



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme

June 2003

GCSE

Design and Technology

Food Technology

3552 (Short Course)

Higher

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DESIGN AND TECHNOLOGY: FOOD TECHNOLOGY

Short Course – Higher TierQuestion 1

- a) Answers may refer to:
- barbecues becoming more popular and reasons why barbecues have become more popular:
 - influence of other cultures as people holiday abroad more
 - influence of multi cultural consumers
 - more leisure time
 - busy lives - less time to cook and prepare foods
 - less skills needed
 - easier/ quicker to prepare than fresh
 - new technologies have led to wider range of products available
 - gender issues - men cooking
 - lifestyle changes - use of garden/leisure time/influence of continental eating outdoors

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

Several simplistic answers showing some understanding. 1-2 marks
4 marks

- b) Answers should refer to disadvantages of ready prepared foods
- more processed foods
 - nutritionally may be inferior e.g. high in fat, salt, calories, soya, sugar
 - may need specialist storage facilities e.g. freezer
 - no control over manufacturer e.g. quality of ingredients, production methods
 - reference to some economy products being poor value for money/ inferior compared to 'home made' (cheaper/ more expensive need to be qualified)
 - may include GM modified ingredients
 - nutrients lost in processing not replaced
 - may include ingredients relating to food allergies
 - cannot be modified to suit consumers or individual needs of family members
 - impact on small butchery business
 - more waste from packaging
 - high risk of food poisoning if instructions not followed

A number of simplistic answers or several detailed answer showing clear understanding. 3-4 marks

Several simplistic answers showing some understanding or one detailed answer. 1-2 marks
4 marks

- c) Focus is on types of information and on the software programs used by manufacturers.

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
 - business data for future
 - CAD - information on appropriateness of design proposals
 - CAM - feedback of information from production line e.g. size, quality
 - traceability of ingredients
- any other relevant correct answer.

A number of simplistic answers or one detailed answer showing clear understanding 3-4 marks

Several simplistic answers showing some understanding 1-2 marks

4 marks

Total 12 marks

Question 2

- a) Answers should include notes and labelled sketches.
Responses may include prose, 2D or 3D labelled sketches showing a range of the main features of the product e.g. cross sections, ingredients, dimensions, colour, finishing techniques, cooking methods for both the main product and the marinade.

- 2 different main products should be shown
- 2 different marinades
- N.B. Mayonnaise/ sauces not classed as marinades
- Examples of acceptable ingredients: Marinades may include yoghurt, vinegar, oil, onions, lemon/ lime juice, tomato juice (not sauce), honey, mustards.

| | |
|-----------------------------------------------------------------------------------------------|-----------|
| 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. | 2-3 marks |
| Sketch/ prose attempted but inappropriate product chosen. | 0-1 marks |
| 2 x 5 marks for each design idea | |

10 marks

- b) Response should describe how chosen idea meets the design criteria e.g.
- savoury, main course indication of savoury ingredients
 - type of marinade used
 - how product meets the needs of consumers e.g. dietary/ cultural needs/veg/age related
 - how product includes both sweet and savoury flavours
 - how product includes variety of colour
 - how product provides a hot babecue item
 - products chosen are suitable for serving without use of cutlery

Answers should expand upon design criteria in the question and not be repeats of the same points. Maximum of 3 marks for straight repetition of design criteria with no qualification.

| | |
|-----------------------------------------------------|-----------|
| Describes in detail how product meets the criteria. | 7-8 marks |
| Identifies how some of the design criteria are met. | 5-6 marks |
| Some attempt to show how criteria are met. | 3-4 marks |
| Little attempt to show how design criteria are met. | 1-2 marks |

8 marks

c) How and why ingredients are used:

| Ingredient | Function |
|-------------------------------------------------|----------------------------------------------------|
| Identifies different functions correctly | Texture/ taste/ colour/binding/ enriching/ bulking |
| Nutritional functions | As appropriate to ingredient |

Clear communication of a range of ingredients of **main product and marinade** identifying full range of functions correctly. 8-10 marks

Communication of main ingredients of product and marinade. Identifies correct functions of some of ingredients. May only cover product or marinade. 6-7 marks

Shows basic ingredients and some functions not clearly communicated. Some ingredients omitted or incorrect functions. 3-5 marks

Inappropriate ingredients chosen or little attempt to show functions. 1-2 marks

10 marks
Total 28 marks

Question 3

- a) Answer should give different design ideas relevant to meeting the criteria for a sweet and spicy coleslaw.

Examples:

| Ingredients to be added | Reason |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Sugar, fruit, pineapple, honey, sauces, appropriate fruits e.g. dates, raisins | To improve 'sweet' criteria result |
| Flavoured vinegars, tomato puree/ sauce, fruit, sweet and sour sauce/ Chilli, mustard, pepper, paprika, curry powder, Tabasco sauce, Worcester sauce, spices | To improve 'spicy' criteria result |
| Beetroot, carrot, mustard mayonnaise, yoghurt, herbs... | To improve 'colour' criteria result |
| Chopped vegetables, cheese, prawns, onions, nuts, mayonnaise, fromage frais | To improve 'texture' criteria result |
| Strong smelling ingredients e.g. onion, garlic, herbs | To improve aroma |

Suitable ingredient added

1 mark

Reason given

1 mark

3 x 2 marks

Improves two different criteria appropriately, relevant reasons given.

5-6 marks

At least two different improvements given, some reasons may be omitted.

3-4 marks

Improves at one/ two criteria appropriately, may not include relevant reasons.

1-2 marks

6 marks

- b) i) 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
 - may name appropriate test: preference tests(e.g. paired/ hedonic ranking/triangle)/grading tests (e.g. ranking/ rating/profiling)
 - blindfolding
 - cleansing of palate e.g. crackers, water in between samples
 - size of samples to be tasted
 - use of music background or quiet areas so environment does not affect sampling
 - random identification of samples
 - identical quantities, containers for samples
 - 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. Name test used. | 5 marks |
| Several simplistic answers showing understanding. | 3-4 marks |
| Simplistic answer showing some understanding. | 1-2 marks |
| | 5 marks |

- b) ii) May give definition of testing in controlled conditions/ same conditions during design or production so that results are reliable or may give examples as shown below.

Environment:

- Controlled/ quiet/ well ventilated/ free from odours which could interfere with tasting
- away from the food preparation area
- large enough for panel members to be apart from each other/ individual booths
- suitable lighting for sensory testing
- clear instructions for panel
- use of background music or quiet areas so environment does not affect sampling
- random identification

Consistency of approach:

- panel members must not talk to each other
- provide cold water/ plain biscuits/ bread for in between tastings.
- food must be of the same temperature
- food must be labelled/ in identical containers in equal portions/identical quantities

Well explained answer - may give examples. 2 marks

Simplistic answer showing some understanding. 1 mark

2 marks

- c)
- consistency in size/ use of suitable attachments to equipment
 - consistency in shape/ use of suitable attachments to equipment
 - standard time
 - can test efficiency of production speed/ less human error
 - 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 number of simplistic answers or one detailed answer showing clear understanding. 3-4 marks

Several simplistic answers showing some understanding. 1-2 marks

4 marks

Total 17 marks

Question 4

(a)

| Stage | Hazards | Control |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Preparation Shaping Chilling Packaging | <p><u>Microbiological:</u> e.g.</p> <ul style="list-style-type: none"> - cross contamination from other foods/ equipment - micro-organisms/ bacteria (not 'germs') - candidates may name different micro-organisms e.g. salmonella - packaging materials <p><u>Physical</u> e.g.</p> <ul style="list-style-type: none"> - glass from bottles/ jars/ light fittings - metal from machinery/ equipment/ packaging - wood from pallets - insects from plants, open windows - personal items from workers/ jewellery/ hair/ cigarettes <p><u>Chemical</u> e.g.</p> <ul style="list-style-type: none"> - cleaning chemicals/ paint/ oil from work area <p><i>*'microbiological/ physical/ chemical' are not essential for awarding marks</i></p> | <ul style="list-style-type: none"> - 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 area - metal detectors - 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 refrigerator/ freezer/ chiller - awareness of use by dates/ stock rotation checks - checking condition of packaging/ tamperproof/sealing of packaging |
| 4 x 1 different and relevant hazard, 4 x 1 related controls | | |

Clear communication of a wide range of hazards and the related control measures needed throughout the production system. 6-8 marks

Communicates some knowledge of hazards and the control measures related to most of these. 3-4 marks

Communicates basic knowledge of most common hazards and/ or the related control measures. 1-2 marks

8 marks

b) Critical control checks:

May describe checks related to CRITICAL times or temperature.

* note: critical controls related to aspects that may cause physical harm to consumer.
Therefore dimensions/ colour/ shape not applicable.

Examples

- times: cooking, storing
- temperatures: use of food probes/ temp of refrigerator/ freezer/ reheating temps
- detection of foreign bodies/ metal detection
- monitoring of stock rotation/ ingredient quality/ random sampling
- bacterial count

Qualified answers giving detail of checks.

3-4 marks

Simplistic answer/s naming area of check only.

1-2 marks

4 marks

Total 12 marks

Question 5

| 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. Inappropriate chopping techniques. | Improve quality control monitoring/ more regular checks on staff / equipment. Alternative preparation methods Random sampling Visual checks Use standard component peppers Not use of food processor. |
| 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 cause 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. |
| Oil and vinegar separate | Oil and vinegar do not mix/ will separate if left to stand. No emulsifying agent. Oil is lighter than water therefore floats. | Mix immediately before use/ add emulsifying agent to stabilise e.g. egg, lecithin. Shake vigorously to suspend droplets before serving. Reference to hydrophilic/ hydrophobic ingredient. |

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

Covers both cause and remedy.

3-4 marks

Several simplistic answers showing some understanding.

1-2 marks

4 x 4 marks

Total 16 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
 - ease of storage/ stackability
 - prevent contamination
 - provide own cooking container
 - NOT 'keep fresh'

One word answers are not acceptable

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

Several simplistic answers showing some understanding. 1-2 marks

4 marks

b)

| | Material | Reasons |
|--------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Ready washed green salad | Plastic bags / flexible plastic containers | Can be moulded, moisture resistant, lightweight, easy to print on/ handle, recyclable |
| Barbecue sauce, | Foil, plastic bottles, glass bottles | Strong lightweight, easy to print on, low cost, recyclable |
| Kebabs on skewers | Paperboard boxes, foil, cellulose film covers, polystyrene trays | Strong, lightweight, easy to print on, low cost, recyclable, see through, moulded, rigid |

Not cardboard unless qualified.

* Reasons as relevant to material named: moulded, lightweight, moisture proof, strong, easy to print on, protective against sticks/ skewers, low cost, food is visible

Correct naming of suitable materials. 3 x 1 mark each product
 Reasons: One detailed or two simplistic answers. 2 marks each product
 Single simplistic answer. 1 mark each product
6 marks

- c) Candidates should identify items of food labelling that relate to safe preparation, cooking and storing of high risk foods

Candidates may be given credit for identifying that some items are legal requirements/ prevention of food poisoning.

List of ingredients

- can identify any high risk foods included in product so that control can be put in place.

Storage instructions

- identify best conditions to keep food
- gives temperature
- symbols/ temp range
- freezer guidelines if food stored again at home before use
- length of time for storage recommended

Shelf life/ use by/ best before

- will indicate safe time product can safely be kept/ used
- display until/special information/special claims/possible allergy related/vegetarians
- credit can be awarded for detailed description of different terminology

Instructions for use

- gives safe cooking times
- gives safe cooking temperatures
- guidelines for safe defrosting
- preparation needed

Special information

- may indicate if bones/ nuts/additives are present these may endanger some consumers

Labelling specifically for the retailer: therefore **not relevant**

- bar coding for stock control
- display until dates

Communicates knowledge of a range of labelling and the implications to food safety related to most of these. 5 marks

Communicates some knowledge of most common food labelling and/ or the related food safety issues. 3-4 marks

Shows little knowledge of food labelling and/ or related food safety issues. 1-2 marks

5 marks

Total 15 marks

Total on Paper 100 marks