

GCE 2004

June Series



Mark Scheme

Design and Technology: Food Technology *(Subject Code FTY1)*

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.

The answers given in the following mark schemes are neither exhaustive nor exclusive. Candidates whose answers do not appear directly on the mark scheme, but who have demonstrated knowledge, understanding, or skills relevant to the question will receive appropriate credit for their answers.

Further copies of this Mark Scheme are available from:

Publications Department, Aldon House, 39, Heald Grove, Rusholme, Manchester, M14 4NA
Tel: 0161 953 1170

or

download from the AQA website: www.aqa.org.uk

Copyright © AQA 2004 and its licensors

COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales 3644723 and a registered charity number 1073334. Registered address AQA, Devas Street, Manchester. M15 6EX.

Dr Michael Cresswell Director General

ASSESSMENT and QUALIFICATIONS ALLIANCE**General Certificate of Education**

June Examination 2004

DESIGN AND TECHNOLOGY (ADVANCED SUBSIDIARY)

FOOD TECHNOLOGY UNIT 1 (FTY1)

Quality of Written Communication

The following marks are allocated to the quality of the candidate's written communication. Make a separate assessment of the candidate's overall ability as demonstrated across the paper using the criteria given below.

<i>Performance Criteria</i>	Marks
The candidate will express complex ideas extremely clearly and fluently. Sentences and paragraphs will follow on from one another smoothly and logically. Arguments will be consistently relevant and well structured.	
There will be few, if any, errors of grammar, punctuation and spelling.	4
The candidate will express moderately complex ideas clearly and reasonably fluently, through well-lined sentences and paragraphs. Arguments will be generally relevant and well structured. There may be occasional errors of grammar, punctuation and spelling.	3
The candidate will express straightforward ideas clearly, if not always fluently. Sentences and paragraphs may not always be well connected. Arguments may sometimes stray from the point or be weakly presented. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas.	2
The candidate will express simple ideas clearly, but may be imprecise and awkward in dealing with complex or subtle concepts. Arguments may be of doubtful relevance or obscurely presented. Errors in grammar, punctuation and spelling may be noticeable and intrusive, suggesting weaknesses in these areas.	1

Question 1

- (a) Any well justified answer will be credited.
Soya would be a suitable ingredient for a range of savoury food products:
- Suitable for vegetarians
 - Relatively cheap
 - Easy to store, prepare and cook, little waste, different shapes and forms
 - Source of HBV protein, easy to fortify
 - Environmental issues
 - Dried form, longer shelf life
 - Allergy to dairy products
- Responses must be well justified. (6 marks)
- (b) Responses should make clear reference to the data provided, using the information given accurately. The correct use of the units of measurement and the differences between each should be explained for each of the nutrients stated. Fortification of soya. Comparison of energy. (10 marks)
- (c) Effect of heat on:
Cheese - fat melts, protein coagulates. Overheating causes protein to toughen and become stringy, reducing digestibility.
Eggs - ovalbumin in the white coagulates at 60°C and white becomes solid and opaque. Proteins in yolk coagulate at 70°C and continue until yolk is dry and hard. Over cooking reduces digestibility. Iron sulphide form around yolk if over cooked. If heated quickly proteins coagulate and shrink rapidly - syneresis.
Caster sugar - dry heat - melts, caramelises, burns leaving a black residue.
Moist heat - dissolves, becomes a syrup which caramelises. (3 x 3 marks)
- (d) Importance of NSP in diet: adds bulk to the diet, removal of waste products from the body, prevention of constipation, diverticular disease, Haemorrhoids. (5 marks)
- (e) Responses should include specific examples with clear justification.
Addition of ingredients such as bran to soups, dried fruit, wholemeal.
Substitution pasta, rice, edible skins of fruit and vegetables to be included in products. (10 marks)

Question 2

- (a) Specific practical examples of the use of standard pre-manufactured components in a product range based on fruit and vegetables must be included. Responses will reflect sound and accurate understanding of why a food manufacturer would use standard food components in a product range. To save production time due to fewer manufacturing processes. To make stock control easier and extend range of products available. (8 marks)
- (b) (i) Vitamins C and B group (2 marks)
(ii) Vitamins A and D (2 marks)
- (c) Any suitable food products will be accepted. There must be a clear identification of the source of Vitamin C and Calcium. Products may be existing or original. (6 marks)
- (d) Micro-nutrients Vitamins A, B group, C, D, Iron and Calcium.
Food Processing: Heat, dehydration, water, acid, alkali, oxidation.
Any well justified response will be credited.
- | | | |
|------------|---|------------|
| 8-10 marks | Responses will clearly identify each micro-nutrient and discuss the effects of food processing on them. | |
| 4-7 marks | Responses will identify 3 or 4 micro-nutrients and discuss the effects of food processing on them | |
| 1-3 marks | Responses will identify 1 or 2 micro-nutrients and discuss the effects of food processing on them. | (10 marks) |

Question 3

- (a) Plain Flour - Structure, texture, bulk
Cornflour - texture, palatability
Caster Sugar - holds air, increases volume of biscuits, sweetens, flavours, colour
Soft Margarine/ Butter- texture, colour, flavour, increases shelf life, holds air (4 x 2 marks)
- (b) Any suitable suggestions that would develop the flavour and texture of the biscuits. Changes to basic ingredients e.g. wholemeal flour, brown sugar or the addition of ingredients e.g. spice, dried fruit, essences.
The use of finishing techniques e.g. icings (8 marks)
- (c) Caramelisation- Sugar is heated either as a solid or a solution to a temperature above its melting point. It undergoes decomposition and then turns brown and a 'toffee' like flavour is developed. Dry heat is used to grill sugar on products such as crème brûlée and wet heat dissolves sugar to a syrup such as baked cakes. (3 marks)
Dextrinisation - When products such as bread or cakes are cooked using a dry heat such as baking or toasting the starch changes to dextrin on the surface of the product and then caramelises producing the characteristic flavours and aromas. (3 marks)

- (d) May sometimes leave a bitter after taste.
Reduces the palatability and shelf life in products.
Do not have the same properties of sugar necessary in many cooking processes.
Used in smaller quantities and bulk may be needed.
Credit given to specific examples of sugar substitutes.
Do not caramelise like sugar.
Market interests. (6 marks)

Question 4

- (a) Shortcrust Pastry - Margarine/ butter - colour, flavour, moisture
Lard/ white cooking fat - shortness, texture/ binding (4 marks)
Mayonnaise - Olive Oil taste, consistency:
 - Oil and water dispersed in each other they form an emulsion
 - After standing the oil will float on the water
 - Emulsion must be stabilised with an emulsifier
 - Lecithin prevents the separation of oil/ water
 - Mixture will thicken, vinegar can adjust consistency
 - Oil is added slowly to prevent it separating out. (4 marks)Deep fried foods - increase in fat content, decrease in heat sensitive nutrients.
Temperature reach 200°C without burning, reduced fat spreads have a high water content and therefore not suitable. Fats must be free from water and impurities, presence will affect keeping qualities and cause it to splatter when heated, decomposition of impurities will cause 'off' flavours and smells. (4 marks)
- (b) Flavour, consistency, shelf-life, colour and nutritional value, method of cooking (6 marks)
- (c) High protein, versatile, cheap, variety, high satiety, high calcium and fat soluble vitamins, cooked or raw. (10 marks)

Total marks on Paper 100