AQA

ASSESSMENT and QUALIFICATIONS ALLIANCE

Mark scheme
January 2004

GCE

Design and Technology

Food Technology: Unit FTY1

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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-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

FOOD TECHNOLOGY UNIT 1 (FTY1)

Question 1

(a) Caster Sugar - holds air, increases volume of cakes, sweetens, flavours, caramelisation.
Soft Margarine/Butter - texture, colour, flavour, increases shelf life, holds air.
Eggs - enriches, flavours, colour, nutritional value, raising agent.
Self Raising Flour - structure, texture, raising agent, bulk. 4 x 3 marks

(b) To ensure daily RNI is met by as many groups of consumers as possible. Many food products are made from white flour and therefore target group is bigger e.g. vegetarians who do not eat dairy produce. Women, links with osteoporosis. Many snack food products targeted at young people. Multicultural issues. 6 marks

(c) Any suitable suggestions that would develop the flavour and texture of the small cakes. 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. Justified examples of different production methods. 8 marks

(d) Emulsification - ensure food products remain in a stable condition. Oil in water emulsion, cake making, mayonnnaise. 3 marks
Shortening - texture of the final baked product. Reference to the type of fat in pastry, type of flour in cake making. 3 marks
Gelatinisation - starch granules absorb water and swell when heated above 60ºC. At 85ºC starch granules are approximately 5 times their original size, which thickens the mixture. Upon further heating some granules rupture, releasing starch, which traps liquid to form a gel that sets when cool e.g. blancmange. 3 marks

(e) Oxidation due to cutting, peeling, slicing. Leaching due to water soluble vitamins dissolving in water. Increase in fat soluble vitamins in margarines, food products. Methods of preservation. Identification of water soluble vitamins. 5 marks

40 marks

Question 2

(a) To make food visually attractive to consumer. Colours are added to meat products such as sausages to give them a red colour rather than the natural brown colour. Consumers associate the red colour with freshness. Consumers associate certain colours with flavours e.g. green with mint flavours. To replace colour that is lost during processing. During processing strawberries and peas turn brown, blackcurrant cordial turns grey therefore artificial colours make them look more attractive. Additives make sure that different batches are consistently coloured, to boost natural colour e.g. strawberry yoghurt to colour products that are normally colourless e.g. ice cream, confectionery. To produce novelty foods e.g. coloured sugar crystals.

Emulsifiers and stabilisers ensure food products remain in a stable condition e.g. jam.

Flavours to ensure continuity, many extracted from oils e.g. peppermint. Flavour enhancers e.g. monosodium glutamate to bring out the flavour e.g. cheese.

Foaming agent to ensure bubbles are evenly distributed e.g. ice cream, glazing agents to give a shiney outer layer e.g. sweets, humectants to stop foods drying out e.g. soft centres in chocolates, modified starch to add bulk e.g. baby foods, gelling agents to enhance texture, propellants to make texture of aerosol cream, thickeners e.g. in yoghurts to improve texture. 12 marks

(b) Any appropriate foods will be accepted e.g. specific fruits and vegetables, dried fruits, nuts, pulses, bran, cereals, wholemeal bread, rice, pasta. 4 marks

(c) Responses should include specific examples with clear justification. Addition of ingredients such as bran to soups, dried fruit, wholemeal substitution pasta, rice, flour, edible skins of fruit and vegetables to be included in products. 12 marks

28 marks

Question 3

(a) Responses will reflect a sound and accurate understanding of why a food manufacturer would use standard pre-manufactured food components in a product range. To save production time due to fewer manufacturing processes. To reduce the amount of equipment needed, reduce production costs, less energy, fewer staff. To save time purchasing, and preparing raw materials. To ensure consistency in terms of size, weight, shape, flavour and proportion. To make stock control easier and extend range of products available. 12 marks

(b) Starch based sauces could improve food products:

- Enhance flavour
- Provide contrasting flavour and/ or texture
- Bind ingredients together
- Add colour
- Increase nutritional value of product

All improvements should be supported with an example. 4 marks

(c) Flour - Starch (Polysaccharide), in cold water it will not dissolve. At 60ºC granules absorb water and swell, increase in temperature = increase in swelling. At 85ºC granules 5 times original size, liquid thickens, continued heating granules rupture, release starch forms gel with water. Upon cooling gel sets and sauce becomes solid. 4 marks

Fat - melts, add starch, stir well to avoid lumps. Starch granules will soften and begin to cook. Fat and flour form Roux. Fat gives flavour/ colour. 4 marks

Milk - milk disperses starch evenly to give a smooth consistency. Continuous stirring of milk to avoid sauce cooking at the bottom of the pan resulting in a lumpy consistency (convection currents). Increases the overall volume and increases the nutritional content. 4 marks

28 marks

Question 4

(a) Soya would be a suitable ingredient for a range of food products to be sold in a school canteen because:

- Suitable for vegetarians
- Relatively cheap
- Easy to store, prepare and cook, little waste, different shapes and forms
- Environmental issues
- Low fat
- High protein
- Multicultural issues - religion
- Versatile
- Growing concern of obesity problems

Responses must be well justified. 10 marks

(b) Any suitable food products will be accepted either existing products or original ideas. 12 marks

(c) During cooking pasta absorbs liquid until 'al dente' or 'to the tooth' (limp but slightly resistant to chewing). Tossing the pasta with a little oil will coat the gluten and gelatinised starch on their surfaces and help prevent them from sticking to each other. 6 marks

28 marks

Total marks on paper 100