

GCSE
DESIGN AND TECHNOLOGY
FOOD TECHNOLOGY

45451
Mark scheme

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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 Assessment Writer.

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.

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**2014 DESIGN AND TECHNOLOGY:
FOOD TECHNOLOGY
MARK SCHEME**

This mark scheme is intended as a guide to the type of answer expected but is not intended to be exhaustive or prescriptive. If candidates offer other answers which are equally valid **they must be given full credit**.

Responses are to be assessed according to the **quality** of the work rather than the number of points included. The following level descriptors are intended to be a guide when assessing the quality of a candidate's response.

Low

The candidate has a basic but possibly confused grasp of the issues.
Few correct examples are given to illustrate points made.
This candidate does not have a clear idea of what s/he is writing about

Intermediate

The candidate has some knowledge but there will be less clarity of understanding.
Some correct examples are given to illustrate points made.
This candidate knows what s/he is writing about but is confused in part.

High

The candidate has a thorough understanding of the issues and has provided relevant examples to support the knowledge shown.
This candidate knows what s/he is writing about and provides clear evidence of understanding.

Section A**Question 1**

- 1 (a) (i) Manufacturers want to create a new range of decorated cakes for cafes and restaurants offering luxury afternoon teas.

On the next page, use notes **and** sketches to produce **two** different design ideas for suitable decorated cakes.

You **must** annotate your two design ideas to show the creative use of different:

- cake making methods
- decorative techniques and finishes
- natural flavours and colours.

Do **not** draw any packaging.

[12 marks]

The marks may be allocated throughout the annotated sketches and/or written notes for the design ideas.

Marks are awarded for overall communication of design ideas as related to the given design criteria and additional design information.

Markers guidance on the award of credit:

Design criteria: Decorated cakes general information

For guidance to establish that correct products have been chosen as per Oxford dictionary:

ACCEPTABLE products: Any cake product large or individual size.

Definition of **cake**: an item of soft sweet food made from a mixture of flour, fat, eggs, sugar, and other ingredients, baked and sometimes iced or decorated.

**See list of possible products under cake making methods.*

DO NOT ACCEPT biscuit or dessert products.

Definition of **biscuit**: a small baked unleavened cake, typically crisp, flat, e.g. shortbread, energy bars, whoopee pies or dessert style cakes such as treacle sponge, jam roly poly.

- Sketches may show full size cakes or individual portions.
- Idea **must** include both decoration and cake to be relevant.

***See mark band criterion for action to be taken should incorrect or incomplete product be submitted or sketches are omitted.*

Design criteria 1: Different cake making methods*

Naming or description of the cake making method used, i.e. how ingredients are combined / mixed (However, 'mixing' is NOT a method of cake making.) A different methods should be used for each design idea.

- All in one methods can be credited where appropriate.
- Creaming method: Victoria sandwich cake, Madeira, Battenberg, Simnel, Devil's food cake, Madeleines, Pineapple upside down, cupcakes.
- Whisked: Gateaux, Swiss roll, Chocolate logs, Fatless sponge and cakes.

The following are not traditionally used as decorated cakes but can still be credited as candidates may choose to be creative in their design ideas

- Rubbing in: Scones, Rock buns, Jam buns.
- Melting method: Flapjacks, Brownies, Rocky road, Gingerbread.

Design criteria 2: Different decorative techniques and finishes

- Describes the decorative finish or shows finish in detail on the sketch, i.e. annotation/sketch identifies a **specific ingredient/ decoration**, e.g. icing sugar / grated chocolate / buttercream fondant icing, royal icing, glaze icing, cream toppings, crème patisserie, decorative toppings/coating e.g. flakes, sprinkles, balls. Better design ideas are likely to feature finishes on both top and sides.
- Include **named** technique: colouring, moulding, shaping, piped/sprinkled / dredged / use of different nozzles, enrobing, use of embossed rolling pins to add pattern, heat treated stencils, and computer aided images in icing.
- The second design must use a different finishing technique to design idea 1.
- Any relevant ideas to be credited, tiered cakes or special occasion cakes can be credited as luxury items.

Design criteria 3: Natural colours and flavours

- Identifying different natural flavours and colours within each design idea.
Note: Natural additives are those that are extracted from animal or vegetable sources. 'Extract of...' is an acceptable term.
- Do not accept the words or any term reflecting an artificial or chemical additive has been used, e.g. flavouring or essence. But marks can be credited for the descriptor that accompanies these e.g. vanilla flavouring
- The use of the 'Fresh' as a descriptor indicates understanding of 'natural' is acceptable, e.g. fresh raspberries.
- Look for descriptors that specify the names of foods, e.g. lemon, peppermint, cinnamon, nutmeg, honey, tea /coffee, caramel, vanilla, cocoa, mint, strawberry, chocolate, almond or even specifically named vegetables may be used in creative design ideas, e.g. courgette cake, beetroot brownies, lavender sugar , strawberry jam, rose petal icing, use of dried sugared flowers in decoration.
- Colours that only state name of colour, e.g. 'pink', 'green' are not accepted without natural source of colour.
- Here are some commonly used natural colours which may be used in cake products:
 - Caramel (E150), made from caramelized sugar.

- Annatto (E160b), a reddish-orange dye made from the seed of the achiote.
- Chlorophyllin (E140), a green dye made from chlorella algae.
- Cochineal (E120), a red dye derived from the cochineal insect.
- Betanin (E162) extracted from beets.
- Saffron (E160a) yellow colour.
- Elderberry juice.

Other relevant design information that shows clear communication of creative design ideas may be rewarded.

- For example: Creative use of ingredients, new ideas, nutritional details of ingredients, production techniques, other sensory descriptors, layering, scaling of ingredients, functions of ingredients (e.g. raising agents identified), portion sizes, specialist equipment, costs related to relevance to luxury items, items supporting form / structure (e.g. baking case or other relevant descriptions), 3D images, consumer profiles, batch production considerations.

Marking guidance for each design idea**

No answer worthy of credit.	0 marks
The candidate has a basic but possibly confused grasp of designing decorated cakes. This candidate does not have a clear idea of what s/he is designing e.g. Annotation is lacking and may be generic in nature, limited to only one or two design criteria. There may be only 1 design idea or 2 very simple attempts with basic design information. There may be some repetition of ideas.	1 – 3 marks
The candidate has some knowledge but there will be less clarity of understanding. Annotation will be detailed in some aspects and will meet some of the given design criteria but creativity is lacking. This candidate knows what s/he is designing but is confused in part e.g. annotated design ideas will be given but the information may be basic, methods repeated, the design idea may show an incorrect or an incomplete product. The response may not include both sketch and notes. It is likely that one design will be much stronger than the other.	4 – 6 marks
The candidate has a good understanding of designing products and provides evidence of meeting most of the given design criteria with relevant sketches and annotation for both design ideas e.g. The products designed may show some creativity and the annotation of both design ideas is generally detailed and relevant covering most of the design criteria and at least one item of additional design information to a high standard.	7 – 9 marks
The candidate has a thorough understanding of designing products and provides evidence of meeting all given design criteria within well annotated sketches e.g. The products designed show creativity. The annotation of both design ideas is detailed and relevant covering all design criteria, key terminology and several items of additional design information to a high standard.	10 – 12 marks

- 1 (a) (ii) Choose one of your design ideas. Tick the design idea you have chosen.
(No marks awarded for this.)

On the chart below, complete the plan for making your chosen design idea in the test kitchen.

[9 marks]

<p>Stages of making the cake (You must include the decorative techniques and finishes)</p>	<p>Quality control, hygiene and safety checks</p>
<ul style="list-style-type: none"> • Clear, logical schedule that includes key stages: preparing tins, making, cooking and cooling, decorating, finishing the cake product. • Correct stages for preparing a basic cake mixture, 'all in one' acceptable (not named method as marks for this are given in 1(a) (i)). • Key times, e.g. for cooking cake. • Key temperatures, e.g. oven temps, low heat / high. • Cooling of cake prior to decorating. • Preparation of decorative finish, e.g. making of buttercream. • Finishing techniques identified, e.g. addition of topping, glaze, baked colour and finish identified. • Specialist equipment identified, e.g. piping bag/nozzles, food processor, rolling pins, computer. • Specialist terminology related to chosen method, e.g. sieving, coating, emulsification, enrobing ,piping, binding, coagulation etc. • Other relevant responses 	<ul style="list-style-type: none"> • Checking natural products only used. • Consistency checks, e.g. use of same size nozzle for icing / decorating. • Consistency of any icing, thickness, even spread. • Size/portion control, e.g. equal quantities of cake mixture in each tin/baking cases. • Accurate weighing of ingredients • Careful addition of flavours / colours to required tolerance consistency of outcome. • Personal hygiene, e.g. clean hands (not just 'wash'). • Kitchen hygiene, e.g. clean surfaces / equipment. • Food hygiene, e.g. clean storage. • Date marks, e.g. checking quality of ingredients. • Safety in use of raw eggs in uncooked mixture may be referenced e.g. 21°C • Temperature checks, e.g. temp for storage ambient 13°C fridge 0 - 4°C appropriate for product. • Specific safety points for workers, e.g. use of oven gloves, careful use of equipment. • Other relevant responses

Guidance for markers:

Marks for correct responses can be awarded within either column.

Answer **MUST** include correct responses in both columns for the award of full marks.

NB. **Do not** credit packaging, metal detection or bulk production as the answer is based on a test kitchen not an industrial kitchen.

No answer worthy of credit.	0 marks
The candidate has a basic but possibly confused grasp of the key aspects of production planning. Detail is lacking and planning may be generic in nature. May not provide a workable plan for both making and decorating the cake. Any hygiene, safety and quality checks are likely to be brief and generic in nature.	1 – 3 marks
The candidate has some knowledge of the key aspects of production planning but there is less clarity of understanding. Some aspects lack essential detail, e.g. decorating the cake may be omitted or packet cake mixes may be used. Planning will be detailed in some aspects and will include some quality, hygiene, and safety checks. There may be omissions in one of the aspects. Some aspects will be stronger than others.	4 – 7 marks
The candidate has a thorough understanding of, and provides evidence of all key aspects of production planning. Plan includes both making the cake and the decorating. The candidate provides a detailed workable plan, complete with a range of detailed and relevant hygiene, safety and quality checks that could successfully be followed by others. The majority of key information is included and any omissions will be minor in nature.	8 – 9 marks

- 1 (b) Complete the chart below to show the quantities of ingredients for a batch of cakes using the creaming method.

The first ingredient is completed for you.

[3 marks]

Ingredient	Quantity
Flour	100g (no mark as given)
Fat	100g /4oz [1 mark]
Sugar	100g/4 oz [1 mark]
Egg	2 eggs at 50g/2 oz each = 100g/4oz All alternatives accepted. [1 mark]

- 1 (c) Explain what would happen if too much sugar is used when making a fruit cake.

[3 marks]

Any three answers acceptable (1 mark per point)

- “The cake mixture will not work successfully” is not acceptable as a response unless extended information is given, e.g. proportions of ingredients are incorrect therefore mix will not work.
- Poor quality outcomes /poor sensory attributes (flavour / texture / appearance), e.g. will not look as good.
- Cake may be too sweet to taste.
- Fruit may sink to the bottom.
- Softened gluten content causes fruit to sink.
- Produces a sugary, speckled appearance.
- Speckled appearance is due to caramelisation.
- If cooked too long caramelisation will darken colour/brown the cake.
- Produces a crispy / sticky crust.
- Texture will be dense and heavier.
- May not rise enough due to lack of aeration.
- Cake may sink / structure collapses.
- Other relevant answers.

- 1 (d) Give **three** reasons why some manufacturers use natural flavours and colours instead of artificial flavours and colours in cake products.

[3 marks]

Any 3 points x 1 mark

One word answers are acceptable if relevant and meaningful.

- Reflects current trend for ethical / 'natural' healthy ingredients.
- Consumer preference tend towards natural products/reduction of artificial products.
- Natural products often taste/colour better than artificial.
- Increased consumer awareness about effects of artificial additives.
- Wider consumer base more sales / profit likely because consumers dislike / avoidance of chemical based products.
- Artificial colourings / flavours made from chemicals/e numbers where long term health risks not always known.
- Some consumers may have intolerance (long term symptoms related to upsets within digestive system) to chemical based artificial flavours.
- Some consumers may have allergy (instant, quick and often severe reaction) to chemical based artificial flavours.
- Examples of effects of intolerance / allergy may be credited as extended answer, e.g. hyperactivity from some e numbers
- Some artificial additives are not stable in heat therefore cannot be used in baked product by manufacturers.
- Availability – some natural ingredients may be available locally / more accessible therefore cheaper for manufacturer.
- Natural ingredients can be purchased as needed therefore no or little storage time needed / c / f artificial may have longer shelf life.
- Some natural flavours are made from a mix of natural foods, e.g. spices, beetroot, caramel for browning which will appeal to some consumers.
- Some animal sources are used for natural products therefore may make product is unsuitable for vegetarians.
- Other relevant examples.

Question 2

- 2 (a) (i) Explain how the traffic light labelling system helps the consumer with food choices.

Give examples in your answer.

[5 marks]

- Increases consumer awareness of suitability of foods.
- Allows consumer to make **informed** choices
- Allows consumer to make comparisons between products / work out health benefits of food products.
- Presents accurate up to date information on salt, fats, sugar content. (Generic credit given do NOT credit for each nutrient noted)
- Information often linked to %GDA (guided daily amounts).
- Identifies nutritional content levels of the food.
- Instant, visual information allowing quick access to nutrient content.
- Easy to read/interpret.

Colours may be explained:

- Red = high danger level, poor choice for healthy eating, e.g.
- Example given of a 'red' food .e.g. butter in fried products.
- Amber = caution in quantities eaten.
- Example given of an 'amber' food e.g. sugar in fruit.
- Green = free to go low levels. Healthiest choice,
- Example given of a 'green' food e.g. vegetables
- Should aim for more green, less red, and moderate amounts of amber foods.
- Other relevant answers e.g. may link to specific consumer target groups.

No answer worthy of credit.	0 marks
The candidate has a basic answer. This candidate does not have a clear idea of what s/he is writing about.	1 mark
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, generic answers and/or some extended answers may be given. Examples may be missing or limited to one.	2 – 3 marks
The candidate has a thorough understanding and has provided a range of relevant answers to support the knowledge shown. Some answers may be extended and show greater detail. Two or more examples of foods related to traffic light system will be given.	4 – 5 marks

- 2 (a) (ii) Name **two** health problems caused by too much salt in the diet.

[2 marks]

Any 2 x 1 marks

- Dangers of high blood pressure / hypertension.
- Heart problems
- HBP (high blood pressure) can lead to CHD (Coronary heart disease).
- Circulatory problems.
- Strokes in the future.
- Dehydration / thirst.
- Other relevant answers.

- 2 (b) (i) Explain the difference between 'saturated fat' and 'unsaturated fat'.

[4 marks]

Create may be given to extended responses.

Saturated fats:

- Recommend not more than 10% of total daily calories/ low amounts only to be consumed.
- Perceived as being unhealthy.
- Usually solid/semi solid/ hard at room temp.
- High melting point.
- Long lasting do not spoil easily/low rancidity.
- Found in animal based foods and some vegetable oils.
- Example given of saturated fat e.g. meat, processed meat products, cream, cheese, coconut milk, some soft spreads, suet, butter, lard, peanuts.
- Use sparingly as more cholesterol /Cholesterol linked to coronary heart disease/Thickening of arteries/LDL Low density cholesterol / bad cholesterol.
- Single hydrogen bonds.

Unsaturated fats:

- Recommend not more than 30% of total daily calories / consume more of these than saturated fats.
- Usually liquid at room temperature.
- Perceived to be healthier than saturated fats.
- Low melting point.
- Shorter shelf life / spoil quicker/high rancidity.
- Found in a range of vegetable oils, vegetable based spreads and products.
- Example given e.g. vegetable oil, soya/sunflower oils, fish oils, olive oil.
- Contains less cholesterol/ HDL high density cholesterol /Good cholesterol.
- Multiple hydrogen bonds.
- Other relevant answers.

Responses may make reference to the table at the start of the question:

- There are different nutrient values / may give different figures from the table, e.g. table indicates you can allow higher levels of fat than saturated fat / e.g. high fat = 3g or less, sat fat = 1.5g or less.

No answer worthy of credit.	0 mark
The candidate has a basic answer. This candidate does not have a clear idea of what s/he is writing about.	1 mark
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, correct answers and/or some extended correct answers may be given. This candidate knows what s/he is writing about but is confused in part. Correct information may only be given for one aspect.	2 – 3 marks
The candidate has a thorough understanding and has provided a range of relevant answers to support the knowledge of both saturated and unsaturated fats. Some answers may be extended and show greater detail.	4 marks

- 2 (b) (ii) Give **three** reasons why consumers may choose food products that contain less than 3g of fat.

[3 marks]

Any 3 x 1 marks

- Healthy eating option / colour coded green.
- Good eating habit /choice / may link to sat fat less than 1.5g healthy.
- Excess fat increases risks of obesity.
- Links with coronary heart disease.
- To reduce cholesterol levels.
- Reduces number of kilocalories in the diet / have fewer calories.
- Adds excess calories to diet if more than 1.5g fat.
- Long term health problems if intake of fat above this level is sustained, e.g. higher risk of some cancers.
- Consumer may be on a low fat diet
- Consumers may be on a diet for medical reasons or named 'diet' e.g. weight reduction diet, low calorie diet. ('on a diet' alone is insufficient for credit)
- Consumer may be on a low fat diet for lifestyle reasons e.g. sports training.
- Other relevant answers.

- 2 (c) Using the information in the table above, discuss the choice of breakfast cereals for young people who want to eat healthily. Give reasons for your answers.

[6 marks]

*No credit given for naming a choice as the focus of the question is on REASONS for choice - all cereals could be chosen for different reasons.

Credit generic responses such as:

- Healthy option choices will look for low sugar, high fibre and refer to high energy levels of young people.
- Need to establish good eating habits in young people, train in good choices / eat high sugar products only on few occasions / larger proportion of fibre rich foods.
- Single credit can be given for reference to the figures/data from the table.

Specific dietary references linked to cereals shown:

- **Sugar:** oats / wheat biscuits are better choices as lower content
- Extended answer may give figures from table or indicate possible green traffic light coding.
- Frosted flakes are poor choice / extended answer will give figures or indicate possible red coding.
- Frosted flakes: explains sugar coating increase sugar content.
- Functions of sugar in the diet give energy / calories.
- Dangers of sugar in the diet: dental caries / bad teeth.
- Excess sugar / added sugar may lead to obesity/ danger of adding excess sugar to breakfast cereals.
- Excess sugar may lead to long term health problems, e.g. CHD (Coronary heart disease).
- Diabetes link to sugar content.
- **Fibre content:** oats / wheat biscuits best choice as higher content.
- References made to High GI / Low GI / fast /slow release of energy.
- Important for correct functioning of digestive system.
- May consider addition of fruit.
- **Energy content:** energy in relation to lifestyle.
- Good start to the day / possible to provide 1/3rd of days energy foods at breakfast.
- Other relevant answers, e.g. may credit references to how adding milk / fruit can influence nutritional value of meal overall.

No answer worthy of credit.	0 marks
The candidate has basic answers. This candidate does not have a clear idea of what s/he is writing about and may only give generic statements without specific reference or discussion related to the cereals shown.	1 – 2 marks
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, correct answers and / or some extended correct answers may be given. Some discussion is evident, reasons for answers may be limited but will refer correctly to more than one cereal. This candidate knows what s/he is writing about but is confused in part.	3 – 4 marks
The candidate has a thorough understanding and has provided relevant discussion and reasons to support the knowledge shown. Some answers may be extended, show greater detail and breadth of knowledge relating to and comparing a range of information from the table. Reference may also be made to the dietary needs of young people.	5 – 6 marks

Question 3

3 (a) Complete the information below to explain the main stages of making a cheese sauce using the **all in one** method.

3 (a) (i) **Stage 1: Collecting the ingredients**
Which ingredient contains starch? **[1 mark]**

Starch is provided by the plain flour.

3 (a) (ii) **Stage 2: Mixing the ingredients together**
Explain why it is important to stir the mixture all the time when using the all in one method.

[2 marks]

Any 2 of the reasons below (1 mark per point)

Stirring the mixture all the time is important because:

- Starch granules sink to the bottom.
- Starch granules stick together.
- Stirring prevents lumps forming.
- Stop burning/ sticking.
- Ensure ingredients evenly / well mixed.
- Lumps may spoil the sensory appeal / quality/ consistency.
- Cheese is evenly mixed throughout the mixture.
- Cheese will melt easier when heated.
- Any other relevant answer.

3 (a) (iii)

Stage 3: Heating the mixture

Describe what happens to the starch granules when the cheese sauce is heated.

[4 marks]

Temperature ranges are offered as a guide to candidates.

Credit will be focussed on the inclusion of key terms used correctly across these temperature ranges.

60°C: the starch granules:

- **absorb** liquid
- begin to **swell** / get bigger

80°C: the starch granules:

- absorbs 5 x volume
- **burst** open
- **release** starch
- **thicken** the liquid

100°C: the starch granules **gelatinise**.

No answer worthy of credit or the candidate has a basic answer.	0-1 mark
Knowledge is limited and may be restricted to simplistic answers to one or two areas of the question but these are likely to lack clarity. Some key terminology will be linked to sauce making.	2-3 marks
The candidate has a thorough understanding of sauce making and has provided a range of structured relevant answers to support the knowledge across all areas of the question. Key terms will be used in a logical order and may match up to some of the correct temperature headings given.	4 marks

3 (b)

Explain why some manufacturers use standard components instead of fresh ingredients to make a cheese sauce.

[4 marks]

- Reduces number of staff needed.
- Reduces equipment needed.
- May be cheaper than making from fresh.
- Gives consistency of sensory qualities.
- Guarantees quality outcome e.g. consistency of sauce, thickness etc.
- Allows for product to be the same each time.
- Allow for accurate proportioning and ratios of ingredients every time/efficiency.
- Speeds up manufacturing time/quicker/saves time.
- Less skilled workforce needed/easier to produce.
- Less risk of cross contamination.
- Components can be stored until needed / long shelf life.
- Fresh ingredients have shorter shelf life and would need replacing more frequently / time consuming.
- May give examples of standard components that could be used, e.g. packet mixes, ready grated cheese.
- Other relevant answers.

No answer worthy of credit.	0 marks
The candidate has a basic answer. This candidate does not have a clear idea of what s/he is writing about.	1 mark
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, correct answers and/or some extended correct answers may be given. This candidate knows what s/he is writing about but is confused in part.	2 – 3 marks
The candidate has a thorough understanding and has provided a range of answers relating these to a cheese sauce product. Some answers may be extended and show greater detail.	4 marks

- 3 (c) Explain why the following are used in the development of a cheese sauce in the test kitchen.

Focus is on why carried out, not how.

- 3 (c) (i) A profiling test.

[3 marks]

Any 3 points x 1 mark

A profile test is used:

- For sensory testing.
- To record results of testing.
- To show criteria for optimum sensory profile
- Aim to meet given specifications or design criteria
- Aims to meet needs of target consumer.
- To provide feedback on what others think about the product.
- To identify strengths and weaknesses.
- To show where product is lacking / where further developments are needed
- To give consistency of approach to testing e.g. Each tester rates the sample on a given scale (usually 0 – 6)
- To facilitate fair testing e.g. All testers mark using same descriptors.
- Examples may be given of descriptors, e.g. thickness of sauce/viscosity, strength of cheese flavour (candidates may use an annotated sketch to aid communication)
- To give a clear visual representation of product.
- To compare similar products e.g. Profiles of similar products can be recorded on same profile for comparison.
- To facilitate easy sharing of results e.g. Profiles can be stored on computer for use later.
- Other relevant answers.

- 3 (c) (ii) A hygienic and quiet area for taste testing.

[3 marks]

Any 3 points x 1 mark

A hygienic and quiet area for taste testing is used:

Quiet area:

- To ensure fair testing.
- Avoidance of bias.
- Avoid outside influences/prevents bias during discussions on results
- May cause lack of concentration/decision making

Hygienic:

- Cleanliness / food hygiene / food safety.
- Dirty areas may influence testers opinions
- Prevents any cross contamination. 'Germs' not acceptable.
- Other relevant answers.

Question 4

- 4 (a) For each food product below, use annotated sketches to describe different ways of producing quality finishes.

[8 marks]

Food product	Quality finish
<p style="text-align: center;">Lemon meringue pie</p>	<p>Relevant sketches</p> <ul style="list-style-type: none"> • Showing finishes, equipment, methods can be credited <p>Annotation:</p> <ul style="list-style-type: none"> • Pipe meringue to give raised shape • Brown top by grilling / cooks blow torch • Dip/drizzle in melted chocolate • Use decorative nozzles • Sprinkle icing sugar on the top • Patterned edge on pastry case/ fluting. • Decorate with slices of lemon / lemon zest, etc. • Any other responses
<p style="text-align: center;">Bread rolls</p>	<p>Relevant sketches</p> <ul style="list-style-type: none"> • Showing finishes, equipment, methods can be credited. <p>Annotation:</p> <ul style="list-style-type: none"> • Leaves for decoration • Score top with sharp knife • Use brush • To coat with egg glaze / milk / egg spray/iced buns • Dust with flour to give softer top. • Use fork for patterning • Toppings e.g. Seeds/cheese, sprinkled on top • Different shaped tins / individual / large size • Different shapes e.g. Plaited, S shape, round, finger • Consistency of size / shape • Other relevant answers.

No answer worthy of credit.	0 marks
The candidate has basic answers and may only give basic information on quality finishes. Correct answers / sketches may not be annotated and may be limited to one product describing/showing quality finish.	1 – 3 marks
Annotation and sketches show some knowledge but there will be less clarity of understanding. Creditable ideas may be stronger in one product but at least 2 different ideas are shown for each product.	4 – 6 marks
The candidate has a thorough understanding of information on quality finishes and has provided well annotated sketches and a range of relevant varied ideas for both products to support the knowledge.	7 – 8 marks

- 4 (b) Describe specific quality control checks that are made when the following ingredients are delivered to the retailer.
Do not repeat any of your answers. **[3 x 3 marks]**

Generic points, e.g. check amount, weigh ingredients, check date are not acceptable. **Specific** details must be given, e.g:

- Product checked to see if it matches with the order/correct product/quantity/condition
- Food types not mixed together to avoid cross contamination/smells
- Check that date mark shows the ingredient is within the use by / sell by or best before date.

Fresh fish

Any three points acceptable (1 mark per point)

- Fresh fishy smell
- Bright eyes
- Shiny scales
- Good condition / showing evidence of a careful handling in transit.
- Shelf life / Use by date /Within 'use by date' (not best before - fresh food)
- Packed in ice to keep chilled / below 8°C/use of refrigeration/freezer
- Packaging is not damaged
- Other relevant answers

Fresh fruit and vegetables

Any three points acceptable (1 mark per point)

- Skins are not damaged.
- Good condition, e.g. stalks in place.
- Packaging is not damaged/protective packaging to prevent food spoilage.
- No evidence of mould.
- Check for bruising / damage/ discolouration.
- Within 'use by date' (not best before as a fresh food).
- Visual check for physical contamination/presence of insects, grubs, soil.
- Correct specification as ordered, e.g. quantity / shape / size/ variety.
- Credit correct named examples.
- Other relevant answers.

Several packets of frozen, ready rolled pastry

Any three points acceptable (1 mark per point)

- Packet is not damaged / torn.
- Air tight packaging.
- Date mark / best before date.
- Delivery temperature is at (-18°C to -24°C) or below / has been maintained during transport/use of freezer to keep frozen..
- Not defrosted or evidence of possible thawing e.g. packs stuck together.
- Correct specification as ordered e.g. ready rolled not block.
- All packets are same condition / same batch.
- Other relevant answers.

4 (c) Cartons of single cream are for sale in different chill cabinets on 31 July 2014.

Explain in detail which of the cartons shown above are safe for consumers to buy and which consumers should avoid.

Give reasons for your answers.

Quality of Written Communication will be assessed in this question.

[8 marks]

Credit choice of carton:

- Accept Carton C only.

Reasons

- Temp 5°C is correct for chilled goods.
- Some manufacturers recommend chilled goods be kept below 8°C.
- Although a close date mark, still has shelf life 1 Aug (may comment that most perishable foods will have use by rather than best before and are usually but not always kept in chiller – but this is long life cream so best before).
- Best before indicates can still be used within short time.
- May refer to heat treatment which improves keeping quality of long life cream.
- But quality will deteriorate over time.

Reject Cartons A and B

Reasons

Carton A:

- Needs to be used by 30 July therefore no shelf life left.
- Retailer is breaking the law by putting this on sale.
- Risk of contamination if this is used.
- Temp, however, is correct (positive mark)

Carton B:

- Is too warm at 10°C.
- In danger zone / critical temp zone.
- Bacteria will multiply.
- Consumer will be at risk of food poisoning.
- Use by date is within time (positive mark).

No answer worthy of credit.	0 marks
The candidate has basic answers and may only respond correctly to one or more cartons. This candidate does not have a clear idea of what s/he is writing about. QWC: Little structure in response, several errors in spelling, grammar and punctuation.	1 – 2 marks
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, correct answers may be given. Correct answers may be restricted to 1 or 2 cartons only and answers may not correspond to labelling shown correctly. This candidate knows what s/he is writing about but is confused in part. QWC: Fairly well structured answer with correct use of some Design Technology terminology and a small number of grammatical errors.	3 – 4 marks
The candidate has good knowledge showing some applied knowledge. A range of simplistic, correct answers and/or some extended correct answers may be given. Correct answers may be restricted to 1 or 2 cartons only and answers may not correspond to labelling shown correctly. QWC: Fairly well structured answer with correct use of some Design Technology terminology and few grammatical errors. There may be evidence of planning.	5 – 6 marks
The candidate has good knowledge showing applied knowledge. A range of relevant, correct answers and/or some extended correct answers may be given. Correct answers will relate to all three cartons and answers will correspond to labelling shown correctly. Reference will be made to at least two aspects from the given: dates, temperatures, types of cream. QWC: Well structured answer with correct use of Design Technology terminology and very few grammatical errors. There may be evidence of planning.	7 – 8 marks

Question 5

5 Explain why the following equipment is useful when designing or making food products in the test kitchen.

5 (a) A food processor with a range of attachments.
Give examples of its use in your answer.

[5 marks]

It is useful because...

- Speeds up process – to save time.
- Good if worker lacks skills to complete by hand – to save energy.
- Gives a consistent product/efficiency
- Quality control.
- Timing/ speed control /pulsing can be adjusted according to product / task carried out.
- Versatile / Can be used for a number of different products/ Provides number of attachments enabling one item of equipment to do jobs of many; reduces need for other equipment.
- May credit up to 3 examples of use e.g. dough hook for bread, slicing, juicing, grating, pureeing, blending, whisking. Or may describe different foods used e.g. breadcrumbs, fruit, soups
- Other relevant answers.

No answer worthy of credit.	0 marks
The candidate has a basic answer. This candidate does not have a clear idea of what s/he is writing about answers may not include examples of use.	1 mark
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, correct answers and/or some extended correct answers may be given. This candidate knows what s/he is writing about but is confused in part. An example of use is given.	2 – 3 marks
The candidate has a thorough understanding and has provided a range of relevant answers to support the knowledge shown. Some answers may be extended and show greater detail at least two examples of use may be given.	4 – 5 marks

5 (b)

A temperature probe.
Give examples of its use in your answer.

[5 marks]

It is useful because...

- Monitors / checks temp of foods.
- Monitors core cooking/reheating temperatures
- Particularly used with high risk foods/ may give examples of foods
- Extended answers may give reheating temp above 72 C Make sure danger zone of temps is not reached.
- Checks so that temps do not cause contamination to occur/maintains food safety
- Does the job that workers cannot.
- Can be computer controlled / temperature chips for accuracy.
- Other relevant answers.
- Do NOT credit responses that describe how probes are used e.g. cleaning, inserting into food etc.

No answer worthy of credit.	0 marks
The candidate has a basic answer. This candidate does not have a clear idea of what s/he is writing about answers may not include examples of use.	1 mark
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, correct answers and/or some extended correct answers may be given. This candidate knows what s/he is writing about but is confused in part. An example of use is given.	2 – 3 marks
The candidate has a thorough understanding and has provided a range of relevant answers to support the knowledge shown. Some answers may be extended and show greater detail at least two examples of use may be given.	4 – 5 marks

5 (c)

A computer with a printer.
Give examples of its use in your answer.

[5 marks]

It is useful because...they can be used to

- Research new products and market trends.
- Monitor competitors.
- Store test results.
- Simulate packaging by modelling using CAD, electronic copies of information/data.
- Analyse data, e.g. nutritional.
- Share information via the internet.
- Save time.
- Calculate costs.
- Scale up quantities.
- Present information in a structured clear electronic means.
- Examples of computer facilities, e.g. CAD, excel for spread sheets, word for written reports etc.
- Print reports, data files, photos etc.
- Scan and print hard copy documents.
- Copy other documents using printer facilities.
- May refer to use for food product development/designing
- May refer to use for food packaging/labelling.
- Other relevant answers.

No answer worthy of credit.	0 marks
The candidate has a basic answer. This candidate does not have a clear idea of what s/he is writing about answers may not include examples of use.	1 mark
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, correct answers and/or some extended correct answers may be given. This candidate knows what s/he is writing about but is confused in part. An example of use is given.	2 – 3 marks
The candidate has a thorough understanding and has provided a range of relevant answers to support the knowledge shown. Some answers may be extended and show greater detail at least two examples of use. Responses given will include references to both the computer and the printer.	4 – 5 marks

Question 6

- 6 (a) How can consumers make environmentally friendly choices when shopping for food products?

[7 marks]

*Fairtrade and Free range products are not environmental but Ethical decisions and therefore are not creditable for this question.

Extra credit may be given for extended responses
e.g. key term which is extended by an explanation or example of its meaning as shown here:

- Sustainability (key term) / is food production that aims to preserve the world's natural resources for future generations.(extension)

- May include a definition of 'environmentally friendly' e.g. not harmful to /risk to the earth, earth friendly and may give example.
- Choose food products with little or no packaging / avoid heavily packaged products.
- Seasonal foods means foods that are in season.
- Seasonal / local food use reduces food miles.
- Food miles /means the distance that food travels from where it is grown to where it is bought./This is an environmental concern because of the CO₂ emissions from transport.
- Sustainability/ is food production that aims to preserve the world's natural resources for future generations.
- Buy single larger sizes instead of smaller individual portions.
- Buy organic produce / Organic foods have been grown without the use of chemical fertilisers or pesticides.
- Buy farm assured foods (Red Tractor) / Farm assured means that the farms and food companies meet high standards of food safety and hygiene, animal welfare and environmental protection.
- Avoid GM or irradiated foods. / Genetically modified food is grown with genetic manipulation technology. Some people consider this a risk to the environment and choose GM-free products.
- Use own shopping bags instead of plastic carriers / free shop buses to reduce transport / emissions.
- Select food that come from sustainable sources / may give examples, e.g. fish stocks.
- Select local foods/farmers shops with few food miles / reduces emissions / walk/cycle to shops instead of using transport.
- Only buy quantities needed / so wastage is less.
- Choose food that are not packaged or have little packaging.
- Choose biodegradable packaging materials / that will break down naturally over time.
- Other relevant answers.

No answer worthy of credit.	0 marks
The candidate has basic answers. This candidate does not have a clear idea of what s/he is writing about.	1 – 2 marks
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, correct answers and/or some extended correct answers may be given. Response may cover only the packaging of food products in relation to environmentally friendly issues.	3 – 4 marks
The candidate has a thorough understanding and has provided a range of simplistic, relevant answers support the knowledge. Responses may be related to both food and packaging in linked to environmentally friendly issues. Some answers may be extended and show greater detail.	5 – 7 marks

- 6 (b)** Describe how manufacturers can be environmentally friendly when packaging food products.

[6 marks]

Extra credit may be given for extended responses

- Choose biodegradable packaging materials / that will break down naturally over time.
- Use recycled materials/e.g. paperboard
- Inform consumers where recyclable materials are used.
- Use relevant logos on packaging/ to show environmentally aware
- Use less packaging /reduce layers of packaging/make packaging thinner
- Do not package unless necessary.
- Use renewable power sources for any energy needs for factories/production materials.
- Shapes of packaging made so more can be stored / transported in one go.
- Support for manufacturers who use sustainable / renewable resources.
- Use sustainable sources for packaging materials/ plant trees to help replace sources used.
- Dispose of waste materials correctly.
- Other relevant answers.

No answer worthy of credit.	0 marks
The candidate has a basic answer. This candidate does not have a clear idea of what s/he is writing about.	1 mark
The candidate has some knowledge but there will be less clarity of understanding. A small range of simplistic, correct answers and/or some extended correct answers may be given.	2 – 3 marks
The candidate has a thorough understanding and has provided a range of simplistic, relevant answers to support the knowledge shown. Some answers may be extended and show greater detail.	4 – 6 marks