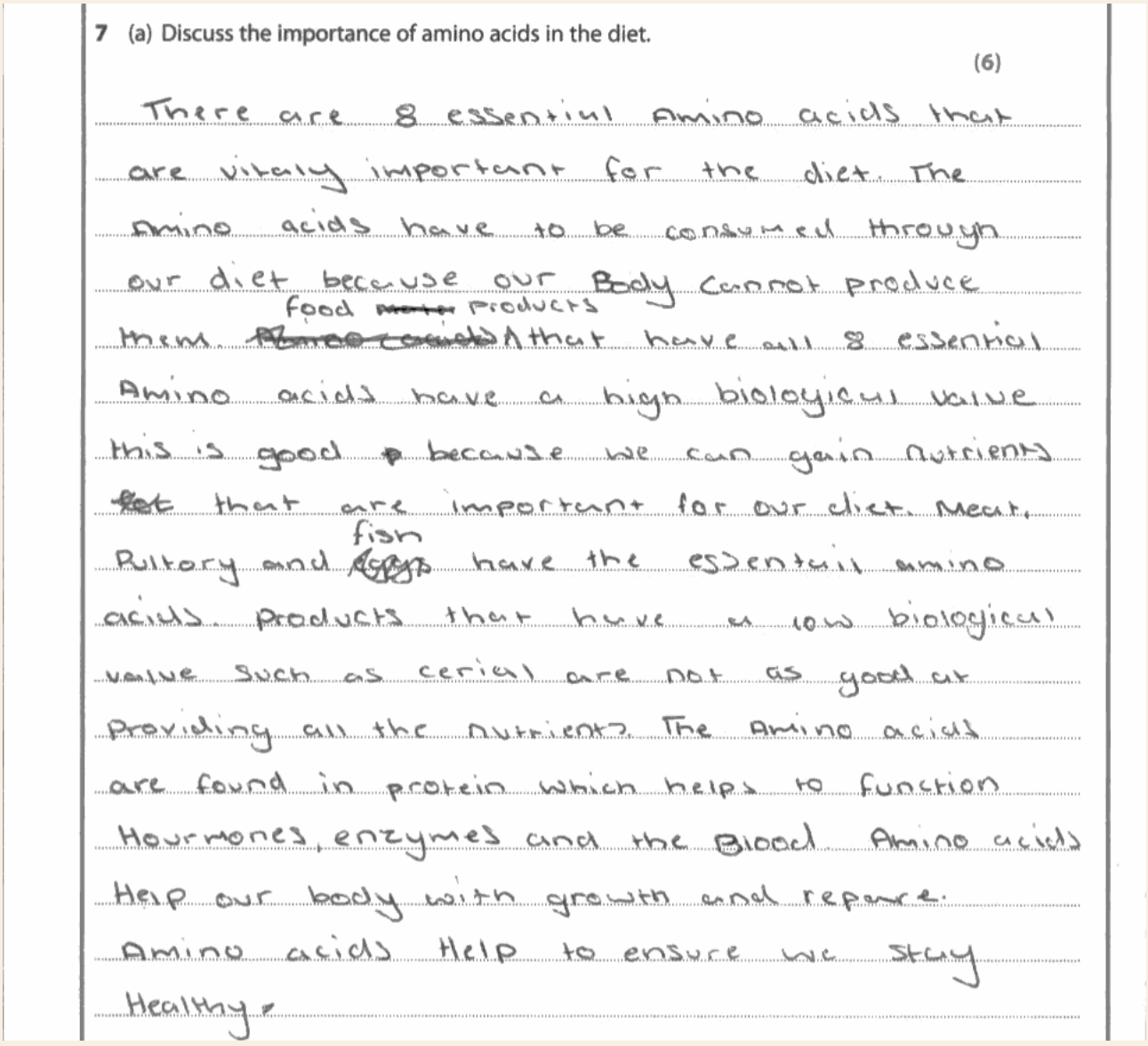
ResultsPlus
Examiner Comments

Despite the inaccurate response referencing the speed of plate freezing, the candidates answer contains two valuable points, which are rewarded with marks.

Question 7 (a)

As an extended writing exercise, this question proved to be highly successful for many candidates. It is possible to provide 3 or 4 well explained points to achieve the high marks. However, many candidates provided many more, as either a bullet pointed list, or in paragraph format, focusing on the importance of amino acids in the diet. To move the response from a lower scoring answer to one that is worthy of full marks, requires discussion with clear, effective communication throughout the detailed, technical response.

Many candidates gained maximum marks, explaining the importance of amino acids and demonstrating their ability to develop factual knowledge with examples. Some lost marks because they did not add the word "essential", and gave inaccurate knowledge about functional use. Some candidates did not refer to protein, or believed protein to be different to amino acids, whilst others confused amino acids with fatty acids. This question provided a wide range of responses from outstanding to poor, and provides good differentiation as a ramped question, with accessibility to all candidates.



7 (a) Discuss the importance of amino acids in the diet.

(6)

There are 8 essential amino acids that are vitaly important for the diet. The amino acids have to be consumed through our diet because our Body cannot produce them. ~~Meat cereals~~ Food products that have all 8 essential Amino acids have a high biological value this is good because we can gain nutrients ~~fat~~ that are important for our diet. Meat, Pultory and ~~eggs~~ fish have the essential amino acids. products that have a low biological value such as cerial are not as good at providing all the nutrients. The Amino acids are found in protein which helps to function Hourmones, enzymes and the Blood Amino acids Help our body with growth and repare. Amino acids Help to ensure we stay Healthy.

ResultsPlus

Examiner Comments

A range of statements illustrating some discussion and accuracy.

7 (a) Discuss the importance of amino acids in the diet.

(6)

There are 8 essential amino acids in the diet. Humans have to consume these in the diet as they cannot be made by the body. Foods the contain all essential amino acids are called High biological value or first class proteins. These can be found in sources such as meat and fish. Foods that do not contain all essential amino acids are called low biological value of 2nd class proteins. These can be found in foods such as nuts and pulses bread. These are essential in the diet. An example is phynelalaine. Histamine is essetial in growth of young children. Although foods do not contain all essential amino acids a meal such as beans on toast will as it contains them between the two products.

ResultsPlus

Examiner Comments

Good discussion with clarity and technical detail is rewarded with high marks.

Question 7 (b)

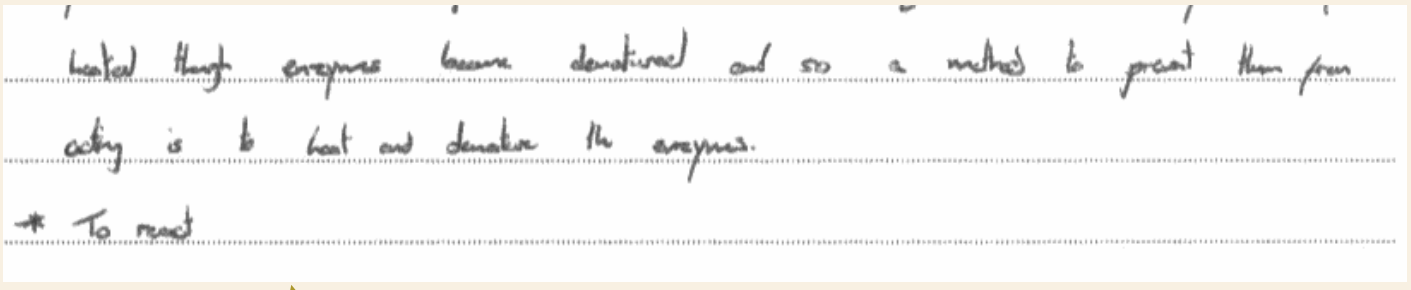
As the final question on the AS 6FT02 'ramped' paper, this question was designed to stretch and challenge our most able candidates, and test complex knowledge and application of subject content. The key word in the question was "characteristic", taken directly from the subject specification in Unit 2.3 - Material, components/ingredients and working properties of proteins, focusing on the physiologically active proteins: enzymes. Those candidates who did not interpret this correctly, described the many uses of enzymes in food production and restricted their access to marks. Many candidates provided accurate descriptions of enzymes, as well as using the correct scientific and technical vocabulary. The conditions that affect the performance of enzymes were given due regard by many candidates, and it was pleasing to read answers that showed depth and breadth of understanding, with some outstanding answers covering a diverse range of responses exemplified in the mark scheme.

Enzymes are physiologically active proteins.

*(b) Discuss the characteristics of enzymes used in food preparation.

(6)

Enzymes have many uses within food. They are made up of proteins and are vital for many biological processes. They are often used to break down other substances into smaller groups. One example of this in food preparation is enzymic browning which breaks down the sugars within the product which results in a change of colour. Due to the ability of being able to break down substances it can be also used for many different various things. Both Maillard testing and Fehlings testing for reducing sugars rely upon enzyme activity to cause the red brick colour as the indicator of reducing sugar being present. Enzymes may also be used to gain desired flavours and textures within a product. When hanging meat, enzyme activity creates a lot different flavour and texture which are said to enhance the meats qualities. Despite this though the level of enzyme activity should be monitored to ensure products do not loose qualities. As fruit ripens there are many enzyme reactions taking place which ensure the fruit is best for consumption, however if left too long the enzymes will continue and the fruit will become over-ripe and take on undesired qualities such as bad flavour.



ResultsPlus
Examiner Comments

A number of accurate points raised for discussion referencing examples within food preparation.

ResultsPlus
Examiner Tip

Hand writing, although neat, is very difficult to read and causes real difficulties with the marking process.

Paper Summary

Centres are making good progress with the delivery of the GCE Food Technology specification. The progress at GCSE level related to the industrial application of food technology is having a significant impact on students' attainment at AS level, with progression and development of skills, knowledge, understanding and terminology.

Centres have a good understanding of the requirements of the GCE course. The link between the portfolio of 'creative skills' coursework and 'design and technology in practice' exam paper, is becoming more apparent as candidates apply their knowledge and understanding across the qualification.

Edexcel is committed to the development of the qualification and is supporting centres with an extensive initiative of delivering free online support meetings and traditional inset meetings focusing on developing good practice. This has also been of obvious help to those centres who attended an event, or who accessed the website support and exemplar materials.

This paper performed well and produced effective differentiation for the candidates.

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