



**General Certificate of Education (A-level)
June 2013**

**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 students' 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 students' 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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Section A

- 1** **Name two food sources of calcium.**
- Milk, cheese, yoghurt, white bread, oily fish (bones that supply the calcium), white flour. Kombu and nori seaweed (dried), sesame seeds, almonds, soya beans, muesli, haricot beans, spinach, brazil nuts, chickpeas, kale, prawns, purple sprouting broccoli.
- Any other relevant response
- 1 mark for each source *(2 marks)*
-
- 2** **Explain the difference between fats and oils.**
- Fats are solid at room temperature, oils are liquid.
Fats tend to be saturated, oils tend to be unsaturated.
- 1 mark for fats, 1 mark for oils *(2 marks)*
-
- 3** **Name two fat soluble vitamins.**
- Vitamins A, D, E, K (Chemical names may be given – Retinol equivalent, Cholecalciferol) *(2 marks)*
-
- 4** **Name two factors affecting the energy requirements of an individual.**
- Age, gender, activity, state of health, pregnancy, body size, climate, occupation.
Any other relevant response.
- 1 mark for each factor *(2 marks)*
-
- 5** **Name two minerals required by the body and give a food source for each.**
- Iron – red meat, egg yolk, cocoa powder, curry powder, liver, kidney, cereals, bread, leafy green vegetables, dried fruit, pulses
- Calcium – milk, dairy products, bread, pulses, green vegetables, dried fruit, fish eaten with bones, e.g. canned salmon, nuts
- Phosphorus – marmite, cheese, eggs, meat, milk products, bread
- Sodium – meat, margarine, cereals, potatoes, fish, meat products, packet sauces and soups, cheese, snack

products

Iodine – sea food, milk, meat, eggs

Zinc – meat, dairy products, bread, cereal products, eggs,
beans, lentils, nuts

Magnesium, Potassium

1 mark for each mineral – maximum 2 marks

1 mark for each food source – maximum 2 marks (4 marks)

6 Name two diet related causes of obesity.

Energy excess, excess protein, overconsumption of
processed foods, excess oil.

1 mark for each cause (2 marks)

7 Name two specific food sources of vitamin C.

Peppers, chilli peppers, herbs, green leafy vegetables,
cauliflower, kiwi fruits, oranges, strawberries, citrus fruits,
soft fruits, tomatoes

1 mark per source. (2 marks)

8 Explain, with an example of each, the function of artificial sweeteners and colouring agents.

Artificial sweeteners: Sorbitol, saccharin, aspartame –
enhances flavour, reduces calorie level.

Colouring agents: Tartrazine – to enhance / replace colour
lost during process, to make products more aesthetically
appealing. To reflect the flavour of a product, e.g. lemon
is yellow.

Any other relevant response

1 mark for example of artificial sweetener

1 mark for function of artificial sweetener

1 mark for example of colouring agent

1 mark for function of colouring agent (4 marks)

Section B

9 (a) Discuss the influence of food allergies and intolerances on food choice.

Food allergies may refer to digestive disorders, nausea, abdominal bloating, diarrhoea, constipation.

Food protein, cows milk, egg intolerance, soya intolerances, asthma, coeliac disease, lactose intolerance, anaphylaxis

Use of alternative ingredients.

Importance of why information must be clearly labelled.

Reference to restricted food choice, alternatives sought.

Difficulties eating out – formal and informal.

Mark Range 7-10: Responses will reflect a full explanation with at least 4 plus justified points raised.

Mark Range 3-6: Responses will include an explanation of at least 3 justified points or 6 plus mentioned superficially.

Mark Range 1-2: Responses will be superficial with little / no justified points raised.

Mark Range 0: No points worthy of credit. *(10 marks)*

9 (b) Describe the impact of environmental sustainability on food product development.

Responses may include references to:

Pesticides, herbicides, Fairtrade, food miles, GM (Genetically Modified), organic seasonality of foods, locally sourced ingredients. Limited/recyclable packaging

Mark Range 7-10: Responses will reflect a full description with at least 5 plus points explained.

Mark Range 3-6: Responses will include a description of at least 3 points explained or 6 plus mentioned superficially.

Mark Range 1-2: Responses will be superficial with few / no points explained.

Mark Range 0: No points worthy of credit. *(10 marks)*

10 (a) Discuss the nutritional considerations when designing meals for pregnant women.

Responses will discuss the nutritional considerations when designing meals for pregnant women:

- Folate (supplements for 12 weeks)
- Low sugar, salt and saturated fat
- High fibre
- High protein, complementation of proteins
- Daily water soluble vitamins B group, C
- Fat soluble vitamins A and D
- Avoid high intake of vitamin A
- Vitamin D and calcium
- Vitamin C and iron
- Trace elements - Zinc

Mark Range 7-10: Responses will reflect a full discussion with at least 5 plus justified points raised.

Mark Range 3-6: Responses will include an explanation of at least 3 justified points or 6 plus mentioned superficially.

Mark Range 1-2: Responses will be superficial with little / no justified points raised.

Mark Range 0: No points worthy of credit.

(10 marks)

10 (b) Explain how advertising and the media can affect food choice. Give specific examples.

Ways in which advertising and the media may affect food choice:

- Television characters
- Television advertising
- Age related magazines
- Newspaper coverage/ advertising
- Internet targeted groups
- Food scares
- Smart phone applications (Apps)
- Government guidelines
- Research findings
- Radio
- Posters

Mark Range 7-10: Responses will reflect a full explanation with at least 5 plus justified points raised.

Mark Range 3-6: Responses will include a discussion of at least 3 justified points or 6 plus mentioned superficially.

Mark Range 1-2: Responses will be superficial with little/ no justified points raised.

Mark Range 0: No points worthy of credit

(10 marks)

Section C

11 (a) Describe how a range of multicultural snack products could be developed to:

- **increase the non-starch polysaccharide content** (5 marks)
- **increase water-soluble vitamin content** (5 marks)
- **reduce saturated fat content** (5 marks)
- **increase flavour.** (5 marks)

Non starch Polysaccharides – Fruit, vegetables, fruit juices, oats, rye, barley, beans, porridge, pulses, wholemeal products, bread, pasta, rice (5 marks)

Water soluble vitamins – cereals, oats, bran, pulses fruit, vegetables (5 marks)

Reduce saturated fat content – remove/ reduce animal fats, substitute nuts, reduce red meat, methods of cooking (5 marks)

Increase flavour – addition of any suitable ingredient. (5 marks)

Response must focus upon ‘snack’ products – sweet or savoury.

Any well justified response will be credited

- 11 (b) **Foods may be considered to be in 'high', 'medium' and 'low' risk food categories. Explain, with specific examples from each category, the factors affecting bacterial growth.**

Responses should reference each specific category and relate to time, moisture, food and temperature:

Time – in danger zone

Temperature – reference to high temperature / low temperature Freezer -18 C, Refridgerator 0-5C,

Food – high risk foods

Moisture – removal of water / addition of water.

Mark Range 7-10: Responses will reflect a full discussion with at least 5 plus justified points raised.

Mark Range 3-6: Responses will include a discussion of at least 3 justified points or 6 plus mentioned superficially.

Mark Range 1-2: Responses will be superficial with little / no justified points raised.

Mark Range 0: No points worthy of credit.

(10 marks)

- 11 (c) **With reference to a consumer group of your choice, explain why the information on food labels is important.**

Responses should **identify a specific consumer group** and explain why information is important to that group:

- Name of product – to identify it
- Special claim – any specific dietary need
- Average quantity – portion size
- Weight
- Manufacturer's name and address – complaints
- Description/photograph
- Price – limited budget
- Nutritional value – dietary/medical needs/traffic light system
- Best before date
- Storage and cooking instructions

Mark Range 7-10: Responses will reflect a full discussion with at least 5 plus justified points raised.

Mark Range 3-6: Responses will include a discussion of at least 3 justified points or 6 plus mentioned superficially.

Mark Range 1-2: Responses will be superficial with little/no justified points raised.

Mark Range 0: No points worthy of credit.

(10 marks)