



General Certificate of Secondary Education

Design and Technology: Food Technology 3542

Full Course Foundation Tier

Mark Scheme May 2008

2008 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.

Throughout the paper simplistic, unqualified answers are given 1 mark, qualified or extended answers will be credited with 2 marks where available.

1

- (a) Name three different hot drink products that may be sold in cafés.**

Any 3 of the following

Answers must be hot drink products!

- Tea
- Coffee
- Latte
- Cappuchino
- Espresso
- Fruit teas e.g. lemon
- Hot chocolate
- Horlicks/ ovaltine
- Herbal teas e.g camomile
- any other relevant answer

3 x 1 mark

(3 marks)

- (b)**
- (i) Explain why fruit smoothies have become a popular choice of drink for teenagers.**

Factors affecting choice:

- Personal preferences / likes / dislikes /
- Appeal / interest
- Seen as being healthy choice
- 5 a day portion
- High in vitamins/vitamin C
- Cold foods preferred
- Advertising / influence of media
- Modern trends for smoothies
- Easy to make/convenience
- Any other answer as relevant

3 x 1 mark

(3 marks)

(ii) Use the chart below to describe a method of research used to find out teenagers' preferences for new smoothies.

Answers should describe the following:

Marks may be awarded in any section of answer but **MUST** relate to a single research method.

- Method chosen- e.g. profiling tests, paired testing, questionnaires, internet surveys, comparison tests, ranking, rating, interviews with target audience, sensory testing...
- Sample questions may be credited
- number of testers,
- how carried out e.g. place
- target group e.g. random sample
- organisation,
- use of spreadsheet, word document, bar/pie/radar chart , sensory profile, etc to record results
- fair testing
- use of responses to inform future plans
- design new product
- meeting consumer preferences e.g. flavour, texture, appearance
- to boost sales
- to compare product with competitors product
- to improve product

Any other relevant answers may be credited up to maximum of 5 marks.

5 x 1 marks	(5 marks)
Total for question	11 marks

2

(a)

(i) Name the ingredient used in the largest quantity.

Wholemeal flour

(1 mark)

(ii) How do you know it is the ingredient used in the largest quantity?

- Largest is always first
 - Ingredients listed in descending order/smallest at the end
 - Legal requirement
- *do not accept 'main' ingredient

2 x 1 mark

(2 marks)

(iii) Complete the table below to show which ingredients provide the following.

* if a list is given accept first answer only.

Fibre	Wholemeal flour, celery seeds
Flavour	Celery seeds, onion, wholemeal flour, salt
Raising agent	Yeast, sodium bicarbonate

3 x 1 mark

(3 marks)

(iv) Why is the following information important?

This product has been made in a factory which uses nuts.

- Consumers may have allergies / may cause reaction / harmful to health
- Warning to consumers
- Raising awareness/ letting consumers know
- Shows no nuts used in product
- But may have come into contact with ingredient, e.g. on production line
- Protects manufacturers from liability / legal procedures

2 x 1 mark

(2 marks)

(b) What are the advantages of using

*Generic answers related to packaging are not credited e.g. protect, inform etc answers should relate to specific material
Generic answers e.g. to protect, inform, contain etc May be credited if given as an extended answer.

(i) Paperboard,

- Cost effective / cheaper than other materials
- Can be folded into different shapes
- Strong/durable
- Can be printed upon
- Available in different thicknesses
- Different colours
- Lightweight
- Recyclable

One extended answer **2 marks**One simplistic answer **1 mark****(2 marks)****(ii) plastic?**

- Cheaper than other materials
- Can be moulded into different shapes
- Strong / durable
- Available in different thicknesses
- Lightweight
- Transparent
- Moisture resistant / impermeable
- May be recyclable

One extended answer **2 marks**One simplistic answer **1 mark****(2 marks)****(c) Give three reasons why computers are used when designing food packaging.**

- Efficient, time saving
- High quality presentation skills/quality product
- Consistent product /can be reproduced accurately
- Range of templates can be produced
- Easy to change design
- Professional outputs
- CAD can simulate prior to making , ensuring no mistakes
- Cost effective
- saves manufacturer time
- less staff
- more reliable
- accurate data/ measurements
- less human error
- allows experimentation with colours, fonts, graphics etc
- easy to import information from other documents

3 x 1 mark

(3 marks)**Total for question****15 marks**

3

- (a) **Use notes and sketches to produce two different design ideas for a muffin product.**

Do not draw any packaging.

Sketches should reflect the design criteria.

Ideas should be communicated through the use of notes and sketches, including 2D, 3D or cross section sketches

For each design idea:

Recognisable annotated sketches reflecting general design criteria: 5 marks

- notes and sketches
- meets needs of a healthy option product (low fat, sweeteners, wholemeal flour, named fruit etc
- more than one flavour - may be sweet or savoury
- offers a texture different to the soft, sponge of muffin e.g. juicy, crisp, crunchy- (chunks/grated/pieces carrot/fruit,..) nutty,... needs to be made obvious by annotation
- shows a topping
- suitability for batch production, number served, scaling of ingredients
- extra information e.g. sizes, toppings. nutritional information etc

Recognisable annotated sketch but some point omitted or repeated 3-4 marks

Products described lack detail, suitability or annotation. 1-2 marks

Products described are unsuitable 0 marks

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

- (b) **Which of your design ideas will you choose to develop?**

No marks given for choice. If no idea ticked read response to ascertain which product chosen.

Explain how this idea meets the following design criteria.

- (i) **suitable for consumers wanting a healthy option product**

Answers may give examples relating to any of the following:

- Low fat e.g. use of polyunsaturates / reduced fat instead of butter
- Low sugar/ e.g. sweetener in place of sugar
- High fibre / NSP e.g. use of wholemeal flour
- Low in calories
- Additive free
- Meets special dietary needs – examples may be credited
- Non allergenic, nut free, gluten free, milk free, vegetarian.
- Addition of fruit/vegetables e.g. provides 5 a day portion,

Up to four simplistic answers or may give qualified extended answers (3-4 marks)

Simplistic answers but lack detail/explanation (1-2 marks)

(4 marks)

(ii) suitable for batch production

- Shows understanding of larger scale production
- Recipe can be scaled up easily
- Raw materials can be purchased in bulk
- Equipment can be used for other products / so less cost to manufacturer
- Can be made by a small team of workers
- Suitable for short production runs/ batches can be repeated
- Recipe can be easily adapted to take other flavours, toppings etc
- Suitable for using Cad/Cam to produce
- Easy recipe for quality control
- Easy to make

A mixture of full or simplistic answers

2 marks

Simplistic answer

1 mark

(2 marks)**(c)****(i) Write a three-point *product specification* for your chosen design idea.**

*Answers should not repeat design criteria given earlier in question but may add detail for credit.

Points describe what product is like, can do or what can and cannot be changed, e.g.

- Portion size
- Weight
- Number served
- Storage instructions
- Specific methods named
- Specific ingredient choices named
- Packaging details

3 x 1 mark

(3 marks)**(d) Complete the table to show three main ingredients used to make your chosen muffin product.**

Give a different reason for using each ingredient.

Any of the 3 main ingredients used in the chosen design

3 x 1 mark

Relevant **different** reasons given for use of main ingredients, e.g.

- Binding e.g. eggs
- adding texture e.g. wholemeal flour
- adding flavour e.g. fruits/nuts
- adding nutritive value e.g. wholemeal flour
- adding colour e.g. fruits
- moisture e.g. milk
- aroma e.g. fruits
- enriches e.g. eggs
- raising agent e.g. baking powder
- adds bulk/ main ingredient/structure e.g. flour
- other relevant e.g. healthier option

3 x 1 mark

(6 marks)

(e) Use notes, sketches or flowcharts to describe the processes needed to make your chosen idea in a test kitchen.

Marks awarded for prototype made in test kitchen not large scale production.

N.B. answers do not need to cover all aspects in order to gain full marks.

Look for candidate showing awareness of different aspects e.g. at least one reference to time/temperatures, named process, control checks...

- Logical sequence shown through the main stages of the flow chart/notes/stages/steps

Preparations

- Kitchen hygiene
- Personal hygiene
- Weighing ingredients
- Equipment e.g. pre heating oven

Production

- Preparing product e.g. mixing ingredients together
- Preparing filling/ topping/decorations as relevant
- Dovetailing of tasks
- Named processes e.g. baking, grating, piping
- Importance of mixing ingredient quickly – key production point referred to.
- Finishing techniques

Control checks:

- timings
- temperatures
- food safety e.g. clean equipment (not just 'washed')
- portion control
- checks on size, shape e.g. use of indented baking tins, use of paper cases **must** refer to portion control for mark.
- feedback
- safety precautions e.g. use of oven gloves
-

Detailed answer showing logical, detailed plans	9-10 marks
Detailed answer showing logical plans but with minor omissions	6-8 marks
Some parts of the answer may not be logical or be omitted	3-5 marks
Simplistic answer giving some relevant planning	1-2 marks
	(10 marks)
Total for question	35 marks

4

- (a) **Identify different control procedures that are used at each stage when making coated biscuits.**

Accept both Quality and Critical Points

Storing ingredients

- quality/use reputable suppliers
- use by dates
- check for initial packaging in good condition
- check for physical contaminants e.g. insects
- cool / refrigerator
- cleanliness
- covered/packaged
- ambient/room temperature

2 x 1 mark

Cooking the biscuits

- do not accept 'right place'
- correct times
 - correct temperatures
 - even colour
 - position in oven
 - spacing on baking sheet

2 x 1 mark

Coating the biscuits

- cleanliness
- even layer/coverage
- designated tolerance/thickness
- consistency of chocolate
- appearance e.g no drips
- cleanliness
- not contaminated

2 x 1 mark

* Must give 2 control procedures for each

(6 marks)

- (b) **Describe one method of melting chocolate to be used for coating biscuits in a *test kitchen*.**

May use

Microwave oven method –

- glass/plastic bowl,
- short time,
- break up chocolate
- do not allow to burn

melting on hob -

- in a bowl
- over pan of hot water
- care not to boil dry
- not to let water into chocolate

3 x 1 mark

(3 marks)

(c) What are the causes of the following problems when making biscuits?

Problem	Cause	
A hair is found in a cooked biscuit	<ul style="list-style-type: none"> • Lack of personal hygiene by food workers • Hair not tied back/ not used hair net 	2 marks
Cooked biscuits crumble when removed from the tray	<ul style="list-style-type: none"> • Poor hygiene training • Not allowed to cool • Removed too soon/too late • Too thin • Overcooked / undercooked 	2 marks
Biscuits are uneven in colour	<ul style="list-style-type: none"> • Too dry • Too high / low shelf in the oven • Not cooked sufficiently • Too high / low temperature in oven • Ingredients not mixed in evenly. 	2 marks
Melted chocolate goes lumpy	<ul style="list-style-type: none"> • Water has entered • Insufficient time given • Over cooking in microwave/oven • Starting to cool down/setting 	2 marks

Total (8 marks)

(d) Name two different items of equipment used to ensure a consistent outcome when making biscuits. Give a reason for your choice.

(i) (ii) Give 1 mark for name of relevant equipment, 2 marks for explanation

- Answers may refer to test, domestic or commercial kitchen equipment
- Use of templates/cutters for shape/size/portion control
- Use of food processors/electric whisks to make mixture / even well mixed/ same speed, time, can be replicated.
- Use of electric whisks to make mixture / even well mixed/ same speed, time, can be replicated.
- Use of oven / tunnel ovens – same temp /time/ use of same shelf
- Use of digital /electronic scales for accuracy of weighing
- Baking tins with spaces for biscuits/ use for tray bakes to control size/shape
- Same size piping nozzle, same nozzle,

2 x 3 mark

(6 marks)

Total for question

23 marks

- 5 (a) (i) Explain how this fruit slice product is suitable for consumers with *different* special dietary needs.

High fibre diet:

- Wholemeal flour includes bran
- Soft brown sugar is not as processed as white sugar
- Apricots are a source of fibre.

Vegetarian/vegans

- No foods from direct animal sources

High energy diets

- High in calories

Allergies

- No allergy ingredients e.g. nuts

May mention age related needs

May mention health benefits of product e.g. reduced risk of heart disease

Detailed answer, or mixture of simplistic and detailed answers

5-6marks

Some detailed or several simplistic answers

3-4 marks

One detailed answer or two simplistic answers

1-2 marks

(6 marks)

- (ii) Which ingredients help to give a golden colour to the fruit slice?

- Wholemeal flour
- Soft brown sugar
- Apricots
- Polyunsaturated margarine

Named ingredients

2 x1 mark

(2 marks)

- (b) (i) Describe one way of developing the fruit slice product to improve the flavour.

- Addition of different fruits or mixture of fruits, e.g. blueberries, cranberries
- Add more fruit
- Any other idea that adds 'fruit' flavour, essences
- Addition of spices e.g. nutmeg, cinnamon
- Addition of extra sweetness
- Use of further sensory testing

Detailed answer

2 marks

Simplistic answers

1 mark

(2 marks)

(ii) Describe two ways of developing the fruit slice product to improve the texture.

- Addition of nuts, coconut, seeds
- Oats in place of wholemeal flour
- Any other idea that adds 'crunchy'
- Cook for correct time to give crunch
- Reference to the method of making e.g. rubbing in correctly
- Dried and fresh fruit added
- Different types/quantities of ingredients used e.g. types of fat, flours, sugar to change outcome
- Size of ingredients e.g. grated v chopped

Detailed answer

2 marks

Simplistic answers

1 mark

(4 marks)

Total for question

14 marks

6

(a)

What safety precautions should be taken by food workers when working with a blender when making soup?

- Keep away from water
- Follow manufacturers instructions
- Check condition of flexes/plugs
- Do not use with wet hands
- Do not leave flexes across water supplies
- Fit top securely
- Hold securely / securely based during use.
- Take care with hot liquids
- Keep fingers / clothing/hair away from blades
- Have training in correct use of equipment
- Equipment should be clean before/after use
- Personal safety precautions/ Wear clean, protective clothing
- Concentration during use/ do not leave unsupervised.
- Use suitable sized pieces of food.
- Check equipment has passed safety checks. PAT tests
-

Detailed answer, or mixture of simplistic and detailed answers

4 marks

Some detailed or several simplistic answers

3 marks

One detailed answer or two simplistic answers

1-2 marks

(4 marks)

(b)

What safety precautions should be taken by food workers when working with a grill when toasting a bread snack?

- Only switch on when ready for use
- Use of heat resistant handles/gloves
- Ensure grill is lit/ switched on correctly
- Check grill is working correctly
- Do not have open windows near naked flames
- If suspect gas leak: open windows, switch off
- Follow manufacturer's instructions for use.
- Never leave unsupervised/ concentration during use
- Have training in correct use
- Personal safety precautions e.g. clean, protective clothing
- Make sure grill is clean before/after use

Detailed answer, or mixture of simplistic and detailed answers

4 marks

Some detailed or several simplistic answers

3 marks

One detailed answer or two simplistic answers

1-2 marks

(4 marks)

Total for question

8 marks

7

(a) **Why is fresh cream classed as a high risk food?**

- Protein food e.g. dairy product
- Risk of contamination if not pasteurised
- Moist
- Short shelf life
- Easily contaminated if not kept at correct temperature/0-5C
- Provides ideal conditions for micro organisms/bacteria to develop/ may cause food poisoning

3 x 1 mark

(3 marks)

(b) **Describe two actions taken to control each of the hazards.**

* actions should relate to prevention not actions after the event.

Step	Hazard	Actions (give 2)
Buying fruit	Mould on strawberries	<ul style="list-style-type: none"> • Buy from reputable supplier • Check before buying • Use by date mark (do not accept 'fresh') • Stock rotation • When buying check stored in chill cabinet
Storage of milk	Milk tastes sour	<ul style="list-style-type: none"> • Keep in refrigerator • Cool 0-5C • Sealed/ Covered • Store in door or away from other raw foods • Check use by date • Stock rotation

Preparation of
milkshake

Whisk blades are
dirty

- Trained in cleaning routine
- Clean before /after use (not 'wash')
- Personal hygiene e.g. check no stray hairs from workers
- Thorough cleaning of area and equipment
- Rinse cleaning materials – no chemicals left on blades

3 x 2 marks

(6 marks)

Total for question

9 marks

8

Explain the meaning of the following symbols.

(a) The AFS symbol on the packaging

- Known as the Red tractor symbol
- A guarantee of quality/ shows food has been checked before sale.
- Found on animal, dairy, sugar, fruit and flour products.
- Foods carrying this label have complied with approved standards for food safety, hygiene, animal welfare, equipment used, animal foods, animal health, environmental and responsible use of pesticides, and waste.
- All products can be traced back to the farm /supply chain
- The union flag log indicates food has been produced in U.K./England

Detailed answer, or mixture of simplistic and detailed answers

2-3 marks

One detailed or two simplistic answers

1 marks

(3 marks)

(b) Vegetarian symbol

- Suited for vegetarians/ but not necessarily for vegans
- Mainly found on soya, cereal products, vegetables, fruit
- No animals killed for the production/meat free
- May help those who do not believe in eating animal foods
- People may be allergic to animal products
- May be against peoples' religion, therefore need to know if animal products used.

Detailed answer, or mixture of simplistic and detailed answers

3-4 marks

One detailed or two simplistic answers

1-2marks

(4 marks)

(c) Fair trade symbol

- Supports trade from other countries
- Supports workers rights in 3rd world countries
- Grown from reputable, registered farms
- Better deal for 3rd world food producers.
- Trade support for developing countries
- Guarantee that disadvantaged farmers and workers are getting fair deal.
- Profits / money regenerated into local community projects, e.g. schools, medical centres
- Food is not made/produced in this country

Detailed answer, or mixture of simplistic and detailed answers

2-3 marks

One detailed or two simplistic answers

1 marks

(3 marks)

Total for question

10 marks

Total for paper

125 marks