



General Certificate of Secondary Education

Design and Technology: Food Technology 3542

Full Course Foundation Tier

Mark Scheme

2005 examination – June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' 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.

1

A supermarket wishes to extend the range of milk products.

(a) Name different types of milk that are sold in the following areas of the supermarket:

Area of supermarket

In the chill cabinet

Type of milk sold

Pasteurised, Channel Islands, skimmed, semi skimmed, goats' milk, fresh soya milk, fresh organic milk, whole, full fat, formula / baby bottled.

In non chilled areas

UHT, evaporated, condensed, dried, tinned, formulae milk, sterilised, UHT soya, homogenised carton.

2 x 2 marks
(4 marks)

(b) Name two other products made from milk.

- Yoghurt
- Cheeses
- Ice cream
- Butter
- Creams
- Fromage frais
- Crème fraiche
- Chocolate
- Any made product containing milk (can be sweet or savoury)

2 x 1 marks
(2 marks)

(c)

(i) Name one method of research used by supermarkets to find out about customer's views on milk chocolate.

Any 1 of the following:

- Questionnaire
- Surveys
- On line surveys
- E mail
- Interviews
- Consumer taste panels / sampling

Answers must be relevant to requesting feedback from consumers not manufacturers.

(1 mark)

(ii) Describe how this research is carried out.

Description may include:

- Venue: where it takes place in the store
- Type of people to ask / target groups / audience
- Number of people asked
- How results are recorded
- Analysis of results / data
- Conclusions drawn from results
- Evaluation of research and method
- How answers may benefit design of new products.
- Give examples of number / type of questions asked

Detailed answer giving accurate information how carried out. 4 marks

Mixture of simplistic and detailed points. Correct research method identified. 2-3 marks

Simplistic answer. May have incorrect method. 1 mark

(4 marks)

2 Manufacturers must choose the correct ingredients for a product.

The table below compares different types of milk.

Use the information in the table.

(a)

(i) Which type of milk is most suitable for use in a healthy option product?

Skimmed milks with relevant reasons.

(1 mark)

(ii) Give reasons for your choice.

Reasons - Must refer to figures in table for full marks:

- Fewer calories- energy
- Higher in protein- for growth / repair
- Lower in fat- less risk of heart disease
- Higher in calcium- good for teeth and bones
- May refer to method of production, removal of cream

Qualified answers that use figures from the table. 4 marks

Qualified answer or two simplistic answers. 2-3 marks

Simplistic answer. 1 mark

(4 marks)

(b)

(i) Which types of milk is most suitable for use in a high energy milk drink for children?

Whole milk or semi skimmed with relevant reasons.

(1 mark)

(ii) Give reasons for your choice.

Reasons - Must refer to figures in the table at least once for full marks:

- May refer to protein for growth
- More calories- for energy
- Higher in fat- more energy needed by children
- Full cream taste- full feeling
- May refer to method of production
- Calcium for bone and teeth development
- Fat soluble vitamins A D for bone development.

Qualified answers that use figures from the table.

4 marks

Qualified answer or two simplistic answers.

2-3 marks

Simplistic answer.

1 mark

(4 marks)

3

A catering company makes lunches for delivery to primary school kitchens.

The test kitchen is developing new ideas for cold desserts.

A successful cold dessert will:

- **use milk or milk products**
- **be easy to serve as single portions**
- **appeal to children**
- **be served chilled.**

(a) With the aid of notes and sketches, produce two different design ideas, which meet the design criteria. DO NOT draw any packaging.

Each sketch should reflect the design criteria

- Ideas produced must be different products that include milk / milk products, not variations of the same product
- Ideas should be communicated through the use of notes and sketches, including 2D, 3D or cross sections.
- Suitable for individual portioning
- Chilled product
- Notes may show main features of the product, dimensions, flavour, shape, texture, colour, ingredients, finishing techniques, cooking / preparation methods, portion control.

Recognisable sketch / prose shows good communication of the main features of a relevant product.

4-5 marks

Sketch / prose shows basic ideas for a relevant product but not clearly communicated.

2-3 marks

Sketch / prose attempted but inappropriate choice of product.

1 mark

2 x 5 marks **(10 marks)**

(b) Choose one of your design ideas for the manufacturer to develop.

(i) Explain how the chosen idea is suitable for children.

No marks awarded for choice of idea.

Explanation of how product is suitable for children.

References to: type of milk product used, portion control, suitability for school lunches, nutritional value, variety in colour / flavour / texture to add interest, healthy option – low fat / lower sugar / higher fibre, decoration / finish.

Any relevant point.

Number of simplistic answers or one / two detailed answers showing clear understanding. 4-5 marks

Simplistic answers showing some understanding. 1-3 marks
(5 marks)

(ii) Explain why your chosen idea has to be packaged for transport to the school's kitchen.

Food needs packaging because:

- It contains the product
- Extends shelf life
- Protect against contamination / pests
- Prevents tampering
- Maintain temperature
- Easy to carry / transport
- So information can be printed on e.g. ingredient details
- Served and eaten directly from package to prevent waste/time.

Number of simplistic answers or one / two detailed answers showing clear understanding. 3-4 marks

Simplistic answers showing some understanding. 1-2 marks
(4 marks)

(c) Why are new food products made in a test kitchen before larger scale production takes place?

Test kitchen:

- Simulate production
- Smaller quantities
- Less cost
- Try out ideas economically
- Develop product to best
- Train workers-skills
- Allows for small batches to be produced
- Small scale experimentation with different ingredients
- Allows for adaptation/modification/improvement on small scale
- Further product development.

Number of simplistic answers or one / two detailed answers showing clear understanding. 3 marks

Simplistic answers showing some understanding. 1-2 marks
(3 marks)

(d) Produce a plan for making your chosen idea in the test kitchen.

You may use flow charts, diagrams, notes or sketches in your answer.

Plan for making in the test kitchen:

Look for candidate showing awareness of different aspects to consider when planning the making of a food product.

At least one reference to any of following:

- Logical sequence
- Dovetailing of tasks
- Specialist terminology
- Timings
- Temperatures / heat control
- Named processes
- Personal hygiene
- Kitchen hygiene
- Safety / risk assessment
- Control checks / HACCP
- QA/QC – size, shape, portion
- Feedback on any checks
- Clarity of instructions.

Answer showing logical plans, clarity of instruction and detail.

9-10 marks

Logical planning with a range of different information covered.

6-8 marks

Some parts detailed, may not be logical some key areas for successful making omitted.

4-5 marks

Simplistic answer giving some relevant planning.

1-3 marks

(10 marks)

4 **A food manufacturer is developing a range of trifles.****(a) Explain how using different ingredients can help meet the needs of consumers.**

Developments may refer to base, filling or topping sections of trifle.

Examples include:

	Ingredient chosen	How it meets the needs of consumers
Healthy option	Low sugar / diabetic chocolate, low fat chocolate, low fat cream. Skimmed/ semi skimmed milks, goats, soya milk, cream alternatives, organic milks. Fresh fruit / fruit, low sugar fruit in own juice, pure fruit juice in jelly. Sweeteners and sugar “light” products.	May refer to improving texture, aroma, flavour, colour, appearance, finish, cultural links, nutritional improvements: low fat, sugar, high fibre, additive free or functional properties of ingredient.
Cultural tastes	Multi cultural, mango, kiwi, bananas, grapes, passion fruit, paw paw, papaya, limes, lemons, any exotic fruit, Greek yoghurt, ricotta, marscapone cheese. Flavoured chocolate / Jamaican / coconut, spices, nuts.	Other countries Not just ‘healthy’ without extension.
Variety of textures	Use of ingredients to give variety of textures e.g. chopped fruit for crisp, whipped cream for soft texture, nuts fruit topping, chocolate pieces.	

NB: The above are examples only. Candidates may be credited with any correct and relevant answer

12 x 1 mark **(12 marks)**

(b) Using notes and sketches describe how a quality finish can be achieved by decorating the top of the cheesecake below.

Your design idea should use a mixture of fruit, chocolate and cream.

- Identify use of chocolate
- Identify use of fruit
- Identify use of cream
- Quality finish shown on sketch
- Other Quality procedures noted, i.e. method of production, dimensions.

Recognisable sketch. Prose shows good communication of the finishing techniques used.	4-5 marks
Sketch. Prose shows basic ideas for a finish but not clearly communicated.	2-3 marks
Sketch/ prose attempted but inappropriate choice of finish.	1 mark
	(5 marks)

5 (a) Standard components may be used to save time in food production.

(i) Describe two other advantages of using standard components.

Standard components, other than ‘time’ as answers given:

- Needs less specialist equipment- may be cheaper for production cost
- Can work out exact costs
- Less risk of contamination / safer
- Reduces manufacturer’s risk / liability
- Less staff needed / less skilled staff
- Consistent quality / size / shape / weight / colour / depth
- Allows work to designated tolerances
- Components can be bought in bulk
- May be cheaper if bought in bulk
- May give examples to illustrate answer
- May be easier to store than individual ingredients
- Cheaper than buying individual ingredients.

Single qualified answer or two simplistic answers.	2 marks
Simplistic unqualified answer.	1 mark
	(4 marks)

2 x 2 marks

(ii) Name a standard component used in the following cold desserts:

Cold dessert	Standard component
Egg custard tart	Frozen pastry / pastry Pasteurised / Dried egg Dried milk
Pancakes	Ready made pastry case Pancake mix / pancake Dried milk Prepared filling / filling Frozen pancakes / Ready prepared pancakes

2 x 1 mark **(2 marks)**

- (b) Explain why food manufacturers use the following.**
Single qualified answer or two simplistic answers. 2 marks
Simplistic unqualified answer. 1 mark
- (i) 1 egg to 125 ml of milk in an egg custard**
Egg custard
- proportions needed to enable mixture to ‘set’ / hold together
 - set / coagulation of egg when heated
- (2 marks)**
- (ii) Butter in shortcrust pastry**
Butter in pastry
- To add colour
 - To add taste / flavour
 - To add nutritional value
 - In place of vegetable fat which may lack properties required
 - Extends shelf life
 - Improves shortness / texture / richness
 - NOT BINDING
- (2 marks)**
- (iii) Modified starch in a chocolate mousse**
Modified starch in chocolate mousse
- thickening agent (coagulant)
 - sets without heat / may refer to ‘smart’ materials
 - improves texture / creaminess / smoothness / consistency
 - prevents sineresis
 - no starchy taste.
- (2 marks)**
- (iv) Double cream as a filling for éclairs**
Double cream in éclairs
- adds moisture
 - improves texture / consistency
 - can be whipped / thickens
 - contrasts texture
 - thicker than single / holds shape
 - richer flavour.
- (2 marks)**
- (v) Soya milk in milkshakes**
Soya milk in milkshakes
- allergy sufferers / intolerances
 - vegetarian alternative
 - lower in saturated fat / less kcals / healthier
- (2 marks)**

(c)

(i) **Explain why the following materials are used in the packaging of ready made pouring custards.**

Material	Why it is suitable*	Also acceptable
Plastic lid	Moulded to shape, resistant to high / low temp, moisture proof, recyclable, flexible, cheap, strong, durable, lightweight, resealable, transparent.	*generic answer relating to functions of packaging in general may be accepted if not repeated, i.e. protects food against contamination, prevents tampering, easier to store / carry. Up to a maximum of 3 marks.
Foil cover	Impermeable, temp resistant, durable, can be sealed, can be recycled, air / moisture resistant, lightweight, freshness.	
Paperboard	Cheap, easy to print info on, lightweight, biodegradable, mouldable, recyclable, inner package, can be waxed, strong.	

Single qualified answer or two simplistic answers.

2 marks

Simplistic unqualified answer.

1 mark

3 x 2 marks

(6 marks)

(ii) **The following symbol is often seen on packaging.**

Explain what the symbol means.

Symbol	Meaning
Man with bin	Place used packaging in bin, encourages recycling, environmental concerns, dispose of packaging carefully.

Single qualified answer or two simplistic answers.

2 marks

Simplistic unqualified answer.

1 mark

(2 marks)

6 Name two items of equipment that can be used at the following stages of making an ice cream dessert.

Any two items per task.

Answer may refer to the test kitchen or industrial kitchens.

Task	Equipment used
Preparing sliced fruit for the base	Peelers – automatic / mechanical – apple slice Knives / mandolin / fed from hopper Processors / slicers
Freezing the ice cream mixture	Ice cream maker/blast freezer/large scale industrial freezer (-36°C) Domestic freezer (-18°C) / CAM / churn
Blending a smooth fruity sauce	Hand blender Blender/processor Sieve Smoothie maker Stand alone food processor NOT whisk, fork

Credit can be given for other appropriate equipment

Two correct responses with answers identifying appropriate equipment
Simplistic correct answer for either test or industrial kitchen equipment

2 marks
1 mark
(6 marks)

7 **Risk assessment of food safety hazards must be made at all stages of food production.**

- (a) **For each stage in making fresh cream cakes**
 (i) **describe a different hazard for each stage;**
 (ii) **explain how the hazard may be controlled.**

Stage	(i) Hazard	(ii) How to control
The work area and equipment	Microbiological: Bacterial contamination from staff, working area, equipment, food, poor quality control/ incorrect storage or cooking processes, incorrect cooking time/temperature to kill harmful bacteria.	Bacterial counts, routine/ regular checks, correct preparation and training of staff, temperature control of storing, cooking, use by dates.
The cooking of the sponge cake	Physical:	
Preparing the fresh cream filling	Pieces of packaging, metal from equipment, jewellery from workers, hair, nails, glass from containers, pests, insects, plasters.	Metal detectors, visual checks, inspection of equipment, raw food, workers, packaging. Setting up of HACCP.
Storage of the finished product	Chemical: Cleaning materials, bleaches, sanitisers not removed thoroughly.	Chemical checks, pH tests, thorough cleaning, regular inspection.

Qualified answer or two simplistic answers.
 Simplistic unqualified answer.

2 marks
 1 mark
 4 x 2 marks **(8 marks)**

(b) Describe, with reasons, safe storage conditions for the following:

(i) tub of ice cream;

(ii) Greek yoghurt.

Product	Store	Why
Ice cream	Freezer	Prevent thawing Growth of bacteria Keep at -18°C (1 mark) Extend shelf life. (2 marks)
Greek yoghurt	Refrigerator	Keep cool Temp out of danger zone Slows down bacterial growth 5°C (1 mark) Extend shelf life. (2 marks)

Qualified answer or several simplistic answers.

2-3 marks

Simplistic unqualified answer.

1 mark

2 x 3 marks

(3 marks)

(c) Explain how CAM is used to ensure the safety of milk based desserts.

Use of CAM

- Monitoring temperatures e.g. cooling before freezing
- Monitoring freezer temperature / thawing temperature
- Consistency
- Less human error
- 24 hour monitoring
- Can set off alarms if temp incorrect
- Carry out HACCP
- Part of QC
- Temp regulated to prevent bacterial growth
- Data can be stored for future reference and inspection
- Modelling, recording, measuring bacteria growth
- pH testing / acidity / freshness.

Qualified answer or several simplistic answers.

2 marks

Simplistic unqualified answer.

1 mark

(2 marks)

8 **Explain how a food worker will show good working practices in personal hygiene;**

(a)

Personal hygiene

- Clean clothing / apron
- Sanitise / clean hands
- Disposable gloves
- Hair nets / hair tied back
- No nail polish
- No strong perfume
- Clean footwear
- Blue plasters on cuts
- No jewellery
- Training in food hygiene
- Kitchen rules e.g. reporting illnesses
- Personal cleanliness / habits.

Mixture of simplistic and detailed answers.
Simplistic answers.

3 marks
1 -2 marks
(3 marks)

(b) kitchen hygiene;

Kitchen hygiene

- Food hygiene training e.g. basic food hygiene certification
- Use of colour coded equipment to prevent cross contamination
- Hygienic waste disposal practices
- No animals / pests in kitchen
- Cleanliness of surfaces before / after use
- Cleanliness of equipment before / after use
- Correct storage of foods / ingredients
- Separate areas for raw and cooked foods
- Use of cleaning products / sanitisers.

Mixture of simplistic and detailed answers.
Simplistic answers.

3 marks
1 -2 marks
(3 marks)

(c) personal safety.

Personal safety

- Training in correct use of equipment
- Personal safety e.g. health and safety at work
- Personal skills e.g. knife skills, used oven cloths
- Use of electrical equipment
- Condition of equipment
- No spills on floor
- Following instructions
- Reporting accidents / breakages
- Safe use of gas / electricity
- Fire drill procedure
- Correct storage of non-food items
- Correct uniform / protective clothing / footwear for task.

Mixture of simplistic and detailed answers.

Simplistic answer.

3 marks

1–2 marks

(3 marks)