

General Certificate of Education
June 2003
Advanced Level Examination



HOME ECONOMICS
Unit 6 Food Science and Technology

HEC6

Monday 16 June 2003 Afternoon Session

In addition to this paper you will require:
an 8-page answer book

Time allowed: 1 hour 30 minutes

Instructions

- Use a blue or black ink (or ball-point) pen. Pencil should only be used 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 HEC6.
- Answer **two** questions.
- Fasten any supplementary sheets you use to the answer book before handing it to the invigilator at the end of the examination.

Information

- The maximum mark for this unit is 50.
- Mark allocations are shown in brackets.
- You will be assessed on your ability to use an appropriate form and style of writing, to organise relevant information clearly and coherently, and to use specialist vocabulary, where appropriate. The degree of legibility of your handwriting and the level of accuracy, punctuation and grammar will also be taken into account.

Answer **two** questions.

Each question carries 25 marks.

- 1 (a) State the COMA recommendations for fat intake. Give reasons for these recommendations. *(5 marks)*
- (b) (i) Assess the nutritional role of fats in the diet. *(5 marks)*
- (ii) Look at the labels below. Give reasons why **Label 1** is more helpful to the consumer than **Label 2**, regarding information about fats. *(3 marks)*

NUTRITION INFORMATION	
Typical Values	Per 100g
Energy	2186 kJ (532 kcal)
Protein	0.1 g
Carbohydrate	0.1 g
of which sugars	0.1 g
starch	0 g
Fat	59.0 g
of which saturates	14.3 g
mono-unsaturates	32.3 g
polyunsaturates	9.5 g
trans fatty acids	0.4 g
Fibre	0 g
Sodium	0.4 g
Cholesterol	Trace

Label 1

NUTRITION INFORMATION	
Typical value per 100g of product	
Energy	930 kJ/223 kcal
Protein	24.8 g
Carbohydrate	0.5 g
Fat	13.5 g

Label 2

- (c) Explain how the chemical properties of fats determine their use in food preparation. *(12 marks)*
- 2 (a) For effective food preservation it is necessary to prevent both autolysis and microbial growth. How can this be achieved? *(6 marks)*
- (b) Describe the following methods of food preservation:
- (i) cook-chill *(4 marks)*
- (ii) accelerated freeze drying (AFD) *(4 marks)*
- (iii) modified/controlled atmosphere packaging. *(4 marks)*
- (c) Comment on the advantages and limitations of **each** method. *(7 marks)*

3 Evidence shows that teenage girls drink less milk and more fizzy drinks.

- (a) What are the implications of this evidence for the health of teenage girls? *(10 marks)*
- (b) Compare the nutritional information of the products shown in the table below and suggest which product(s) best fit the healthy eating guidelines. Give reasons for your choice. *(10 marks)*

Nutritional information of some products

Food products per 100 grams	KJ	Carbohydrate (g)	Starch (g)	Sugar (g)	Dietary fibre (g)	Protein (g)	Fat (g)	Saturated fat (g)	Sodium (g)
Chocolate biscuits	2,197	67.6	24.2	43.4	3.1	5.7	27.6	17.4	1.6
Sandwich biscuits	2,151	69.3	39.1	30.2	1.2	5.1	25.9	14.8	2.2
Shortbread	2,115	65.5	48.3	17.2	2.1	6.2	26.1	13.6	1.4
Fruit cake	1,490	57.9	14.8	43.1	2.8	5.1	12.9	6.1	2.5
Jam sponge	1,280	64.2	16.5	47.7	1.2	4.2	4.9	2.1	4.2
Jam tart	1,616	62.8	25.3	37.5	1.7	3.5	14.9	n/a	2.3
Nutri-Grain bars	1,550	69.1	39.9	29.2	3.5	4.1	8.1	1.5	0.3

- (c) Why are fruit and vegetables considered to be a better alternative to sugary snack foods? *(5 marks)*

- 4 (a) Identify the population groups which may be deficient in ascorbic acid and iron. Give reasons for your answer. *(5 marks)*
- (b) Describe the functions of ascorbic acid and iron in the body and name the main sources in the UK diet. *(10 marks)*
- (c) Explain how ascorbic acid may lose its nutritional value during storage, preparation and cooking. *(10 marks)*

END OF QUESTIONS