



**General Certificate of Education (A-level)
June 2011**

**Design and Technology: Food FOOD1
Technology**

(Specification 2540)

Unit 1: Materials, Components and Application

Final

Mark Scheme

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 events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process 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 standardisation each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

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- 1** **Name two functions of fats in the diet.**
Insulation, protection, energy, supply fat soluble vitamins,
warmth
(2 marks)
- 2** **State two sources of Vitamin D in the diet.**
Dairy produce, oily fish (must say oily), margarine, eggs,
cornflakes, sunlight on skin, offal, nb cereals must say fortified
(2 marks)
- 3** **Name two functions of Vitamin B12 in the diet.**
Growth, release of energy, formation of red blood cells,
enzyme systems, prevents pernicious anaemia (must say
pernicious), metabolism of amino acids, nervous system, to aid
metabolism
(2 marks)
- 4** **What are the effects of iron deficiency in the body?**
Anaemia, tiredness, lack of energy, pale, lack of red blood cells
(2 marks)
- 5** **Name two sources of soluble Non Starch Polysaccharides.**
Fruit and vegetables – any named fruit or vegetable, or fruit
and veg
Oats, rye, barley, fruit juices, beans, porridge, cooked lentils,
(apple and banana)
(2 marks)
- 6** **Describe the function of insoluble Non Starch
Polysaccharides in the body.**
To aid the movement of food and waste through the gut as
fibre absorbs water and so gives bulk; to prevent constipation,
diverticular disease, cancer of the colon
(2 marks)
- 7** **Explain the term fortification of food products. Give two
examples in your answer.**
Addition of nutrients to enhance original content, replace
nutrients lost in processing. Fortified bread or cereal must say
what nutrient. (4 marks)
1 mark for example of fortification in food product
1 mark for reason / explanation

- 8** **Explain the function of sugars and starches in the body, giving an example of each.**
Immediate energy – sugar, chocolate, honey, *energy drinks*
Slow release energy – pasta, rice, cereals – any suitable food will be credited. (4 marks)
If milk is stated, must say lactose
Must have an example of each for full marks.

- 9** (a) **Discuss the influence of current dietary guidelines on food product development.**

Responses will include well justified points relating to current dietary guidelines, such as:

- Health of Nation
- 5 a day
- Reduction in salt
- Water consumption
- COMA
- Eat well plate
- Prevent obesity
- Reduce salt intake
- Sat. fat intake or fat intake
- High fibre / NSP
- May consider areas where they have no or little influence

Mark Range 8-10: Responses will reflect a full discussion with at least 5 plus justified points raised. Current dietary guidelines will be clearly linked to food product development. (10 marks)

Mark Range 4-7: Responses will include a discussion of 3-4 justified points or 8 plus mentioned superficially.

Mark Range 1-3: Responses will be superficial with little/ no justified points raised.

Mark Range: No points worthy of credit

9 (b) Explain how environmental issues may affect food choice.

Responses will include reference to environmental issues which may affect food choice:

- Pesticides
 - Herbicides
 - Fair Trade
 - Food Miles
 - GM
 - Organic
 - Seasonal Foods
 - Fairtrade
 - Recycling issues
 - Free range
 - Locally sourced ingredients
 - Alternative sources of energy
- Credit responses which argue that they may not, if justified

Mark Range 8-10: Responses will reflect a full explanation with at least 5 plus justified points raised. Environmental issues will be linked clearly to food choice.

Mark Range 4-7: Responses will include an explanation of 3-4 justified points raised or 8 plus mentioned superficially.

Mark Range 1-3: Responses will be superficial with little/ no justified points raised and little explanation.

Mark Range: No points worthy of credit.

(10 marks)

10 (a) Discuss the effect of 'the media' on food product development.

Responses will include well justified points relating to the effect of 'the media' on food product development and may include reference to:

- Advertising
- Television/ Radio
- Magazines
- Newspapers
- Internet
- Media campaigns (e.g. anti-GM, health issues, air miles, cultural issues)
- May consider areas where the media do not appear to have had an effect

Mark Range 8-10: Responses will reflect a full discussion of 3-4 points raised linked to food product development

Mark Range 4-7: Responses will include a discussion of 3-4 justified points or 8 plus mentioned superficially

Mark Range: Responses will be superficial with little / no justified points raised.

Mark Range 0: No points worthy of credit.

(10 marks)

10 (b) Describe the stages of the design processes that may be used in the production of new food products.

Reference will be made to the different stages of the design process used in the production of new food products:

- Design Ideas
- Design Proposals
- Methods of Communication
- Data Collection
- Storage
- Modelling
- Target Audience
- Development
- Testing / Evaluation
- Trialling
- Test kitchen, pilot plant

Each stage must have a clear explanation of its importance in the production of new food products.

Only suitable egg-based deserts are accepted.

Colourings or flavour enhancers are not accepted.

Mark Range 8-10: Responses will reflect a full description of 3-4 points raised linked to food production.

Mark Range 4-7: Responses will include a description of 3-4 justified points or 8 plus mentioned superficially

Mark Range: Responses will be superficial with little / no justified points raised.

Mark Range 0: No points worthy of credit.

(10 marks)

11 (a) Describe how a range of egg-based desserts could be developed to:

- **increase the Non Starch Polysaccharide content**
- **increase water soluble vitamin content**
- **develop aesthetic qualities.**

5 marks

5 marks

10 marks

Responses will refer to a range of egg-based desserts:

- Wholemeal pastry cases, addition of fruit, nuts, bran, oats
- Identification of water-soluble Vitamins B and C, appropriate examples. B - Wholemeal flour wholegrain, C – citrus fruits. Blackcurrants, strawberries, kiwis contain more than citrus, raspberries, peaches etc also quite good
- Colour, taste, smell, mouthfeel, presentation – responses will give specific examples of ingredients to be added to a range of egg-based desserts to develop the aesthetic qualities.

(20 marks)

11 (b)

With regard to the preparation, cooking and storage of food, discuss 'Safer Food Better Business'.

Responses will discuss the statement 'safer food better business' based around the following points:

- Risk assessment – working out could go wrong during preparation cooking and storage of food.
- Hazards – which could cause harm to the consumer – biological, food contaminated with bacteria, physical, foreign bodies e.g. metal machinery, rings, chemical, cleaning fluids, pesticides; personal hygiene of workers; removal of waste, e.g. egg shells
- Monitoring quality controls – part of quality assurance. Checking the quality of the product at various stages e.g. designing stage, during production and end of production. Quality controls will check size, shape, appearance, taste, texture. Tests for shelf life, storage and reheating methods. Correct temperatures 0 – 5 (refrigeration), -18 (freezing), 5 – 63 (danger zone)

Mark Range 8-10: Responses will reflect a full discussion with justified points raised with reference to preparation, cooking and storage.

Mark Range 4-7: Responses will include a discussion of justified points with reference to preparation, cooking and storage but quite superficially.

Mark Range 1-3: Responses will be superficial with little/ no justified points raised.

Mark Range 0: No points worthy of credit

(10 marks)

11 (c)

Explain how the food labelling can be used by different consumer groups to make informed food choices.

Responses will make reference to how food labelling can be used by *different* consumer groups to make informed choices and may include:

- Name
- Ingredients – intolerances, allergies
- Storage
- Shelf life
- Place of origin
- Weight
- Instructions for use
- Traceability
- Nutritional information
- Environmental issues
- Address special claims

Reference will be clearly made to the importance of labelling to different groups of consumers.

Mark Range 8-10: Responses will reflect a full explanation with justified points raised with reference to different consumer groups.

Mark Range 4-7: Responses will include an explanation of justified points with reference to different consumer groups but quite superficially.

Mark Range 1-3: Responses will be superficial with little / no justified points raised or explanation.

Mark Range 0: No points worthy of credit.

(10 marks)