



General Certificate of Secondary Education

Design and Technology: Food Technology 3542

Short Course Higher 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)

(i) **Name one method of research used to find out about consumer views on different types of milk.**

Any one of the following:

- Questionnaire
- Surveys / on line surveys
- E-mail
- Interviews
- Consumer taste panels
- Media / TV / digital

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

(1 mark)

(ii) **Describe how this research is carried out.**

Description may include:

- Place where research is carried out
- Type of people to ask/target group/audience
- Number of people asked
- Examples of questions asked / number / type
- 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

Detailed answer giving accurate information on 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)

(b) **The chart below shows the results of research into milk sales.**

(i) **Name one type of milk that has become more popular.**

Answer must identify one of the following:

Either: skimmed or soya

(1 mark)

(ii) Give reasons for this change.

Skimmed milk	Soya milk
Possible reasons:	Possible reasons
<ul style="list-style-type: none"> • Healthy option / Awareness of dietary needs • lower in energy – kcals • Lower in fat / cholesterol • Cream removed • Consumer preferences e.g. taste • More available on sale • More recipes requiring skimmed milk • Nutritional reasons, e.g. higher in calcium • May be recommended for medical reasons • Greater awareness • More advertising 	<ul style="list-style-type: none"> • Healthy option / Awareness of dietary needs • Lower in energy • Lower in fat • Suitable for vegetarians • Suitable for consumers with milk allergies • May be recommended for medical reasons • Consumer preferences e.g. taste • More available on sale • More recipes requiring soya milk • Environmental reasons / religious / cultural • Greater awareness • More advertising

Detailed answer giving accurate choice and reasons.	3 marks
Mixture of simplistic and detailed points. Correct milk identified.	2 marks
Simplistic answer. May have incorrect method.	1 mark
	(3 marks)

(iii) What does UHT stand for?

UHT = ultra heat treated / ultra heat treatment

(1 mark)

(iv) What are the advantages of UHT milk?

Advantages:

- Heated above 132°C for 1 second / all micro organisms are destroyed
- Keeps fresh up to 6 months / longer shelf life - unopened
- Keeps without refrigeration- if unopened
- Little change in colour, taste or nutritional value
- Available in a range of portion sizes

Qualified answers or simplistic answers.	2- 3 marks
Simplistic answer.	1 mark
	(3 marks)

2 (a) An example of one other control check is shown on the diagram.

Describe one other control check that takes place during yoghurt production.

Control checks may relate to any stage of production. Naming of relevant stage linked correctly to control check, but must not repeat given shelf life control.

(1 mark)

Stages of production	Control checks
1. Lactic and bacteria added to milk.	N/A as example given.
2. Heated to 37° - 44°C	Temperature Control Microbiological tests.
3. Flavouring and colouring added.	Quality / shelf life of ingredients. Quantity / weight checks / accurate measurement. Strength of colour / visual checks. Strength of flavour / taste tests.
4. Cooled and stored below 5°C.	Temperature Control. Microbiological checks. Time controls – speed of cooling.
5. Final product sold to consumers.	Condition of packaging. Accuracy of labelling. Weighing. Seal Metal detector. Taste testing.

(2 marks)

(b) **Why are control checks used?**

Control checks are used for:

- Quality
- Consistency
- Monitoring
- Prevent problems
- Keep food safe to eat
- Setting standards / monitoring of QA system

Qualified answers or two simplistic answers.

2 marks

Simplistic answer.

1 mark

(2 marks)

3 A catering company makes lunches for secondary school children. The test kitchen is developing new ideas for cold desserts.

A successful cold dessert product will:

- include milk products
- be easy to serve as single portions
- appeal to different cultural tastes
- 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 not variations of the same product.
- Ideas should be communicated through the use of notes and sketches, including 2D, 3D or cross sections.
- 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.**

Explain in detail how your choice of ingredients helps to meet the needs of the school children

- (i) by your choice of milk products;**

No marks awarded for choice of idea. Explanation of how product meets the design criteria.

Choice of milk product: Identify type of milk product used, portion control, multi cultural appeal, suitability for school lunches, nutritional value, e.g. protein for growth, calcium for teeth / bones, Vitamin A for growth, fat for energy.

Number of simplistic answers or one / two detailed answers showing clear understanding.	2-3 marks
Simplistic answers showing some understanding.	1 mark
	(3 marks)

(ii) by using ingredients that will appeal to different cultural tastes.

Multi cultural ingredients e.g. Greek yoghurts, kulfi, nuts, flavours, exotic fruits, spices.

Link to country of origin, suitability for sensory appeal, taste, variety in colour / flavour / texture to add interest. Any relevant point.

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

2-3 marks

Simplistic answers showing some understanding.

1 mark
(3 marks)

(c) 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 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
- Named processes
- Personal hygiene
- Kitchen hygiene
- Safety / risk assessment
- Control checks / HACCP
- QA / QC – size, shape, portion
- Feedback on any checks
- Clarity of instructions
- Recipe.

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)

(d) Explain how food workers will be prepared and trained for work in the test kitchen.

For full marks candidates should cover both preparation and training of food workers

Preparation

- Clean clothing / apron
- Sanitise
- Clean hands
- Short clean nails
- Disposable gloves
- Hair nets / hair tied back
- No nail polish
- No strong perfume
- Clean footwear
- Blue plasters on cuts – NOT WATERPROOF
- No jewellery
- Training in food hygiene
- Kitchen rules e.g. reporting illnesses
- Personal cleanliness / habits.

Training:

- Use of correct equipment e.g. correct colour chopping boards
- Personal safety e.g. health and safety at work
- Personal skills e.g. knife skills
- Food hygiene training e.g. basic food hygiene certification
- Kitchen rules e.g. reporting illnesses
- Follow HACCP systems
- May have a food/catering based qualification
- Good knowledge and understanding of procedures for cooking / preparing and storage of food.

Range of detailed answers covering both preparation and training. 6 marks

Mixture of simplistic and detailed answers – may only cover only preparation and training.*max 5 if one aspect missing 3-5 marks

Simplistic answers. 1-2 marks
(6 marks)

4

A food manufacturer is developing a range of cheesecake products.

(a) Explain how a basic cheesecake can be developed to meet the needs of consumers.

Development	Reason
Addition of named ingredients:	Refer to
<ul style="list-style-type: none"> • nuts • coconut • chopped / pureed / sliced fruit • chocolate chips • toffee chunks • glace cherries • cereals • artificial flavours / colours. 	<ul style="list-style-type: none"> • appearance, • taste • aroma • colour • texture.
Decoration e.g. <ul style="list-style-type: none"> • piping • drizzling, • marbling, • cream / chocolate. 	May name specific details.
Any relevant development idea e.g.	
<ul style="list-style-type: none"> • chocolate leaves • flakes etc. 	
Use of ingredients to reduce fat/sugar content:	Ideas to
<ul style="list-style-type: none"> • sweeteners • sugar “light” products • lower fat dairy products • low fat base, • biscuit • half yoghurt/ crème fraiche. 	<ul style="list-style-type: none"> • reduce fat content • reduce sugar content. • Fresh rather than artificial colours / flavours. • Increase fibre
	NOT ‘HEALTHY’
Increase fibre content:	
<ul style="list-style-type: none"> • use of wholemeal biscuits for base • adding nuts • oats • bran • fresh fruit. • Leaving skin on fruits e.g. apples. 	

Range of detailed answers covering both development ideas and reasons.
 Mixture of simplistic and detailed answers - may cover only development ideas or reasons.
 Simplistic answers.

6-8 marks
 3-5 marks
 1-2 marks
(8 marks)

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

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 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) 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 125ml of milk in an egg custard**

Egg custard

- Proportions needed to enable mixture to ‘set’
- 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
- To extend shelf life
- To improve shortness / texture / richness
- NOT BINDING

(2 marks)

- (iii) Modified starch in chocolate mousse**

Modified starch in chocolate mousse

- Thickening agent / pre gelatinised
- Sets without heat / may refer to ‘smart’ materials
- Improves texture / creaminess / smoothness / consistency
- Prevents syneresis
- Stability of mixture
- Speed up production
- No starchy taste

(2 marks)

(iv) Soya milk in milkshakes

Soya milk

- Allergy sufferers, e.g. lactose intolerance
- Vegetarian alternative
- Lower in saturated fats / kcals / healthier
- Suitable for people with beliefs about not eating animal fats
- Not ‘healthier option’

(2 marks)

(b) Standard components are often used in the production of desserts.

(i) What is meant by a standard component?

Standard components:

- Ready prepared components
- Often brought in from a supplier
- Made elsewhere
- To simplify production
- Reduce stages of production
- Made to a specific requirement
- Guarantee a standard product / consistency
- May give examples to illustrate answer

Single qualified answer or two simplistic answers.

2 marks

Simplistic unqualified answer.

1 mark

(2 marks)

(ii) Give three reasons why manufacturers may decide not to use standard components.

Three reasons **not** to use standard components:

- Expensive
- Need storage space
- May be inferior / poor sensory qualities
- May contain additives / preservatives
- No control over making
- May not fit specification
- Supplies may be interrupted
- Cannot always guarantee a 100% safe product
- Exclusivity
- May have facilities to make own components

3 x 1 mark

(3 marks)

6 The ingredients and method listed below are used to make chocolate ice cream.

(a) Why is it important for the packaging to show a list of ingredients?

Labelling of ingredients:

- Allow choices to be made
- Not familiar with dishes popular in other cultures
- Customer preferences / likes / dislikes
- Possible allergies e.g. milk
- Warning of danger of nuts / allergy warning
- Prepared/ not seen made
- Legal requirement
- Informs consumer

Single qualified answer or two simplistic answers.

2 marks

Simplistic unqualified answer.

1 mark

(2 marks)

(b)

(i) Name two items of small electrical equipment that can be used in the test kitchen during the making of chocolate ice cream.

Describe what each item will be used for.

Any of the following:

Name of electrical equipment	What it will be used for
Food processor/blender	Blending sugar/eggs, chopping nuts
Grinder	Chopping
Whisk	Blending sugar/eggs
Ice cream maker	To mix and freeze ice cream
Microwave	Heating milk

Credit may be given for relevant 'electronic' equipment

2 x 2 marks

(4 marks)

(ii) Explain the advantages of using electrical equipment when making chocolate ice cream in the test kitchen.

- quicker / saves time
- consistency – texture
- good for small test portions
- CAM less human error / less staff needed
- control of temp / speed
- ability to reproduce accurately
- may allow workers to do another job while waiting
- saves energy

* Credit to be given if candidates give examples from the making of chocolate ice cream.

Several answers, mixture of simplistic and detailed 4 marks

Mixture of simplistic and detailed answers 2-3 marks

Simplistic answer 1 mark
(4 marks)

(c)

(i) How does freezing extend the shelf life of food products?

Explain how freezing extends shelf life.

- Reduces temperature
- Growth of bacteria / micro-organisms stops temporarily
- Enzyme activity slows down
- Temp below -18°C
- Water in food changes to ice crystals
- Freezing quickly prevents damage to food cells
- So no change in flavour / texture / nutritional value

Qualified answers or mixed with simplistic answers. 2 – 3 marks

Simplistic unqualified answer. 1 mark
(3 marks)

(ii) Why is it important to keep a data log of freezer temperatures?

Data logging by computers:

- Accuracy
- Consistency
- Food safety
- Quality control
- Critical controls
- Legal requirements
- To reduce wastage

Single qualified answer or two simplistic answers. 2 marks

Simplistic unqualified answer. 1 mark
(2 marks)

7

Many milk based products are packaged ready for sale.

Explain why the following packaging materials are suitable choices.

Material	Suitability	Other relevant comments that can be credited
Paperboard For fresh cream cakes	<ul style="list-style-type: none"> • Variety of thickness • Moulded/ folded to shape • Laminated • Easy to print on • Lightweight • Resistant to temp • Biodegradable • Cheap • Strong 	As relevant to property: <ul style="list-style-type: none"> • Suited to range of different products • Choice of shape • Easy clean, resistant laminated • Labelling information possible • Meets legal requirements • Withstands temps • Environmentally friendly
Plastics For ready made trifle	<ul style="list-style-type: none"> • Moulded to shape • Impermeable • Recyclable • Can be sealed • Lightweight • Cheap • Can be coloured 	<ul style="list-style-type: none"> • Prevent contents spilling • Easy to carry • Easy to store • To contain • To aid transportation • To prevent tampering
Glass For a chocolate sauce	<ul style="list-style-type: none"> • Transparent • Strong • Recyclable • Can be coloured • Resistant to high temps • Rigid • Cheap • Moulded to shape 	

Several simplistic answers.

3 marks

2 simplistic answers or one qualified answer.

2 marks

Simplistic answer.

1 mark

3 x 3 marks

(9 marks)