



General Certificate of Secondary Education

Design and Technology: Food Technology 3552

Short Course Higher Tier

Mark Scheme as of 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) Explain how manufacturers could use the internet when designing and making a new range of hot drinks.

- Research competitors products
- Use of e mail / facilities to speed up communication
- Analyse existing products/recipes e.g. Identify price range
- Nutritional analysis e.g. to find out more about special diets
- Packaging simulations
- Collect information e.g. images/ data/costings/weights of ingredients
- Use websites e.g. Assess popularity of existing products
- Identify new ingredients e.g. recipe ideas/product ideas
- Sourcing of ingredients

4 x 1 mark

(4 marks)

(b) What other types of electronic media may be used when researching existing products?

- E mail to contact manufacturers
- Digital camera
- Digital TV/ TV
- CD roms / software programmes
- DVD
- MP3
- EPOS electronic point of sale
- Video/camcorder
- Answers may give examples of use
- Other relevant answers e.g. radio, scanner, telephone, texting

2 x 1 marks

(2 marks)

Total for question

6 marks

2

(a) Give reasons why manufacturers package food and drinks.

- To contain/ when transported/displayed
- To protect / against physical damage/ contamination
- To prevent tampering /sealing with foil/film etc
- For easy storage
- To preserve/extend shelf life/ cans/vacuum pack (not 'fresh')
- To advertise/ give information/ add appeal
- To identify – labelling information
- Examples of each gain extra credit

Up to five simplistic answers or several detailed , qualified answers

5 marks

Several simplistic answers or one detailed

2-3 marks

Simplistic answer

1 mark

(5 marks)

(b) Name four items of information that, by law, must be given on the packaging.

For example:

- Manufacturers name and address
- Weight
- Storage instructions
- Name of product
- Description of product
- Cooking instructions
- Ingredients – in descending order of weight

4 x 1 mark

(4 marks)(c) Explain why *polystyrene* is good for packaging hot drinks.**Polystyrene**

- Can be moulded into shape
- Protects from damage
- Available in different thicknesses
- Light
- Durable
- Heat resistant /good insulator

1 x 3 marks

(3 marks)

(d)

(i) Why is it important that this instruction is followed by consumers?

Once opened store in a refrigerator

- Avoid cross contamination
- Keep cool 0-5C
- Short shelf life
- Food safety
- Avoid cases of food poisoning
- Product heat treated: once opened needs to be treated as fresh product

2 x 1 mark

(2 marks)

(ii) Why is it important that this instruction is followed by café owners?

Use by...

- Food quality deteriorates after this date
- Retailers must remove from sale on this date
- Against the law to sell after this time
- Lowers risk of food poisoning – maintaining reputation of café
- Use for high risk foods which are likely to cause food poisoning

2 x 1 mark

(2 marks)

Total for question

16 marks

3

- (a) **Use notes and sketches to produce two different design ideas for a biscuit product which meet the above design criteria.**

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 special dietary needs e.g healthy option product (low fat, sweeteners, wholemeal flour etc), vegetarians, high energy, diabetics, allergies, intolerances, religious, cultures, age related, heart disease etc
- more than one flavour
- decorative coating e.g. enrobing
- suitability for batch production
- 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 and lack annotation 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) **is suitable for consumers with special dietary needs**

Answers may give examples relating to any of the following:

- Vegetarians/vegans
- Diabetics e.g. controlled carbohydrate/sugar
- Coeliacs e.g. gluten free
- Health option diets e.g. Reduced fat diets / low salt / low cholesterol /high fibre diets
- Lactose Intolerance diets e.g. Dairy free
- Non allergenic, e.g. nut free, additive free
- Age /culture/religion related
- Any other relevant dietary needs/cultures/ high energy

Detailed relevant answers 3-4marks

A mixture of full or simplistic answers 2 marks

Simplistic answer 1 mark

(4 marks)

(ii) has a variety of flavours

- Range of flavours identified e.g spicy, fruity, bitter, sour, salty, garlicky, different flavours of chocolate used etc
- Easily adapted to take alternative flavours

A full or 2 simplistic answers

2 marks

Simplistic answer

1 mark

(2 marks)

(c)

(i) Write a three-point product specification for your chosen idea.

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

- Portion size
- dimensions
- Weight given per portion/per product
- Number served given
- Storage instructions/temperatures
- Specific methods named
- Specific ingredient choices named
- Nutritional information, e.g. low salt / sugar / fat
- Packaging details /shelf life/ materials

3 x 1 mark

(3 marks)

(ii) Why is it important to evaluate the development of a new design idea against the product specification?

- check products meet criteria
- Identify quality of product/ engages consumer satisfaction/ future sales
- Identify potential improvements/changes
- Able to correct any errors prior to full scale making

2 x 1 mark

(2 marks)

- (d) **Describe two different control checks that could be used to make sure that your biscuits are of good quality.**

Answer may relate to any of the following;

- Cooking times
- Temperatures of making, storage of ingredients
- Sensory testing/Removal of inferior products/attributes
- Visual checks on ingredients/ sell by dates
- Visual checks on final product /size/shape/colour
- Weight checks using computers / digital scales
- Personal hygiene of workers
- Food safety. Storage of raw ingredients
- Work area hygiene – cleanliness of equipment
- Physical contamination checks, e.g. metal detectors
- Biological and chemical contamination checks, e.g. PH
- Other relevant checks

2 x 2 marks

Two full detailed answers

3-4 marks

Simplistic answer

1-2 mark

(4 marks)

(e) Use notes, sketches or flowcharts to describe the processes and control checks 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
- Preparing filling/ topping/decorations as relevant
- Dovetailing of tasks
- Named processes e.g. baking, grating, piping
- Finishing techniques

Control checks:

- timings
- temperatures
- food safety
- portion control
- safety precautions e.g. use of oven gloves
- checks on size, shape
- feedback
-

Detailed answer showing logical plans 8-10 marks

Detailed answer showing logical plans but with minor omissions 5-7 marks

Some parts of the answer may not be logical or be omitted 3-4 marks

Simplistic answer giving some relevant planning 1-2 marks

(10 marks)

Total for question 35 marks

4

(a) How are these ingredients suitable for consumers choosing a healthy option product?

- Wholemeal flour – high fibre, energy, iron, Vit B
- Sweeteners – reduced sugar content
- Polyunsaturated margarine – lower in saturated fats, heart disease, lower in cholesterol
- Skimmed milk, Low fat yoghurt – lower in fat, lower cholesterol, lower calories
- Eggs – protein, Vit A D, iron.
- Blueberries – fruit portion towards 5 a day, some Vitamin C, fibre
- Information on health links may be credited e.g. heart disease, dental caries, obesity, digestion, cancer etc

Detailed relevant answers

5-6marks

A mixture of full or simplistic answers

3-4 marks

Simplistic answer

1-2 mark

(6 marks)**(b)****(i) Why are bicarbonate of soda and baking powder used when making muffins?**

- They are raising agents
- Allow chemical reaction to take place/Co₂ produced
- Increase volume of mixture
- Bicarbonate of soda on its own would leave an unpleasant taste and yellow flavour
- Bicarbonate of soda has a quick reaction rate
- Provide aeration
- Gives light, soft, well risen texture to the product

2 x 1 mark

(2 marks)**(ii) Explain why it is important to combine the muffin ingredients quickly?**

- Reaction happens quickly
- Mixture will spoil / not rise if too long taken
- So that Co₂ does not escape in advance of baking
- Important for reaction to happen when mixture is in oven.

A mixture of full or simplistic answers

2 marks

Simplistic answer

1 mark

(2 marks)

(c) What are advantages of using tunnel ovens when baking a batch of muffins?

- consistency of outcome
- process can be timed accurately
- even colour for biscuits
- CAM more efficient than using human workforce/to make large quantities
- less human input due to computer control/ less human error
- different temperatures can be set for different stages of production
- cost effective after initial set up
- some tunnel ovens lead into cooling towers at the end for rapid cooling /saving time
- continuous flow for large scale production

Some detailed or several simplistic answers

3-4 marks

One detailed answer or two simplistic answers

1-2 marks

(4 marks)

Total for question

14 marks

5 (a)

(i) Explain one method of melting chocolate for coating biscuits in a test kitchen.

- May use
Microwave oven method –
- glass/plastic bowl,
 - short time,
 - break up chocolate
 - do not burn
- melting on hob -
- in a bowl
 - over pan of hot water
 - care not to boil dry
 - not to let water into chocolate

Some detailed or several simplistic answers

3 marks

One detailed answer or two simplistic answers

1-2 marks

(3 marks)

(ii) Why have yoghurt based coatings increased in popularity?

- Healthier option -Reduced fat content, fewer calories
- Lighter colour
- Smoother texture
- Sharper flavour
- Give more variety

Detailed answer

2 marks

Simplistic answers

1 mark

(2 marks)

(b) Describe how manufacturers may develop the sensory appeal of biscuits by using each of the following.

(i) a piping bag and nozzle

- Different shapes piped
- Different size nozzle can alter shape and appearance
- Add new designs e.g. lines, drizzle, stars, words
- Designs can appeal to different ages/occasions
- Use for base or topping

Detailed answer

2 marks

Simplistic answers

1 mark

(2 marks)

(ii) citrus fruit

- Adds flavour/ sharpness
- Sweet/sour balance
- Adds colour to biscuit
- Adds interest to topping/decorations
- Adds aroma
- Adds texture – zest, juice

Detailed answer

2 marks

Simplistic answers

1 mark

(2 marks)

(iii) a taste testing panel

- Can identify sensory appeal via taste
- Appearance
- texture
- Can record results
- Use to inform future design ideas
- Use different target groups
- Report on success of product

Detailed answer

2 marks

Simplistic answers

1 mark

(2 marks)

Total for question

11 marks

6

(a) Describe two actions taken to prevent each of the hazards.

Step	Hazard	Actions
Buying the fruit	Mould found 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	The 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.	<ul style="list-style-type: none"> • Cleaning routines • Quality checks • Thorough cleaning of equipment
		3 x 2 marks

(6 marks)

(b) Describe how retailers make sure that chilled drink products are kept at a safe temperature.

- Monitor temperatures in refrigerators
- Keep doors shut
- Rotation of foods
- Sensors, thermometers, alarms if temperatures drop
- Not putting hot foods inside refrigerators
- Stock rotation
- Not overloading cabinets

Detailed answer, or mixture of simplistic and detailed answers

One detailed or two simplistic answers

5 x 1 mark

(5 marks)

- (c) **Explain the meaning of the following label that is seen on milk products.**

AFS symbol

- 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

3 marks

One detailed or two simplistic answers

1-2 marks

(3 marks)

- (d) **Describe the health and safety rules to be followed by food workers when using an electric blender for mixing milkshakes.**

- 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
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Detailed answer, or mixture of simplistic and detailed answers

4 marks

One detailed or two simplistic answers

1-2 marks

(4 marks)

Total for question

18 marks

Total for question paper

100 marks