



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme January 2003

GCE

Design and Technology: Food Technology

Unit FTY1

Copyright © 2003 AQA and its licensors. All rights reserved.

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: Addleshaw Booth & Co., Sovereign House, PO Box 8, Sovereign Street, Leeds LS1 1HQ
Kathleen Tattersall: *Director General*

Unit 1: Materials and Components

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

NB This mark scheme is intended as a guide to the type of answer expected but is not intended to be exhaustive or prescriptive. If candidates offer other answers which are equally valid **they must be given full credit.**

Many responses at this level are assessed according to the **quality** of the work rather than the number of points included. The following level descriptors are intended to be a guide when assessing the quality of a candidate's response.

The candidate has a basic but possibly confused grasp of the issues. Few correct examples are given to illustrate points made. Description may be unclear.
(low mark range)

The candidate has some knowledge but there will be less clarity of understanding. Some correct examples given to illustrate points made. Description better but unclear or confused in parts.
(mid mark range)

The candidate has a thorough understanding of the issues and has provided relevant examples to support the knowledge shown. This candidate's answer shows clear evidence of understanding.
(high mark range)

Question 1

- (a) Advantages – high nutritional value, reference to specific nutrients, high fibre, distinctive flavour, colour and texture.
Disadvantages – poor keeping qualities, contains phytic acid which affects the absorption of calcium and iron, reference to flavour, colour and texture. (6 marks)
- (b) All three types of bread must be mentioned with a comparison between the amounts of nutrients within each. Reference should be made to dextrinisation and exact figures and units of measurement are required to gain maximum marks.
3 marks only for the mention of the three types of bread without figures or explanation
6 marks for exact figures and units of measurement
6 marks for explanation (12 marks)
- (c) Yeast is the main raising agent found in bread and contributes to its flavour and texture. Yeast feeds on sugars, producing carbon dioxide and alcohol under the correct conditions 25-30°C. Alcohol gives the characteristic yeast smell and flavour. Carbon dioxide will influence the final texture of bread. As the temperature increases the yeast is gradually destroyed. The process is known as fermentation, dough doubles in size. Dough is knocked back to remove excess carbon dioxide and redistribute the yeast. The yeast converts sugar into water and carbon dioxide. Enzymes in yeast. Maltase converts maltose to glucose and glucose, Invertase converts sucrose to fructose and glucose, the zymase group converts glucose and fructose to carbon dioxide and ethanol. (6 marks)
- (d) Gelatinisation forms structure of bread, holds shape, starch in wheat flour at 60–65°C goes through gelatinisation range, protein, (gluten), coagulates to keep well risen state, irreversible reaction. (4 marks)
- (e) Any well justified responses will be accepted, but repetition will not be credited. Responses may include the following: Research into existing products and possibly identification of a target group. Type of raw materials used in the production, in particular the flour and all of the sensory / nutritional characteristics that will differ. The shape and size of the product range, the quantities for sale, multi packs, individual etc. Added ingredients to vary products and maybe take on a particular theme e.g. sun dried tomatoes, olives, garlic, cheese to give a savoury range and dried fruits, sugar, chocolate to give a sweet range. Where responses simply include a list of additional ingredients 6 marks maximum will be credited if appropriately justified. Finishing techniques, including the addition of ingredients to the outside of the product, or a pattern of some description. (12 marks)

(40 marks)

Question 2

- (a) Responses should make reference to current dietary goals and recommendations - 5 a day campaign, Coma 45, etc. The nutritional content of fruit and vegetables should be highlighted - high fibre, low fat, water soluble vitamin content B&C, with reference to the skin/peel of the fruit and vegetables, variety available in the diet-flavours, textures, colours of the various fruit and vegetables on the market. Methods of cooking and the importance of eating them raw with examples. Link made between Vitamin C and Iron. The importance of natural sugars and trace elements e.g. potassium in bananas. (4 marks)
- (b) To save production time due to the use of fewer manufacturing processes.
To reduce the amount of equipment it would be necessary to purchase.
To reduce production costs, e.g. less energy, fewer skilled staff
To save time involved in sourcing, purchasing and preparing raw ingredients.
To ensure a consistent result in terms of size weight, shape, flavour and proportion.
To make stock control easier.
To extend the range of products. (8 marks)
- (c) To replace loss during storage, preparation and cooking
To counteract the effect of temperature, tropical fruits e.g. bananas below 13°C. causes discolouration, flavour and texture changes. Strawberries and peas turn brown during processing
To provide edible coatings to slow down ripening.
To act as a preservative
To make the food products visually attractive, to attract consumers.
To enhance what is already there.
Consumers associate certain colours with certain flavours.
To increase the range of products available and ensure consistency of colour.
To boost natural colour e.g. strawberry yoghurt. (12 marks)
- (b) 4 marks will be allocated to foods rich in iron and vitamin C in addition to fruit and vegetables. e.g. red meat, offal, curry powder, plain chocolate. (4 marks)

(28 marks)

Question 3

- (a) Any suitable 6 functions of eggs will be accepted : binding, aeration, glazing, emulsifying, coating, thickening, garnishing, enriching, nutritive value, colour (6 marks)

- (b) Responses should include accurate reference to the 6 functions outlined in (a) with specific food products given as an example for each.

Binding – fish cakes

Trapping air – cake making, meringue

Glazing – pastries

Emulsifying – mayonnaise, hollandaise sauce

Coating – fried food e.g. fish

Thickening – custards

Garnishing - salads

Enriching – sauce making

(12 marks)

- (c)
- | | | | |
|-------|--------------|------|----------------------|
| White | water | Yolk | protein |
| | protein | | fat |
| | B vitamins | | water |
| | trace of fat | | vitamins A, D, E, K. |
| | iron | | |
- (2 × 3 marks)

- (d) Any well-justified and accurate illustration will be credited. Prevent oxidation, loss after heating, preparation technique, methods of cooking, freezing as soon as possible after freezing

(4 marks)

(28 marks)

Question 4

- (a) Eggs– trap air, structure, texture, colour, nutritional value,
Sugar– flavour, trap air, softens gluten – texture, colour, preservative
Flour– structure, texture, (6 marks)
- (b) Eggs– trap air when whisked with sugar
Coagulate on heating forming structure
Add colour to the product
- Sugar– add flavour
Trap air
Dissolves into a syrup and softens the gluten in flour
Caramelisation adds to the colour
- Flour– gluten coagulates to form structure
Starch becomes trapped with air contributes to the texture. (10 marks)
- (c) Moisture retention – combination of ingredients to produce
steam during production and baking, moist end product, longer shelf life,
more palatable (4 marks)
- Caramelisation – Sugar is heated as a solid or a solution to a temperature above it’s melting point. It
undergoes decomposition and then turns brown and a toffee flavour is developed. Dry heat is used to
grill sugar on products such as crème brulee and wet heat dissolves sugar to a syrup in products such
as toffee or baked cakes. (4 marks)
- Dextrinisation – occurs when in dry heat starch is turned to dextrin, a simple sugar, that caramelises
and turns brown e.g. toast or the formation of the crust of baked products. (4 marks)
- (28 marks)**

Total 100 marks