



General Certificate of Secondary Education

Design and Technology (Food Technology) 3552

Short Course Higher Tier

Mark Scheme

2006 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) World-class sporting events attract many people.
Name two different factors that affect the choice of foods made by**

- (i) competitors;
(ii) spectators.**

Factors affecting choice of foods:

Each answer may refer to:

- Age
- Gender
- Culture / tradition
- Lifestyle
- Type of sports event / endurance / hydration levels
- Indoor or outdoor events
- Personal preferences / likes / dislikes / appeal / interest
- Special dietary needs e.g. vegetarian, weight control, allergies
- Cost of foods on sale
- Amount of energy needed for event
- Season of year
- Hot or cold foods preferred
- Nutritional value of foods
- Advertising
- Size of portion
- Ease of use
- Any other answer as relevant to either sports person or spectator.

2 x 2 marks

(4 marks)

(b) How can manufacturers use computers to gather information about the food preferences of visitors from other countries?

Information from computer:

- email
- internet searches / websites
- comparative shops
- electronic sources e.g. CD roms
- market trends
- databases
- sales figures
- conferencing
- production of questionnaires, surveys
- clear presentation of results / use of Word processing / DTP / graphical images

detailed relevant answers

4 marks

a mixture of full or simplistic answers

2-3 marks

simplistic answer

1 mark

(4 marks)

2

A catering company is developing design ideas for savoury snack products for competitors at a sports stadium hosting world cup events.

The successful snack product must meet these design criteria:

- **include freshly made pastry, not ready made pastry**
- **have a savoury filling**
- **be high in energy**
- **be suitable to hold in the hand**
- **will meet the cultural needs of competitors.**

- (a) **Use notes and sketches to produce two different design ideas which meet the 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 4-5 marks

recognisable annotated sketch but some point omitted or repeated 3 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) Choose one of your design ideas to develop.
Explain how your chosen product meets the design criteria.**

- Calorie value
- Fat content
- Starch content
- Filling having high energy foods...
- May give examples of specific nutrients contained
- Cultural flavours
- traditional recipes
- May give examples of specific spices / flavours used
- linked with specified country
- small in size
- not too hot to hold, e.g. suitable for placing in a holder
- firm casing / will not break up easily, e.g. flaky pastry
- not too greasy
- has an outer structure to contain a filling, e.g. pastry
- convenient shape for holding
- filling – not too runny
- do not need cutlery to eat

A mixture of full or simplistic answers

3-4 marks

Simplistic answer

1-2 marks

(4 marks)

(c) Describe your chosen idea in more detail.

- (i) List the main ingredients needed to make your product.**
- (ii) Include the quantity of each ingredient needed.**
- (iii) Give a different reason why each ingredient is used.**

List of ingredients should reflect type of pastry product chosen:

Shortcrust: soft plain flour, mixture of fats, water, salt

Flaky :strong plain flour, mixture of fats, water, lemon juice, salt

Plus any fillings or finishes as per chosen design

Ingredients

List includes all main ingredients – workable recipe

2 marks

simplistic answer some omissions of main ingredients.

1 mark

(2 marks)

Quantities: use metric or imperial not a mixture of both.

shortcrust: 2 flour: 1 fat

e.g. 200g flour, 100 - 125g fat, water to mix, pinch salt

flaky: 4 flour: 3 fat

e.g. 200g flour, 130- 150g fat, water to mix, pinch salt, 2 tsp lemon juice

plus details of filling, finishing ingredients

List includes all correct proportions and weights of main ingredients

2 marks

simplistic answer some correct quantities of main ingredients

1 mark

(2 marks)

Main ingredients and reasons for use:

Flour for pastry

- shorterust: soft plain has low gluten content for short crumb
- flaky; strong plain has high gluten for stretchy dough, rolling. folding into layers.
- forms structure
- dextrinises (browns) when baked at high temperatures

Flour for sauces etc

- gelatinisation
- forms structure

Water

- binds rubbed in fats and flour together
- improves ease of rolling out/ moisture
- develops gluten when mixed with strong flour
- causes starch to gelatinise
- flaky: combines with gluten for stretchy dough.

Fat (named white / lard / butter / margarine)

- flavour
- colour
- nutritive value
- keeping quality enhanced
- coats flour / shortening texture / adds richness

Salt

- develops flavour
- flaky: gluten strengthened

Lemon juice

- strengthens gluten
- counteracts fat

Ingredients for filling, finish may include reasons for use as appropriate:

- flavour
- colour
- texture
- enriching
- adding moisture / decorate / garnish / suitable accompaniment to make dish nutritionally balanced
- add nutritional value – any named nutrient acceptable
- any correct relevant answers that identify different reasons from others given.

Functions should offer different responses for full marks.

Includes correct functions for all / most ingredients

simplistic answer some omissions

3-5 marks

1-2 marks

(5 marks)

- (d) Produce a plan for making your chosen idea in the test kitchen.
Include details of processes and control checks used.**

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

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.

- preparing self and kitchen
- preparing pastry
- preparing filling
- assembling filling and pastry
- cooking pastry product

Other aspects to identify:

- specialist terminology – named processes
- timings
- temperatures (200-220C)
- hygiene considerations
- safety precautions
- safety checks
- finishing techniques
- 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)

3

A test kitchen uses the following pastry products to gather ideas for a new range of cheese based pastries.

(a) Name and describe a method of sensory testing used to find out which product consumers prefer

- name method
- how results are recorded
- analysed
- aims
- number of testers
- fair testing

Mixture of simplistic and detailed answers

3-4marks

Simplistic answers

1-2 marks

(4 marks)

(b) Explain how the testers will ensure that the test is fair.

- Control samples
- Same quantities
- Same ingredients
- Same conditions for storage / cooking / preparation
- May give examples of consistent approach
- Use blindfolds
- Separate booths
- Cleanse palate with bland food or drink

Detailed answers

2 marks

Simplistic answer

1 mark

(2 marks)

- 4 **The table below shows food facts for two similar pastry products.**
(a) Explain which product provides the healthier option.

Product A may be healthier choice because:

- Less energy
- Slightly less carbohydrates
- Slightly more protein – growth / repair
- Lower fat / considerably reduced fat pastry content – lowers risk of heart disease
- Reduced fat cheese – full fat cream cheese in B
- More fibre – aids digestion
- Uses fresh flavours tomato / herb rather than artificial flavours – onion flavouring
- May refer to figures in the table as example or specify target groups.

May also choose Product B if qualified and appropriate response given e.g. linked to target group.

Detailed answers giving facts and reasons

5-6 marks

Mixture of simplistic and detailed answers

3-4marks

Simplistic answers

1-2 marks

(6 marks)

- (b)**
(i) What does the following information mean?

Use by:

- product **MUST** be eaten / consumed by the given date / legal requirement
- danger of food poisoning if eaten after this date
- safety of food product not guaranteed after given date.
- Warns that food may be a high risk food / short life products

Best before:

- product may be eaten after the given date
- date warning to consumers / legal requirement
- Quality of the product is lessened after date given.
- May be found on lower risk foods / long life products / ambient / frozen

Detailed answer

2 marks

Simplistic answers

1 mark

2 x 2 marks

(4 marks)

(ii) Why is datemarking information important

For consumers,

- Gives warning / legal requirement
- information on shelf life of product
- Helps to prevent food poisoning

for supermarkets?

- Information on how long the retailer can put food on sale
- Legal requirements must be met
- Against the law to sell food after sell by date / may be sued
- Helps with stock rotation
- Foods will only be sold within date given

Detailed answers or mixture of detailed / simplistic answers

2 marks

Simplistic answers or one detailed

1 mark

2 x 2 marks

(4 marks)

5 Manufacturers of food products often use standard components.

(a) Name two different ways flaky pastry is sold as a standard component.

- Frozen
- Packet ready made dried
- Block ready made
- Vol au vents / pastry cases ready prepared
- Chilled
- Ready rolled
- Made up products ready to cook, e.g. pasties
- Do not accept 'fresh'

2 x 1 mark (2 marks)

(b)

What is the correct storage temperature for the following standard components?

- frozen vol au vents -18C domestic freezer or -28C if industrial
- tin of fruit pie filling 20-25C / ambient temp (accept any temp in this range)
- cheese 0-5C refrigerator (accept any temp in this range)

Do not accept refrigerator, freezer or room temperature.

3 x 1 mark (3 marks)

(c) Explain how standard components help to give a consistent outcome.

- consistency
- if from same supplier guarantee of continual quality
- same shape
- same size
- same ingredients used

Detailed answers or mixture of detailed / simplistic answers

3 marks

Simplistic answers or one detailed

1-2 marks

(3 marks)

- 6 (a) **Control checks are made on different batches of salmon and prawn filo parcels.**
Problems found during the checks are listed below.
- (i) **Give one cause of each problem.**
- (ii) **Explain how the problem may be prevented.**

Problem	(i)cause	(ii)prevention
Pastry is dry and breaks	<ul style="list-style-type: none"> • Incorrect proportions of ingredients • Over handling • Overcooking / time / temp 	<ul style="list-style-type: none"> • Weigh accurately • Monitor working temp / keep cool / moist • Training staff • Quality control checks
Filling leaks out	<ul style="list-style-type: none"> • Incorrect seal • Not used water to join edges • Too much filling / insufficient pastry • Pastry too thin / torn • No steam vent 	<ul style="list-style-type: none"> • Accurate weighing of filling • Quality control checks • Training of staff • Sealing of edges
Pale product	<ul style="list-style-type: none"> • Incorrect choice of fat in pastry • Not finished with egg / milk • Not cooked long enough / hot enough 	<ul style="list-style-type: none"> • Cook for longer / higher temp • Add finishing technique • Change to butter / margarine instead of white fats

3 x 1 mark

3 x 1 mark

(6 marks)

(b) Results from critical control checks are shown below.

(i) Identify the cause of contamination in each example.

(3 marks)

(ii) Suggest one way of preventing the contamination.

(6 marks)

	(i) Cause	(ii) prevention
Mould on filling	Biological	<ul style="list-style-type: none"> • store at correct temperature / time • check condition of raw foods before use – visual check • good personal hygiene • staff training • check use by date • stock rotation
Metal detected	Physical	<ul style="list-style-type: none"> • check on condition of equipment used • check staff do not wear jewellery
PH alkaline	Chemical	<ul style="list-style-type: none"> • remove all traces of cleaning materials • regular checks on equipment, work surfaces • routine procedures for cleaning food preparation areas • safe storage of cleaning materials

(c) Explain why some control checks are made by computers.

- saves manufacturer time
- less staff
- more reliable
- less human error
- easier for monitoring
- alerted immediately if problems
- credit specific examples, e.g. for temp, time, control, weight checks, PH, metal detection

Detailed, well explained answers or several simplistic

3-4 marks

Simplistic answers lacking detail

1-2 mark

(4 marks)

(d) Describe how the use of colour coded equipment may help prevent the contamination of foods.

- Prevents cross contamination
- Colour coded knives / boards allow different foods to be prepared separately
- May give colours used for raw meat (red) / cooked meat (yellow) / vegetables (brown) / bread (white) / fish (blue) / salad (green)
- Keeps foods apart so that bacterial infection not at risk
- High risk foods kept separately

Detailed answer or mixture of simplistic / well explained answers

3 marks

Simplistic answers lacking detail

1-2 marks

(3 marks)

7

Explain how manufacturers could develop food products that are suitable to meet the nutritional and cultural needs of competitors and spectators at world-class sporting events.

Similar needs of both competitors and spectators noted.

- different portion sizes
- different price ranges
- range of international flavours
- range of religious cultures catered for e.g. halal
- appeal to different age groups
- appeal to different social needs GM, Organic

Different needs noted between competitors and spectators

Competitors:

- Nutritionally balanced
- Different needs before, after and during events
- Needs may vary according to type of sporting event
- Needs may vary according to endurance of event.
- Need for protein to replace / repair cells / secondary source of energy
- Carbohydrates for effective energy release
- Glucose as a quick energy release
- Low in saturated fat and cholesterol
- May use alternative proteins, e.g. soya, tofu...as healthier substitutes for meat
- and suited to vegetarian competitors
- Fish for fatty acids, low sat fat
- Calcium rich products to aid strength on bones
- High vitamin rich foods, for general good health
- Iron rich foods to carry oxygen through blood
- Water to prevent dehydration, assist digestion, absorption
- May mention a range of nutritious foods with justified functions

Spectators:

- Healthy option choices: low fat, low sugar for spec, high for competitors, low salt, high fibre

Credit may be given for answers that detail methods for carrying out developmental testing,

- use of research e.g. surveys, questionnaire
- testing/ trialling of ideas
- use of results for development

Detailed logical communication covering both competitor and spectator needs	7-9 marks
Detailed answer or mixture of simplistic / well explained answers	4-6 marks
Simplistic answers lacking detail	1-3 marks

(9 marks)

Total for Paper 100