



**General Certificate of Secondary
Education**

*Design and Technology:
Food Technology*

Specimen Mark Scheme

The specimen assessment materials are provided to give centres a reasonable idea of the general shape and character of the planned question papers and mark schemes in advance of the first operational exams.

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.

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Section A

- 1 (a) (i) **sketch two different design ideas for a suitable Wrap or Roll bread product,**
(a) (ii) **annotate your sketches to show how your design ideas meet each of the given design criteria.**

For each sketch:

- Design ideas should be for a SAVOURY, WRAP OR ROLL PRODUCT.
- Ideas should be communicated through sketches, including 2D, 3D or cross section.

Annotation should show:

- suitability for a savoury e.g. uses cheese, meat, egg, vegetables etc
- suitability for eating without cutlery e.g. small size, hand held, not sticky, enclosed in wrap...
- Suitability for providing sensory appeal e.g. aroma, colour, texture, shape, variety of flavours, finishing techniques...

Credit may also be given for extra design information e.g.

- finishing techniques, cooking / preparation methods, portion control.
- mention of the target group product is aimed at e.g. vegetarian.

For each sketch:

Recognisable sketch / annotation showing good communication of main features and fitting all the design criteria for a relevant product
(5 - 6 marks)

Sketch / annotation shows basic ideas for a relevant product that meets most of the design criteria – but may not be clearly communicated
(3- 4 marks)

Sketch and/or annotation attempted but only one design criteria met. May be an inappropriate choice of product

(1- 2 marks)

No response worthy of credit **0 marks**

2 x 6 marks

(12 marks)

(b) (i) Using flowcharts, notes and / or diagrams produce a plan for making your chosen design idea in the test kitchen.

Candidate should show an awareness of different aspects of planning that make up a production system e.g. at least one reference to some of the following may be included:

- Clear, logical schedule
- Specialist terminology-named processes
- Key times
- Key temperatures
- Personal hygiene
- Kitchen hygiene
- Food hygiene
- Safety points for workers
- Control checks QC size, shape etc
- Feedback from control checks
- Finishing techniques used

***Do Not** credit packaging, metal detection or bulk production as this is a test kitchen

Answer showing logical plans, with a clarity of instruction and detail
(7- 8 marks)

Logical planning with a range of different information covered
(5 - 6 marks)

Some parts detailed, may not be logical, some key areas for successful production omitted **(3- 4 marks)**

Simplistic answer giving limited relevant planning **(1 - 2 marks)**

No response worthy of credit **0 marks**

(8 marks)

(ii) Explain why control points are important.

- Consistency of product / making sure all products are the same
- To produce a high quality product
- To ensure the product is made to design criteria/specification
- To compare the product to the specification
- Other relevant responses

Answer gives a full explanation giving 2 key points or an extended answer e.g. consistency, making sure all products are exactly the same **(2 marks)**

Answer is simplistic and only gives one key response e.g. consistency **(1 mark)**

No response worthy of credit **0 marks**

(2 marks)

(c) (i) Complete the table below to show two other main ingredients used to add nutritional value to the chosen design idea. Give a different reason why each ingredient is used.

Examples as follows – other correct answers are also acceptable

Ingredients	Nutritional profile
Strong flour – example given (yeast and sugar are not classed as main ingredients)	Carbohydrate for energy
Water	Water to aid digestion /body fluids
e.g. raw filling ingredients as described in the design idea.e.g. cheese, egg, tuna, chicken, named salad ingredients.	Protein for energy, repair, growth Fat for energy, warmth, protection, Carbohydrate for energy, Vitamin A for healthy eyesight, mucus membranes Vitamin B for energy
Standard components may be included	Vitamin C for general good health, iron absorption Vitamin D for calcium absorption ,
*No marks for names of ingredients	Iron for healthy blood , Calcium for healthy bones and teeth Etc simple functions to be credited as relevant to foods chosen.

For each ingredient noted:

Named relevant nutrient and function in the body. **(2 marks)**

Named nutrient or function in the body **(1 mark)**

Incorrect answer **(0marks)**

2 x 2 marks

(4 marks)

(ii) Analyse your design idea and suggest ways in which it can be adapted to meet the needs of consumers who need to follow a special diet due to food intolerances or allergies.

Credit to be given for showing awareness of food intolerances and allergies. Answers may relate to any relevant special diets or one diet in more detail.

- Credit identification of special dietary needs e.g. lactose intolerance, coeliacs, nut allergy etc
- Credit identification of foods related to stated intolerance / allergy, e.g. Lactose intolerance- related to dairy products / coeliacs – intolerance to gluten/allergies to nuts, additives
- Explanations of adaptations candidate would make to design idea to make them suitable for consumer with food intolerance or allergy, e.g. removing ingredient causing intolerance and what they would be replacing them with, e.g. removal of dairy products, use of gluten free flour, making sure no products including nuts were prepared in same production area...

Detailed answers giving named dietary condition/s, explanation and adaptation ideas with design idea clearly analysed and relevantly related to the suggested adaptations. **(4 marks)**

Answer gives named special diet and /or explanation of diet and/or adaptations, including some analysis although this may not be relevant or related fully to the adaptations suggested. **(2 - 3 marks)**

Basic answer giving a suggestion for adapting design idea or mentions information relating to dietary needs; answer contains little or no analysis of their own design idea **(1 mark)**

No response worthy of credit **0 marks**

(4 marks)

SECTION B

2 (a)

(i) Using the information shown in the table, name two cheese products that have become more popular since the 1980s.

Any two from: cottage cheese, Edam, Mozzarella
 No response worthy of credit **0 marks**

(2 marks)

(ii) Give two detailed reasons why these have become more popular.

Examples could include:

Simplistic answer	Detailed answers may also give
<ul style="list-style-type: none"> • Changes in consumer preferences • More foreign holidays • More travel opportunities • Multi cultural society • More availability • Higher sales from multi cultural breads 	<ul style="list-style-type: none"> • People more aware of foreign foods • Because consumer experiment more with food • Because of new technology better distribution, transport for raw materials

Answers well explained or may give four simplistic answers e.g. "people travel more and are more aware of foreign foods. Also our country has more multi cultural people living here and they buy more of these cheeses". **(4 marks)**

One detailed answer or two simplistic answers **(2 - 3 marks)**

Simplistic answer e.g. people travel more **(1 mark)**

No response worthy of credit **0 marks**

(4 marks)

(iii) Consumers are now more aware of the need for healthy eating. Evaluate how this has affected the sales of some types of cheeses, using the information in the table to help you.

- Advice on low fat diets has led consumers to buy cheeses with a lower fat content
- E.g. cottage cheeses, softer cheeses.
- Consumers are aware of the health risks e.g. heart disease
- Consumers are more aware of the fat content of cheese
- Higher fat cheeses have lost sales
- E.g. Cheddar
- People may still be buying high fat cheeses but will buy smaller amounts
- Consumers will buy other foods instead.
- Consumers may buy reduced fat or 'lite' products rather than traditional
- Sales of vegetarian cheeses have increased as there are more vegetarians

Answer is well explained or may include three of the given answers. Evaluation is clear and makes correct use of the information in the table. **(3 marks)**

One detailed answer or two given answers; the table is either used in a simplistic or limited fashion and some of the evaluation may not be entirely correct. **(2 marks)**

Simplistic answer e.g. people buy more low fat cheeses; candidate evaluates very simply and makes little if any use of the table. **(1 mark)**

No response worthy of credit **0 marks**

(3 marks)

(b) (i) Using notes and/or sketches describe one method of sensory testing that may be carried out on these samples.

Descriptions / sketches may include/show:

- Place where carried out
- Type of people to ask / target group / audience / public
- Number of people asked
- Fair testing considerations e.g. sips of water, quiet area, booths, small samples, random labelling
- How results are recorded
- Analysis of results / data
- Conclusions drawn from results
- How results may benefit future product design

At least 4 of the given answers included some of these in detail **(4 - 5 marks)**

Answer includes at least 2 -3 of the given answers; some may be in detail **(2- 3 marks)**

Simplistic basic answer given **(1 mark)**

No response worthy of credit **0 marks**

(5 marks)

(ii) The results of testing two cheeses for suitability for a toasted snack are shown. Analyse the results and suggest how these may be used by the manufacturer.

- To compare different design ideas
- To identify consumer preferences
- To compare product to specification
- To improve product
- To develop new/future products
- Conclusion drawn: comments on which is most suited cheese and why e.g. results show that...
- to plan further testing / trialling with target consumers
- to compare results with previous product testing

Other relevant answers acceptable

At least 4 of the given answers included, some of these in detail, and with clear and accurate analysis of the results

(4 - 5 marks)

Answer includes at least 2 -3 of the given answers some may be in detail: partially or partially correct analysis of the results.

(2- 3 marks)

Simplistic basic answer given, with poor quality analysis of the results **(1 mark)**

Incorrect answer **(0 marks)**

(5 marks)

(iii) Explain how the results of sensory testing are used by manufacturers.

- To compare different design ideas
- To identify consumer preferences
- To compare to other manufacturers/brands
- To identify market trends
- To compare product to specification
- To improve product
- To develop new products
- Conclusion drawn from results
- to benefit future product design
- to plan further testing / trialling with target consumers
- to compare results with previous product testing
- Other relevant answers

Detailed answer or two or more of the given answers answer

(2 - 3 marks)

Simplistic answer from those given **(1 mark)**

No response worthy of credit **0 marks**

(3 marks)

- 3 (a) Name the ingredients that are most suitable for use in each of the products below.
Give a detailed reason for your choices.**

Sponge cake:

Choice: sugar; castor sugar (1 mark)

Reasons:

- Finer grain
- Easier to cream
- Smoother texture
- Larger grains may give speckled texture

Answer gives 2 or more of the given answers **(2 marks)**

Basic answer giving one of the given points **(1 mark)**

Fat for pastry:

Choice: fat butter / margarine lard / mixture

Reasons:

- Adds colour
- Adds nutritive value / vit A, D
- Adds to shelf life
- Shortening properties

Answer gives 2 or more of the given answers **(2 marks)**

Basic answer giving one of the given points **(1 mark)**

Well risen loaf of bread

Choice: Strong wholemeal

Reasons:

- Contains protein 'gluten'
- Gluten stretches to hold CO₂ produced by the yeast
- Gluten coagulates to form the structure of bread.
- To improve elasticity
- To assist rising / light open texture

Answer gives 2 or more of the given answers **(2 marks)**

Basic answer giving one of the given points **(1 mark)**

No response worthy of credit **0 marks**

(9 marks)

(b) Explain why flour is used as a thickening agent in a basic white sauce.

- When heated –
- Starch grains absorb the liquid
- Swell
- Eventually burst and thicken the mixture
- Causing gelatinisation to take place

Any two points **(2 marks)**

One point given **(1 mark)**

No response worthy of credit **0 marks**

(2 marks)

(c) A basic lasagne product is made up of layers of pasta, meat sauce and white sauce.

In the boxes below, describe different ways a basic lasagne product could be developed to meet the needs of the following consumers.

You may use notes and / or annotated sketches to show each development idea.

(i) a consumer who follows healthy eating guidelines

Describes/annotates sketch to show:

- Products chosen must include a sauce based dish, .e.g. gratin dishes, Pastry cases with fillings, croquettes, sauce served with main course, e.g. fish and parsley sauce.
- Type of fibre rich ingredient added to sauce e.g. wholemeal flour, topping or base of vegetables, breadcrumbs etc in order to add fibre to the product.
- Low fat ingredients e.g. skimmed milk, reduced fat ingredients
- May include serving ideas e.g. foods product is served with as part of full meal such as vegetables to show products as part of Eat well plate
- Other information about the developed idea may include finishing technique, nutritional information, portion size, sensory details etc
- Identifies how menu idea meets needs of consumer e.g. age related nutritional needs e.g. protein for repair, fibre rich foods identified, vitamins, minerals, not spicy etc
- Other relevant information

Sketch and/or notes show suitable choice of product, addition of flavouring and additional information about the menu idea. Includes answer relating to why it is suitable for the given consumer.

(4 marks)

Sketch and/or notes show suitable choice of product , addition of flavouring and additional information about the idea

(2- 3 marks)

Sketch and/or notes show suitable choice of product plus either addition of flavouring or additional information about the idea answer from those given **(2 marks)**

Sketch and/or notes show suitable choice of product only **(1 mark)**

No response worthy of credit **0 marks**

(4 marks)

(ii) a consumer who follows a vegetarian diet

Describes/annotates sketch to show:

- Products chosen must include a sauce based dish. e.g. gratin dishes, Pastry cases with fillings, croquettes, sauce served with main course e.g. cauliflower cheese. Without the use of meat or fish.
- Type of flavour added to sauce e.g. cheese, parsley
- May include serving ideas e.g. foods product is served with as part of full meal such as vegetables to show products as part of Eat well plate
- Other information about the developed idea may include finishing technique, nutritional information, portion size, sensory details etc
- Identifies how menu idea meets needs of consumer e.g. age related nutritional needs e.g. protein for growth, vitamins, energy etc for children, soft texture easy to eat
- Other relevant information

Sketch and/or notes show suitable choice of product , addition of flavouring and additional information about the idea. Includes answer relating to why it is suitable for a vegetarian.

(4 marks)

Sketch and/or notes show suitable choice of product, addition of flavouring and additional information about the idea

(2 - 3 marks)

Sketch and/or notes show suitable choice of product, plus either addition of flavouring or additional information about the idea answer from those given **(2 marks)**

Sketch and/or notes show suitable choice of product only **(1 mark)**

No response worthy of credit **0 marks**

(4 marks)

4

(a) (i) Describe three standard components used in chicken curry and rice products.

Jar / packet / tins of curry sauce

Jar / tin / packet of curry spices

Jar / tin / packet of spices e.g. curry paste, powder

Ready prepared / chopped / sliced chicken

Ready prepared / chopped / sliced vegetables

Frozen vegetables

Boil in bag rice

Packet savoury / flavoured rice

Other relevant answers e.g. ready made naan breads or curry accompaniments

Any 3 answers from list given (3 x 1 mark)

No response worthy of credit **0 marks**

(3 marks)

(ii) Evaluate the advantages and disadvantages of using standard components.

Advantages

- Saves time – ready for use
- Saves energy – ready for use, less staff/fuel needed
- Consistent product – quality controlled
- Good if staff do not have the skills needed
- Good if equipment needed to make product is not available
- Saves purchase / storing of raw ingredients
- Cost effective compared to making fresh product
- Avoids cross contamination on the production line.
- Any other relevant answer

disadvantages

Not reputable supplier	Production may be held up
Not as fresh as home made	May not be liked by consumers
Cannot change specification	Loss of sales
Expensive	Consumers cannot afford
Needs extra storage space	Premises not big enough
Extra packaging	Not green product
Food miles used	Product may become too expensive
Extra transport costs	Extra costs
Other relevant answers	Other relevant answers

Advantages and disadvantages given with relevant and detailed analysis

(4 marks)

Candidate gives both advantages and disadvantages, but looks at one area in more depth and analysis may be omitted or weak

(3 marks)

Candidate looks at one advantage and disadvantage in basic details, or either of the two in more depth. Analysis is limited.

Only one disadvantage or disadvantage given without analysis

(1 mark)

No response worthy of credit **0 marks**

(4 marks)

- 4 (b) (i) Complete the table below to show two causes of each problem how each problem may be prevented.

Problem	Cause	Prevention
The chicken is moist and pink inside	-insufficient cooking -not fully defrosted before use -temp too low -cooking time too short -control checks not completed	-check fully defrosted before use -sufficient cooking time -relevant cooking temp -use of food probe to check cooking
An insect is found in the rice before cooking	-Poor hygiene standards -Rice not covered during storage -Incorrect storage -Damaged packaging -insufficient control checks	-check rice before use -Use insect repellent -Routine hygiene inspections -regular hygiene checks -visual checks

The causes of each problem

Any two of given causes (2 marks)

Any one of given causes (1 mark)

2 x 2 marks

How each problem may be prevented

Any two of given preventions (2 marks)

Any one of given preventions (1 mark)

2 x 2 marks

No response worthy of credit **0 marks**

(8 marks)

- (ii) Explain why food manufacturers use Computer Aided Manufacture (CAM) to help carry out control checks.

- Less human error. more reliable
- Cheaper than employing extra staff /in long term
- Greater accuracy
- Quicker
- More consistent
- Can be carried out when human not present 24/7
- Clearly presented results
- Can make changes easily
- Other relevant answer

Any three of given answers (3 marks)

Any two of given answers (2 marks)

Any one of given answers (1 mark)

No response worthy of credit **0 marks**

(3 marks)

- 4 (c) (i) Give one example of a food or ingredient which could be developed by using nanotechnology.**

1 mark for any suitable food or ingredient such as butter, margarine, cheese, bacon, red meat, sausages, cream, lard, cooking oil, olive oil, mayonnaise etcetera

(1 mark)

- (ii) Explain why some manufacturers would use nanotechnology when developing this food product or ingredient.**

3 marks for detailed explanations covering areas such as health issues, cholesterol, animal fat, heart disease, diabetes, obesity, potential developments for other food products that they produce, such as for sports or three separate points explained clearly
2 marks for two of the above points or one point well explained
1 mark for a very general simple answer, which may not be explained clearly.

(3 marks)

5 (a) (i) What is meant by a consistent product?

- All products are the same
- Every time produced

May indicate similarities

- in size,
- shape,
- colour,
- portion size
- other relevant answers

More detailed answer e.g. products are all the same, every time

(2 - 3 marks)

Simplistic answer e.g. products are all the same **(1 mark)**

No response worthy of credit **0 marks**

(3 marks)

(b) Explain how the following equipment are used to produce a consistent product.

(i) a food processor with attachments when making soups

- Use of speed controls
- Accuracy of outcome if time/speed controlled
- Standard size of vegetables
- Same standard of blending
- Reduced human error
- Results can be replicated each time
- Overcomes operator tiredness
- Attachments overcomes operators lack of skills

More detailed answer e.g. use of speed controls means that you can repeat the exact actions again without error

(2 - 3 marks)

Simplistic answer e.g. products are all the same **(1 mark)**

No response worthy of credit **0 marks**

(3 marks)

(b.ii) non stick baking tins for making sponge cakes

- Results can be replicated each time
- Accuracy
- Same size each time
- Same shape every time
- Non stick finish means better shape /same quality finish

More detailed answer e.g. products are all the same, every time

(2 marks)

Simplistic answer e.g. products are all the same **(1 mark)**

No response worthy of credit **0 marks**

(2 marks)

(iii) electronic scales for biscuits

- Results can be replicated each time
- Less human error
- Accuracy in weighing /portion control
- Same size product each time
- Production method will work each time if proportions of ingredients are correct

More detailed answer e.g. products are all the same, every time

(2 marks)

Simplistic answer e.g. products are all the same

(1 mark)

No response worthy of credit **0 marks**

(2 marks)

6

(a) Explain the meaning of the following information often seen on the packaging of egg custards.

(i) Use by 25.10.09

- Given as a warning / on high risk foods / short shelf life products
- Indicates food must be consumed by this date
- After this date food is not safe to eat
- May increase risk of food poisoning after date given
- Legal requirement for this to be shown

Up to three of given answers, or less with extra detail given
(2-3 marks)

One given answer **(1 mark)**

No response worthy of credit **0 marks**

(3 marks)

(ii) V

- Indicates product is suitable for vegetarians
- No use of meat or fish
- Warns consumers
- May not be suitable for vegans as may still use animal products
- May give extra consumer detail of reasons for vegetarianism

Up to three of given answers, or less with extra detail given
(2 - 3 marks)

One given answer **(1 mark)**

No response worthy of credit **0 marks**

(3 marks)

(iii) May contain wheat, gluten, eggs or milk

- Given as warning / raising awareness
- Danger foods for some consumers
- Allergy advice information
- Indicates place where made may have had these ingredients on the production line previously
- These ingredients may have been used in product or appear on the ingredient list.

Up to three of given answers, or less with extra detail given

(2 - 3 marks)

One given answer **(1 mark)**

No response worthy of credit **0 marks**

(3 marks)

(b) Analyse how manufacturers ensure that the packaging they use is environmentally friendly and supports sustainable resources.

- use of packaging materials that are environmentally friendly
- re use of recyclable materials
- use of biodegradable materials
- e.g. paperboard, plastics, aluminium
- labels to show advised disposal methods
- keep packaging to minimum
- green issues followed by manufacturer show on packaging
- packaging materials used support sustainable resources e.g. rain forests
- use of local ingredients
- use of ingredients from third world countries
- reduction in food miles
- less fuel costs

Three or more points provided, some given with more detail.

Analysis is clear and relevant. Response is well structured with good use of appropriate Design and Technology terminology and shows a good grasp of grammar, punctuation and spelling.

(5 - 7 marks)

Several simplistic points given, or two may be given in more detail. There is straightforward analysis, although not necessarily of all the points given. Shows some understanding of the issues. Response is fairly well structured with some use of Design and Technology terminology and with a small number of errors in grammar, punctuation and spelling. **(2 - 4 marks)**

Simplistic point given with no or inaccurate analysis, e.g. use less packaging. Response is structured poorly with little or no use of Design and Technology terminology and with numerous errors in grammar, punctuation and spelling. **(1 mark)**

No response worthy of credit **0 marks**

(7 marks)