



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme

June 2003

GCSE

Design and Technology

Food Technology

3552 (Short Course)

Foundation

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DESIGN AND TECHNOLOGY: FOOD TECHNOLOGY

Short Course – Foundation TierQuestion 1

a) Answers may refer to any burger product: fresh, frozen, chilled

advantage	reason
Convenient Consistent: size/ shape/ flavour	If consumer lacks personal culinary skills
Saves time	Many processes already completed
Saves energy	Much preparation complete
Gives variety	Offers wide range of products and flavours Cater for a range of consumers tastes
Good for emergencies/ last minute	Some have extended shelf life due to packaging May be stored for use in future
Labelling gives consumer information e.g. storage, nutritional values, serving suggestions	Enables correct, safe preparation, cooking, informed choices
Value for money/ cheaper/ expensive	Convenient for all incomes/ working families disposable income for use on convenience foods
Guaranteed quality- taste, shape, quantity	Less risk of food poisoning or inferior products if from reputable supplier
Any other relevant answer	With relevant reason

Three relevant advantages well explained.

5-6 marks

Two detailed answers showing clear understanding

3-4 marks

Or mixture of simplistic and detailed answers.

Simplistic answer showing some understanding.

1-2 marks

6 marks

- b) Focus is on types of information and on the software programs enabling information to be found.

Use of computers for gathering information:

- use of Internet for searches/ comparative shop/ costings
 - Internet/ Email to contact other people/ manufacturers
 - Word processing for production of surveys/ questionnaires
 - DTP for producing surveys and questionnaires
 - spreadsheets to communicate results as graphs/ charts
 - nutritional/ product analysis programs to investigate product characteristics
 - Databases to give information on products/ customers
 - CD roms (not disks) as information sources
 - Digital cameras- photographs for research
 - bar coding
 - CAD
 - CAM
 - traceability of ingredients
- any other relevant correct answer.

Two detailed answers showing clear understanding or mixture of simplistic and detailed answers.

3-4 marks

Simplistic answer showing some understanding.

1-2 marks

4 marks

Total 10 marks

Question 2

- a) Answers must relate to the chart results.
No marks for 'burger product' as these are given in rubric
- served with a bread product
 - suitable for children
 - offers a variety of flavours

3 x 1 mark

3 marks

- b) Answers should include notes or labelled sketches.
Product must be based on the design criteria given in a).
Work should communicate design ideas for a burger that gives a variety of flavours, is served with a bread product and is suitable for young children.

Responses may include 2 or 3D labelled sketches or prose showing the main features of the product e.g. cross sections, dimensions, flavour, shape, texture, colour, ingredients, finishing techniques, cooking methods, addition of sauces, garnish.

Recognisable sketch/ prose shows good communication of the main features of relevant product. 4-5 marks

Sketch/ prose shows basic ideas for a relevant product but not clearly communicated. 3 marks

Sketch attempted but inappropriate product chosen. 0-2 marks

5 marks for each design idea

10 marks

- c) **No marks awarded for choice of best idea.**

Explanation of how the product meets the design criteria.

- how product meets the needs of children e.g. reference to shape/ size/ flavour/ dietary needs
- how it is a burger style product e.g. reference to shape, size, type of ingredients
- how products provides a variety of flavours e.g. reference to different flavours in burger/ bread products
- type of bread product chosen e.g. suitability of shape/ size

A number of simplistic answers or one/ two detailed answers showing clear understanding. 3-4 marks

Simplistic answer showing some understanding. 1-2 marks

Maximum of 2 marks for straight repetition of design criteria with no qualification.

4 marks

- d) i) Work should communicate information related to the **bread product** only.
Only main ingredients requested therefore vit C tablets, flavourings, decoration not relevant.

Ingredient	Why used
Flour- plain, wholemeal, granary, strong not self raising.	Bulk, add fibre, texture, colour as appropriate, forms structure and shape
Fat - marg./ butter/ lard/ oil	Lengthen shelf life, add flavour/ colour as appropriate, softens
Salt	Flavour, strengthens
Yeast - dried, fresh, fast action	Rise, light texture
Liquid- water, milk, egg.	Moisture, flavour, colour as appropriate, helps to mix/ bind/ blend/ aids yeast activity
Sugar	Activate yeast

Relevant nutritional reasons acceptable

- Detailed knowledge of ingredient functions. 5-6 marks
 - Some knowledge of ingredients and functions. 3-4 marks
 - Simplistic knowledge of ingredients and/ or functions. 0-2 marks
- 6 marks**

- ii) Developments may relate to finish, texture, colour, shape, size or flavour of bread product e.g.

Development	Reason
Addition of cheese, onion, bacon, herbs, sauces, appropriate fruits e.g. dates, raisins. Not sugary foods	Flavour
Addition of crispy bacon, tomato, wholemeal flour	Texture
Brushing with egg, milk, sprinkling seeds on top	Finish
Suitable small size for child's handling	Size
Interesting shapes to appeal to child e.g. people	Shape
Addition of herbs, tomato, cheese to colour	Colour
Addition of named foods	To increase specified nutrient content

Any other relevant ideas should be credited

- A range of detailed ideas with relevant reasons. 5-6 marks
 - A mixture of simplistic and detailed answers. 3-4 marks
 - Simplistic answers or several ideas but no reasons. 0-2 marks
- 6 marks**

Total 29 marks

Question 3

- a) Answer should relate to ‘sensory testing’ **not** sensors.

Sensory tests:

preference tests e.g. paired/ hedonic ranking/ triangle

grading tests e.g. ranking/ rating/ profiling

Accept any relevant generic term or individual named test

Tasting, taste testing or star charts not acceptable

1 mark

- b) Description of method may include an awareness of:

- number of people involved
- number of samples involved
- size of samples
- labelling of samples
- general method
- what results to record
- how results recorded
- blindfolding
- cleansing of palate e.g. crackers, water in between
- size of samples to be tasted
- prior preparation of results charts
- evaluation of results
- clarity of instructions given to testers
- leaving time between samples
- target group

A number of simplistic answers or several detailed answers showing clear understanding. 5-6 marks

Several simplistic answers showing understanding. 3-4 marks

Simplistic answer showing some understanding. 1-2 marks

6 marks

Total 7 marks

Question 4

- a) Food processor:
- consistency in size through use of appropriate attachments
 - consistency in shape through use of appropriate attachments
 - standard time
 - can test efficiency of production speed
 - less human error
 - examples e.g. chopping/ blending ingredients
 - processor can do more than one task e.g. can mix ingredients as well as cutting/slicing, less equipment needed
 - convenience/ efficient use of preparation time
 - safer method of preparation
 - more hygienic as less human contact with ingredient

A range of simplistic answers or several detailed answers showing clear understanding. 4 marks

Several simplistic answers showing understanding. 2-3 marks

Simplistic answer showing some understanding. 1 mark

4 marks

- b) Answers may relate to either the food processor or to general **food** safety but not personal safety.

Answers may relate to food safety, hygiene or both.

- relates to personal hygiene of workers: clean, protective clothing
- wearing of hats/ hair ties back
- clean hands/ nails
- storage of food in correct temp./ conditions
- cool, covered/ cross contamination/ different colour coded knives/ boards
- keep raw/ cooked food separate
- anti bacterial wipes
- cleanliness of equipment/ work area
- use of datemarks/ use by/ best before
- good personal habits e.g. not sneezing, coughing over foods.
- not working with food if infected.

A number of simplistic answers or several detailed answers showing clear understanding. 5-6 marks

Several simplistic answers showing understanding. 3-4 marks

Simplistic answer showing some understanding. 1-2 marks

6 marks

Total 10 marks

Question 5

a) Range of answers appropriate for each stage

checks

relating to: times, times, temperatures, portions control, measurements, sensory qualities, accuracy of methods used, food safety and hygiene points as relevant.

Credit may be given for answers that show an awareness of checks and reasons why checks are needed. Specific temperatures not essential but may be given credit for extended answer.

Examples

Storage of frozen chicken before use	Temp/ freezer/ pest free/ ventilated/ hygienic/ monitoring of temp/ cross contamination. Awareness of use by dates/stock rotation.
Preparing of chicken for use	Hygienic surfaces/ equipment/ colour coding of knives, chopping boards/ portion control/ weighing accurately/ thawing of chicken/ cross contamination raw: cooked food
Cooking chicken	Times/ temps/ use of food probes/ hygienic equipment Cross contamination issues
Chilling cooked chicken	Temps/ times/ cooling quickly/ covering/ cross contamination issues
Packaging the barbecue chicken for sale	Metal detector/ check on labelling: printing/ tamperproof materials/ seal/ secure/ undamaged/ storage during packaging/ quantity. Adequate timing for food safety

Credit should be given for correct temperatures when given:

i.e. freezers -18°C to -29°C

refrigerators/ chilling 1° to 8°C

food safety 70°- 75°C for 2 min

Control measures: answers may also relate to the production stage as appropriate e.g.

- training of staff in food hygiene,
- food hygiene precautions e.g. protective clothing for staff,
- monitoring of activities e.g. use of digital temperature displays/regular temperature checks/ packaging checks
- regular checks on environment/ condition of work areas
- pest control/ insect repellent equipment
- cleaning of surfaces/ equipment with anti bacterial wipes/ cleaning agents
- where food safety is hazard the use of critical control points for temp/ time to reduce risk e.g. chilling, storing preparing
- keeping raw/ cooked food separate
- covering food
- storing food in correct temp./ manner- must mention refrigerate/freezer/ chiller
- checks on size/ shape/ sensory qualities of product

For each production stage:

Qualified answer

2 marks

Simplistic unqualified answer

1 mark

5 x 2 marks for relevant and correct control check

10 marks

b) Problems in production

Problem	Causes	Control
Uneven size of red pepper	Incorrect setting/ attachment used on equipment. No quality control checks on size. Poor quality raw ingredients. Poor staff training/ not following product spec. Faulty equipment/ incorrect equipment	Improve quality control monitoring/ more regular checks. Alternative preparation methods Random sampling Visual checks. Not use of food processor. Use standard component peppers.
Burger buns do not rise	Poor quality yeast/ inactive yeast. Incorrect temperatures/ times during preparation/ cooking proving. Incorrect proportions of ingredients/ incorrect ingredients used. More liquid to create steam. Not S.R. flour	Check on temperature Check on timings Portion control/ weighing of ingredients.
Apples in salad go brown	Oxidation/ cell walls of apple are damaged during preparation/ exposing them to the air/ oxygen in the air causes Browning effect/ enzyme browning. Relevant reference to insect activity/ bruising. Left out/ in the air/ not covered/ open. Not 'rotted' or 'not fresh'.	Coat pieces in a dressing/ cover with lemon juice to change acidity during preparation stage of production. PH testing. Use of MAP packaging Relevant preservation techniques.e.g. not salt Chill to slow down action. Prepare immediately before use.

A number of simplistic answers or one detailed answer showing clear understanding.

3-4 marks

Covers both cause and remedy.

Several simplistic answers showing some understanding.

1-2 marks

3 x 4 marks

12 marks

Total 22 marks

Question 6

- a)
- to protect e.g. during transport
 - to promote e.g. to advertise
 - to inform e.g. to give consumer nutritional advice
 - to contain e.g. to prevent spillage
 - to preserve e.g. to extend the product shelf life
 - to stop tampering e.g. to stop people removing contents

A number of simplistic answers or detailed answers showing clear understanding. 5-6 marks

Several simplistic answers showing reasonable understanding. 3-4 marks

Simplistic answer showing some understanding. 1-2 marks

6 marks

- b) Answers may relate to relevant functions of packaging and/or to properties of materials

Material	2 reasons
Foil sachets	Can be moulded, strong, reusable, rigid, low cost, easy to print on, good for individual portions, recyclable
Paperboard (not cardboard)	Strong, reusable, low cost, lightweight, easy to print on, recyclable
Plastics/ clear film may relate to different forms of plastic in answer e.g. cellulose film for covering dishes, resistant plastics for containers with relevant properties.	Can be moulded, moisture resistant, lightweight, easy to handle, reusable, can be printed on, strong, low cost recyclable, see through
Polystyrene	Can be moulded, heat resistant, easy to handle, light, low cost, reusable

Not cardboard unless qualified.

e.g. plastic bags (1 mark) can be seen through (1 mark) so that the contents can be seen to be in good condition (1 mark)

For each material:

A number of simplistic answers or one detailed answer showing clear understanding. 2 marks

Single/ simplistic answers showing some understanding. 1 mark

2 x 3 marks

6 marks

c) i) **Use by 2 June**

- food must be used by given date
- food will be unfit to use after date given
- food is safe to eat up to the given date
- food may not look or taste different but will be unsafe to eat

Qualified answer.

2 marks

Simplistic unqualified answer.

1 mark

2 marksii) **Do not refreeze after thawing**

- warns consumers
- food will become contaminated if re frozen
- increase in microbiological activity once thawed
- increased risk of food poisoning/illness

Qualified answer.

3 marks

Simplistic unqualified answer.

1-2 marks

3 marks**Total 16 marks**

Question 7

Answers may include reference to healthy option products available

- low/reduced fat
- high fibre
- low/ reduced sugar
- low salt
- organic/GM foods
- additive free
- specified allergy free e.g. dairy free

also

- vegetarian options
- gluten free
- low cal.
- peanut free
- low cholesterol

as a means of better health.

Answers may also include how these are healthier options

Examples

- Low fat: removal of visible fat/ leaner meat/ low fat mayonnaise/fromage fraise/ yoghurt based dips
- high fibre: increase of bran/ wholewheat products/ wholemeal bread buns/ pasta/ rice salads
- low/reduced salt/ sugar: use of sweeteners in sauces, dips, dressings
- vegetarian products use more vegetables – less fat content/ higher vitamin

Answers may also refer to the risks to health

fat: coronary heart disease/ obesity

sugar: dental caries/ obesity

salt: blood pressure

fibre: digestion problems/ constipation/ diverticular disease/ cancers

Good communication of a wide range of related issues and relevant examples. 5-6 marks

Number of simplistic answers or detailed answers showing understanding of several aspects. 3-4 marks

Simplistic answer showing some understanding. 1-2 marks

6 marks

Total 6 marks

Total marks on Paper 100