



General Certificate of Education

Design and Technology: Food Technology 5541/6541

FTY1

Mark Scheme

2008 examination - June series

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GCE Food Technology Unit 1

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

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

Reference should be made to all of the data accurately. Clear reference to the different types of food products and each of the nutrients stated.

Mark Range 7 – 8

Responses should make clear reference to all of the data provided, using the information given accurately. The correct use of the units of measurements for each nutrient and the differences between each should be explained. Each of the four food products should be mentioned and the nutritional differences per 100g explained.

Mark Range 5 – 6

Three to four food products will be mentioned and reference made to the data, using the information accurately.

Mark Range 3 – 4

Two to three food products will be mentioned and reference made to the data or each of the food products will be mentioned superficially. If response simply reflects data = 4 marks

Mark Range 1 – 2

Food products will be mentioned superficially and little / no reference made to the data. Name plus example also = 2 marks

Mark Range 0

No points worthy of credit

(8 marks)

(b) Discuss the advantages and disadvantages to a food manufacturer of the use of food additives.

For example:

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
Disadvantages: some customers allergic to these, seen as ‘unhealthy’ in current climate, to increase nutritional value

Mark Range 10 – 12

Responses should make clear reference to both the advantages and disadvantages to the food manufacturer in using additives. At least five to six well justified issues should be raised.

Mark Range 7 – 9

Responses should make clear reference to both the advantages and disadvantages to the food manufacturer in using additives. At least three to four well justified issues should be raised.

Mark Range 4 – 6

Responses should make clear reference to both the advantages and disadvantages to the food manufacturer in using additives. At least one to two well justified issues should be raised.

Mark Range 1 – 3

Food additives will be mentioned superficially and little / no reference made to the advantages and disadvantages.

Mark Range 0

No points worthy of credit

(12 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 specific examples in your answer.**

Use of different cheeses to improve all three 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.

Mark Range 9 – 10

Responses should explain with specific examples of each how the nutritional value, flavour and texture of a product range could be developed based on cheese.

Mark Range 7 – 8

Responses will explain but with fewer specific examples of how the nutritional value, flavour and texture of a product range could be developed based on cheese.

Mark Range 4 – 6

Responses will focus upon all three areas superficially, or two areas in more detail, on how a product range may be developed based on cheese.

Mark Range 1 – 3

Food products will be mentioned superficially and little / no reference made to the cheese.

Mark Range 0

No points worthy of credit

(10 marks)

- (d) **Explain the term syneresis in a food product based on eggs.**

If eggs are overheated the protein coagulates and squeezes out the fat and water. The eggs become tough and rubbery.

(3 marks)

(e) Describe the effects of food processing on vitamins.

Fat soluble vitamins generally remain unchanged during food production. Water soluble vitamins may be lost through dry or moist presence of an alkali, presence of water.

Mark Range 6 – 7

Both water and fat soluble vitamins will be mentioned and the effects of food processing on them.

Mark Range 3 – 5

Either water soluble or fat soluble vitamins will be mentioned in detail or both but with less detail of the effects of food processing.

Mark Range 1 – 2

The effects of food processing on vitamins will be mentioned superficially with one or two well justified points raised.

Mark Range 0

No points worthy of credit

(7 marks)

2 (a) Explain the function of each of the following in the following in the production of bread.

(i) Strong Plain Wholemeal Flour

High NSP, B vitamins, high gluten, flavour, structure.

(4 marks)

(ii) Yeast

Raising agent, producing Carbon Dioxide and alcohol, fermentation.

(2 marks)

(iii) Water

Activate the yeast, correct temperature, aids gelatinisation.

(2 marks)

(iv) Fat

Improve keeping qualities, colour, flavour.

(1 mark)

(v) Salt

Strengthen gluten, flavour.

(1 mark)

(b) Explain the difference between soluble and insoluble Non Starch Polysaccharide (NSP). Give an example of each.

Soluble NSP – helps to control blood sugar levels, reduce blood cholesterol. Oats, pulses, fruit and vegetables.

Insoluble NSP – absorbs water, increases bulk.

Wholemeal bread, flour, cereals, pasta, rice.

(2 x 3 marks)

- (c) **Explain why the product development team would consider the use of standard pre-manufactured components within a product range based on fruit and vegetables.**

To save time.

Reduce the amount of equipment required.

Less energy costs, less staff costs.

To save time sourcing, purchasing and preparing raw materials.

To ensure consistent results, size, shape, weight, flavour, stock control.

To extend range of products available – more choice.

Customer loyalty – knows what to expect.

Mark Range 10 – 12

Responses should make clear reference to the advantages to the food manufacturer in using standard pre-manufactured components within a product range. At least six well justified issues should be raised.

Mark Range 7 – 9

Responses should make clear reference to the advantages to the food manufacturer in using standard pre-manufactured components within a product range. At least four to five well justified issues should be raised.

Mark Range 4 – 6

Responses should make clear reference to the advantages to the food manufacturer in using standard pre-manufactured components within a product range. At least two to three well justified issues should be raised.

Mark Range 1 – 3

Standard pre-manufactured components will be mentioned superficially within a product range but little / no reference made to the advantages to a food manufacturer.

Mark Range 0

No points worthy of credit

(12 marks)

3

- (a) Explain the functions of each of the ingredients below that are used in the production of small cakes.

Recipe for small cakes:

- 150g self raising flour
- 150g soft margarine / butter
- 150g caster sugar
- 3 medium sized eggs

SR Flour – structure, texture, raising agent

Soft margarine / butter – texture, colour, flavour, increased shelf life, holds air.

Caster sugar – holds air, increases volume, sweetens, flavours.

Eggs – enriches, flavours, colours, nutritional value, raising agent, coagulation.

(4 x 2 marks)

- (b) Explain the importance of each of the following processes in the production of a creamed mixture:

- (i) Emulsification,

Ensures food products remain in a stable condition.

Oil in water emulsion.

(3 marks)

- (ii) moisture retention.

Moisture retention – to prevent the cakes from drying out, becoming stale.

(3 marks)

- (c) **Describe how the flavour, texture and nutritional value of small cakes can be developed to produce a product range.**

Any suitable suggestions that would develop the flavour, texture and nutritional value of the cakes. Changes to basic ingredients, e.g. wholemeal flour, brown sugar or the addition of ingredients e.g. spice, dried fruit, essences.

Mark Range 8 – 10

Responses should explain with specific examples of each how the nutritional value, flavour and textures of small cakes can be developed.

Mark Range 5 – 7

Responses will explain but with fewer specific examples of how the nutritional value, flavour and texture of small cakes can be developed.

Mark Range 1 – 4

Responses will focus upon all three areas superficially or two areas in more detail on how small cakes may be developed.

Mark Range 0

No points worthy of credit

(10 marks)

- (d) **Describe four finishing techniques that could be applied to small cakes to make them more appealing to the consumer.**

Icing – buttercream, fondant, glacé, sugar. Use of colour and decorations – dried fruit, glacé cherries, fruit, melted chocolate.

(4 marks)

4 (a) Explain the function of lipids in the production of:

(i) mayonnaise,

Ratio of oil to affect consistency. Oil opposed to half fat
Flavour: different types of lipids – recommendation
Emulsification – any relevant justification of choice of oil
Texture of the final product – smooth, creamy consistency, colour from fats in egg yolk

(4 marks)

(ii) flaky pastry,

Raising agent, golden colour, flavour, moisture retention, creating layers.

(4 marks)

(iii) shortcrust pastry.

Golden colour, flavour, texture, moisture retention.

(4 marks)

(b) Describe, with an example for each, what is meant by the following terms.

One mark per example as requested.

(i) deep fat frying

Total immersion, equal sizes in a pan of hot fat. Outside is sealed and heat penetrates through to cook inside.
Very high temperatures, 150°-185°C.
Quick.
Correct temperature and correct length of time fully emerged in oil = faster cooking time, nutritional retention (vitamin C).

(4 marks)

(ii) shallow frying

Cooked in a layer of hot fat.
Heat is conducted from the base of the pan to one surface .

(4 marks)

(iii) dry frying.

Cooked without the addition of fat.
Fat in, for example, bacon melts to prevent it sticking to the pan.

(4 marks)

- (c) **What are the effects of frying on the nutritional value of food products?**

Deep and shallow frying increases the fat and energy content of food. High temperatures destroy heat sensitive nutrients – vitamin B / C.

(4 marks)