



Design and Technology: Food Technology

FOOD3

Unit 3 Design and Manufacture

Specimen paper for examinations in 2010 onwards

This question paper uses the [new numbering system](#) and [new AQA answer book](#)

For this paper you must have:

- an AQA 12-page lined answer book
- normal writing and drawing instruments.

Time allowed

- 2 hours

Instructions

- Use black ink or black ball-point pen. Use pencil and coloured pencils only for drawing.
- Write the information required on the front of your answer book. The **Examining Body** for this paper is AQA. The **Paper Reference** is FOOD3.
- Answer **three** questions.
- Answer **one** question from each of Sections 1 and 2 and **one** other question from either section.
- Do all rough work in your answer book. Cross through any work that you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 84.
- There are 28 marks for each question.
- You will be marked on your ability to:
 - use good English
 - organise information clearly
 - use specialist vocabulary where appropriate.

Advice

- Illustrate your answers with sketches and/or diagrams wherever you feel it is appropriate.

FOOD3

Answer **three** questions.

Answer **one** question from each of Sections 1 and 2 and **one** other question from either Section.

Section 1

Question 1

The new Nutritional Standards for Secondary School Lunches (2006) state that:

- At least one portion of salad or vegetables **and** fruit should be provided per day per child
- A protein food (meat, fish, egg, nuts, pulses or beans – not including green beans) should be available on a daily basis
- Red meat should be available three times a week
- Fish should be available twice a week (oily fish at least once every three weeks)
- Manufactured meat products may be served occasionally, provided they meet legal minimum meat levels
- A food from the starchy food group (bread, pasta, noodles, rice, potatoes, yams, millet) should be available on a daily basis
- Fat should not be used in the cooking process of starchy foods on more than three days in any week
- Meals should not contain more than two deep-fried items in a single week
- Milk or dairy foods should be available on a daily basis.

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Using your knowledge and understanding of human nutrition, explain why these specific nutritional standards were introduced.

(18 marks)

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Explain the relationship between diet and health. Use examples of diet related illnesses to support your answer.

(10 marks)

Question 2

'Despite a diet stuffed with cream, butter, cheese and meat, just 10% of French adults are obese, compared with 22% in the UK and 33% in the USA. A recent survey conducted by the French government's committee for Health education found that 76% of French people eat meals they have prepared at home, eating at the family table. Eating in France is seen as a social activity, with several small courses and plenty of time taken between courses. In the UK, by contrast, we eat more pre-prepared foods and ready meals; we eat fast food; we have single large meals and family members will eat different foods at different times'.

(Adapted from *The Observer*, November 2004: 'French women don't get fat'.)

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Using your own knowledge and the article above, discuss the view that there is an unhealthy attitude to food and nutrition in the United Kingdom.

(28 marks)

Question 3

Food products which contain fat are at risk of spoilage through rancidity.

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 What is the difference between **oxidative** and **hydrolytic** rancidity? (4 marks)

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 How can manufacturers prevent rancidity from occurring in the production and storage of food products? (6 marks)

0	6
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 Describe the different molecular structures of each of the following.

- monounsaturated fats
- polyunsaturated fats
- saturated fats
- trans fats.

(13 marks)

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 Consider how manufacturers could adapt products which contain fat to make them more acceptable to the health conscious consumer. (5 marks)

Turn over for the next Section

Turn over ➡

Section 2

Question 4

A manufacturer wishes to develop a cheese and broccoli soup.

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 Describe **four** different ways in which the product could be thickened. (4 marks)
- | | |
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| 0 | 9 |
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 Explain the term *gelatinisation*. (4 marks)
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 How can manufacturers ensure that the starch in thickened soup does not undergo retrogradation once it is packaged and stored? (4 marks)
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 The manufacturers need to analyse the sensory attributes of the soup described above. How can they ensure that a 'fair test' is carried out? (6 marks)
- | | |
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 Consider the ways in which a manufacturer could produce a soup product so that it does not contain physical, chemical or microbiological contamination. (10 marks)

Question 5

Describe the physical, nutritional and sensory effects upon milk of **each** of the following methods of preservation.

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| 1 | 3 |
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 Pasteurisation. (4 marks)
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| 1 | 4 |
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 UHT (ultra high temperature / ultra heat treatment). (4 marks)
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| 1 | 5 |
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 Spray drying. (4 marks)
- | | |
|---|---|
| 1 | 6 |
|---|---|

 Evaporation. (4 marks)
- | | |
|---|---|
| 1 | 7 |
|---|---|

 There is some concern that intensive farming methods, such as milk production, are ethically wrong. Using examples, discuss whether or not you agree with intensive farming methods for food production. (12 marks)

Question 6

Consider each of the following novel foods and explain their characteristics and possible health benefits to the consumer.

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 Products made from plant sterols and stanols. *(5 marks)*
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| 1 | 9 |
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 Pro-biotic yoghurt products. *(5 marks)*
- | | |
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| 2 | 0 |
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 Myco-proteins. *(5 marks)*
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| 2 | 1 |
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 Explain why packaging is important to the food industry. *(6 marks)*
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| 2 | 2 |
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 Describe ways in which manufacturers can reduce the volume of materials they use for packaging food products in order to save wastage of resources. *(7 marks)*

END OF QUESTIONS