



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

**Design and Technology: Food                      FOOD1  
Technology**

**(Specification 2540)**

**Unit 1: Materials, Components and Application**

**Final**

***Mark Scheme***

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## Section A

**1 Name two food sources of High Biological Value protein.**

Meat, fish, cheese, soya, milk, eggs, peas, beans, lentils

1 mark for each source – maximum 2 marks

*(2 marks)*

**2 State two food sources of starch.**

Potatoes, pasta, rice, flour based products, vegetables, cereals, noodles.

1 mark for each source – maximum 2 marks

*(2 marks)*

**3 What are the effects of vitamin B deficiency?**

Tiredness, sores in corners of mouth, skin disorders, pernicious anaemia, retarded growth, beriberi, pellagra. Harder to break down proteins and carbohydrates. Nervous System.

1 mark for each effect – maximum 2 marks

*(2 marks)*

**4 Explain two causes of obesity.**

Energy imbalance – input exceeds output, diet rich in carbohydrates and fat, lack of exercise. Thyroid problems.

1 mark per cause – maximum 2 marks

*(2 marks)*

**5 State two types of vitamin A.**

Retinol, carotene

*(2 marks)*

**6 State two ways water is lost from the body.**

Sweating, illness (vomiting, diarrhoea), passing urine defecation.  
Respiration

1 mark per response – maximum 2 marks

*(2 marks)*

**7 Name two dietary sources of sodium and explain its function in the body.**

Meat, fish, butter, margarine, soy sauce, marmite, bread, breakfast cereals, packet sauces, soups, snack products, cheese  
– maintaining water balance in body, muscle and nerve activity.

1 mark for each source – maximum 2 marks

A basic explanation of function - 1 mark

A more detailed explanation of function– maximum 2 marks

*(4 marks)*

**8 Explain, with an example of each, the function of preservatives and flavour enhancers.**

Preservatives – to make sure foods last longer / longer shelf life.  
Salt, sodium nitrate, sugar, vinegar, alcohol, spices.

1 mark for function of preservatives

1 mark for an example

Flavour enhancers – to replace flavour lost during processing, to improve flavour.

Spices, herbs, essences, monosodium glutamate. Butter

1 mark for function of flavour enhancers

1 mark for an example

*(4 marks)*

## Section B

**9 (a) Discuss how current social and/or financial issues affect food choice.**

Responses will include well justified points relating to current issues and may include:

- Health issues - obesity, diabetes, heart disease, dental caries, salt consumption, fat consumption
- Changes in eating habits – grazing, dashboard dining, snacking
- Trends in food consumption
- Travel and tourism
- Regional and international influence
- Economic climate
- Unemployment
- Recession.
- Fair Trade

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)*

**9 (b) Describe how a range of sensory evaluation techniques may be used when developing a new food product.**

Sensory evaluation techniques that may be used when developing a new food product may include:

- Use of sensory descriptors – colour, appearance, flavour, consistency, smell, texture
- Tasting food products – cost reduction, making processes, ingredients, consumer demand
- Ranking tests, rating tests, star profile, triangle test, British Standards
- Food photograph, scanner, video.
- Packaging

Any justified response will be credited.

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

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

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

Mark Range 0: No points worthy of credit.

*(10 marks)*

**10 (a) Describe how local, national and global resources affect the opportunities for food product development.**

Responses will discuss the effects of local, national and global resources upon the opportunities for food product development and may include:

- Extending shelf life
- Fair trade
- Air miles
- Population growth
- Crop production
- Climatic changes
- Transportation
- Cultural influences
- Locally sourced foods.

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)*

**10 (b) Discuss current health issues in relation to planning meals for children and young people.**

Current health issues may include:

- Low sugar content, low fat / saturated fat content, low salt content, High Calcium
- 5 a day, eat well plate, health of nation
- Water consumption
- School meals
- Snack foods and food outlets
- Leisure time
- Inactivity.
- Diabetes, tooth decay, NSP

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)*

## Section C

11 (a) **Describe how a range of either sweet or savoury products based on rice could be developed to:**

- **increase calcium** (5 marks)
- **increase non-starch polysaccharides** (5 marks)
- **improve sensory characteristics.** (10 marks)

Responses will make reference to a range of either sweet or savoury products based upon rice:

Calcium – use of milk and dairy foods each identified clearly, oily fish, chocolate, white bread, ice cream, white flour, kidney beans, watercress, nuts, curry powder – maximum 5 marks

Non starch Polysaccharides – fruit, vegetables, fruit juices, oats, rye, barley, nuts, beans, porridge, pulses, wholemeal products, bread, pasta – maximum 5 marks

Sensory characteristics – shape, colour, texture, smell, flavour, finishing techniques – maximum 10 marks

Any well justified response will be credited.

11 (b) **Describe how food safety regulations and legislation ensure that food products are safe to eat.**

Responses may make reference to how food safety regulations or legislation ensure food products are safe to eat, including risk assessments, potential hazards – physical, chemical, biological clearly identified, quality controls. EHO visiting

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

Mark Range 3-6: Responses will include a description 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) (i) Name three types of food poisoning bacteria and one of the main symptoms of each.**

Responses will name types of food poisoning bacteria listed in the specification:

- Salmonella – Headache, fever, vomiting, abdominal pain
- Listeria – flu-like symptoms, miscarriage, blood poisoning, pneumonia, meningitis
- Staphylococcus aureus – severe vomiting, diarrhoea, exhaustion
- E coli – vomiting, diarrhoea, fever, headache
- Campylobacter – diarrhoea often bloody, abdominal pain, nausea and fever
- Bacillus cereus – vomiting, diarrhoea, abdominal pain.

Each named bacteria will have a specific symptom.

1 mark for each bacteria named – maximum 3 marks

1 mark for a symptom of each – maximum 3 marks

Symptom must be against named bacteria for award of mark.

*(6 marks)*

**11 (c) (ii) Describe two different procedures that can be put into place to prevent food contamination.**

Responses will include reference to specific examples of time, moisture, food and temperature.

Procedure 1

Basic description of procedure – 1 mark

Expanded / detailed description of procedure – maximum 2 marks

Procedure 2

Basic description of procedure – 1 mark

Expanded / detailed description of procedure – maximum 2 marks

*(2 x 2 marks)*