Version 1.0

ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Design and Technology: Food Technology 5541/6541

FTY1

Mark Scheme

2005 examination – June series

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.

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.	
Performance Criteria	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-linked 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

1

(a) **Explain the differences in the composition of 100g of the food products listed in the table below.**

Reference should be made to all of the data accurately. Clear reference to the 3 different types of food products and each of the nutrients stated.
Max 5 marks for interpreting data only.
5 for explanation. All 3 mentioned; units of mentioned;
explanation – because...

(10 marks)

(b) **Discuss the advantages to the *food manufacturer* of the use of food additives in the production of a product range.**

Advantages:
To preserve foods
Improve and enhance keeping qualities, flavour, colour, texture.
To ensure consistency and meet consumer demands – fast foods, convenience, new food products.
Any product range. Advantages only. Additives in general 5 marks

(10 marks)

(c) **Explain how a research and development team could develop the nutritional value, flavour and texture of a product range based on cheese.**

Use of different cheeses to improve all 3 areas of the question.
High protein, calcium, fat soluble vitamins, versatile.
More products, cheap, variety available, strong and mild flavours
Sauces, toppings, different colours, raw or cooked.
If products relate to characteristics of cheese, credit; but no marks for cheese making, e.g. quiche product needs to mention cheese.

4 marks nut value
flavour } must mention cheese
texture

(3 x 4 marks)

(d) **Explain and give an example of syneresis in food products based on eggs.**

Syneresis – if eggs are is overheated the protein coagulates and squeezes out the fat and water / liquid. The eggs become tough and rubbery.
Low fat products reduced fat therefore reduced fat sol.

(3 marks)

(e) **What are the effects of food processing on micro nutrients?**

Minerals and fat soluble vitamins generally remain unchanged during food production. Water soluble vitamins may be lost through dry or moist heat, oxidation, presence of an alkali, presence of water.

(5 marks)

2

(a) **Explain the importance of each of the following in the production of baked food products.**
Give practical examples for each.

(i) **Gelatinisation**
(ii) **Moisture retention**
(iii) **Caramelisation**

Gelatinisation – starch (1) forms a gel (2) which is able to thicken (3) a large number of foods / food products and form product structure / and form its structure, e.g. 1 mark practical example of each
Moisture retention – to prevent a product drying out – prevent staling. Preserve shelf life, flavour. Creme brulee, bakewell tart
Caramelisation – the change of colour (1) when heat (2) is applied to sugar (3).
Baked food products for 4 marks

(3 x 4 marks)

(b) **State the types of flour used and explain their function in the following baked products.**

(i) **Bread**
(ii) **Shortcrust Pastry**
(iii) **Victoria Sandwich**

Bread – strong plain flour, provides structure, high gluten content. Elasticity
Shortcrust pastry – plain flour, forms crumb, dextrinisation, structure, texture, non raising, soft flav.
Victoria sandwich – self raising flour, raising agent, structure, gelatinisation, dextrinisation, soft crumb, colour, texture, flavour.

(3 x 4 marks)

(c) **State four ingredients a food manufacturer could use to create food products rich in water soluble vitamins.**

Cereals, yeast, wheatgerm, meat, eggs, milk, fresh fruit and vegetables
Any four for one mark each

(4 marks)

3

(a)

(i) **What is Non Starch Polysaccharide (NSP)?**

Wholegrain cereals: wheat, rice, oats, bread, pasta, fruits, vegetables
Also known as dietary fibre – soluble – insoluble fibre e.g sources (1)

(2 marks)

(ii) **Explain the function of NSP in the diet.**

Absorbs water, binds food residues to itself to aid the removal of waste produce from the body. Aids periotalsis, digestion, lowers cholesterol. Failure to do so may result in constipation, diverticular disease, haemorrhoids, hernias, bowel cancer. Max 2 marks for conditions

(6 marks)

(b) **Explain how a production and development team could increase the NSP content of a product range based on shortcrust pastry. Give savoury and sweet practical examples.**

Sweet and savoury product development should include examples based on the rich sources identified in (a)
Wholemeal flour.
Pastry 4
Sav 4
Sweet 4

(12 marks)

(c) **How would increasing the NSP content affect the sensory characteristics of the product?**

Sensory characteristics should be clear using subject terminology correctly e.g. sweet rather than nice. Ref to taste, sight, smell, feel, appearance.

(8 marks)

4 **(a)** **Explain the functions of lipids in the production of**

(i) **mayonnaise**
(ii) **flaky pastry**
(iii) **shortbread biscuits.**

Mayonnaise – flavour, colour. Emulsification – mouth feel, consistency, thickens texture.
Flaky Pastry – raising agent, colour, flavour, hard fats
Shortbread biscuits – colour, flavour, texture
Name of lipids (1) Max 3 if do not name

(3 x 4 marks)

(b) **Describe, with an example for each, what is meant by**

(i) **deep fat frying**
(ii) **shallow frying**
(iii) **dry frying.**

Deep fat frying – total immersion of starting food, equal sizes in a pan of hot fat. Totally submerged for a short period of time. Outside of potato is sealed and heat penetrates through to cook inside. Very high temperatures. (150° – 185°C)
Shallow frying – eggs are cooked in a layer of hot fat. Heat is conducted from the base of the pan to one surface of the egg.
Dry frying – bacon cooked without the addition of fat. Fat in bacon melts to prevent it sticking to pan.
One mark per food

(3 x 3 marks)

(c) **Describe the effects of different methods of frying on the nutritional value of food products.**

Deep and shallow frying increases the fat (1) and energy (1) content of food.
Raises calorific value. Conserve V of C. High temperatures destroy heat sensitive nutrients.
Ideally 2 marks for each method of frying. Shallow frying absorbs more fat.
Quality of oil – decomponent of fat.
Mention of olive oil – monunsat / poly
Sat fat in lard

(7 marks)