

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
TOTAL	



General Certificate of Secondary Education
June 2013

Design and Technology: 45451 Food Technology

Unit 1 Written Paper

Monday 3 June 2013 9.00 am to 11.00 am

For this paper you must have:

- a black pen, a pencil, a ruler, an eraser, a pencil sharpener and coloured pencils.

Time allowed

- 2 hours

Instructions

- Use black ink or black ball-point pen. Use pencil and coloured pencils only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this answer book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.
- The questions in Section A relate to the context referred to in the Preliminary Material that was previously issued.
- You are reminded of the need for good English and clear presentation in your answers. Quality of Written Communication will be assessed in Question 5 (b)(i).



J U N 1 3 4 5 4 5 1 0 1

Section A

You should answer this question in the spaces provided.

Section A is about designing new products.

You should spend about 30 minutes on this question.

Research context: Food products for consumers with special dietary needs.

Design theme: Sweet and savoury biscuit products.

1 A manufacturer wishes to extend the range of biscuit products for consumers with special dietary needs.

1 (a) On the next two pages, use notes and/or annotated sketches to produce design ideas for biscuit products for **two different** special dietary needs.

Some special dietary needs are shown below. You can choose from this list or use different special dietary needs if you wish.

- Vegetarian
- Diabetic
- Coeliac/gluten free
- Nut allergy
- Lactose intolerance

You **must** annotate your design ideas to show how they meet the following design criteria.

Successful products will:

- be a sweet or savoury biscuit
- be suitable for the chosen special dietary need
- have sensory appeal
- be sold in individual portions
- be suitable for batch production.

Do **not** draw any packaging.



1 (a) (i) Design idea 1

Special dietary need

Explain how this special dietary need affects consumer food choices.

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Use notes and/or annotated sketches to show **one** biscuit design idea suitable for this special dietary need.

(9 marks)

Question 1 continues on the next page

Turn over ▶



1 (a) (ii) Design idea 2

Special dietary need

Explain how this special dietary need affects consumer food choices.

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Use notes and/or annotated sketches to show **one** biscuit design idea suitable for this special dietary need.

(9 marks)



1 (b) Choose **one** of your design ideas.

✓ Tick the design idea you have chosen to use.

Design idea 1

Design idea 2

Using the chart below, identify the quality control checks that will take place when making the biscuit product in the test kitchen.

Stages of making	Quality control checks
Checking the quality of the ingredients	1. 2.
Making the biscuit mixture	1. 2.
Shaping the biscuits	1. 2.
Cooking the biscuits	1. 2.

(8 marks)

Question 1 continues on the next page

Turn over ►



1 (c)

Explain how Computer-Aided Design (CAD) could be used during the development of the biscuit product and its packaging.

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(4 marks)

30



Section B

You should answer **all** questions in this section in the spaces provided.

Question 2 is about product development.

You should spend about 20 minutes on this question.

- 2 (a)** The test kitchen analysed a range of pizza products marking the design criteria out of 5.

These are the results:

Design criteria tested	Pizza A Cheese, onion and tomato	Pizza B Cheese and pepperoni	Pizza C Cheese and pineapple
Colourful	4	5	3
Multicultural flavour	2	4	4
Suitable for lacto vegetarians	5	0	5
Contributes towards 5 a day	4	0	3

Describe **one** way of improving each pizza.

You must choose **different** design criteria for each pizza.

Pizza A Improvement

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Pizza B Improvement

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Pizza C Improvement

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Question 2 continues on the next page

(6 marks)

Turn over ▶



2 (b) (i) The test kitchen is developing a new pizza product.

Describe development work that could be carried out to:

produce a quality finish on the pizza

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reduce the cost of the pizza

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find the safest storage conditions for the pizza.

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(6 marks)



2 (b) (ii) By law, the name of the product must be printed on food packaging.

Give **five** other items of information that must be given by law.

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(5 marks)

2 (c) Explain why evaluation is important in the development of a food product.

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(3 marks)

Turn over for the next question

20

Turn over ▶



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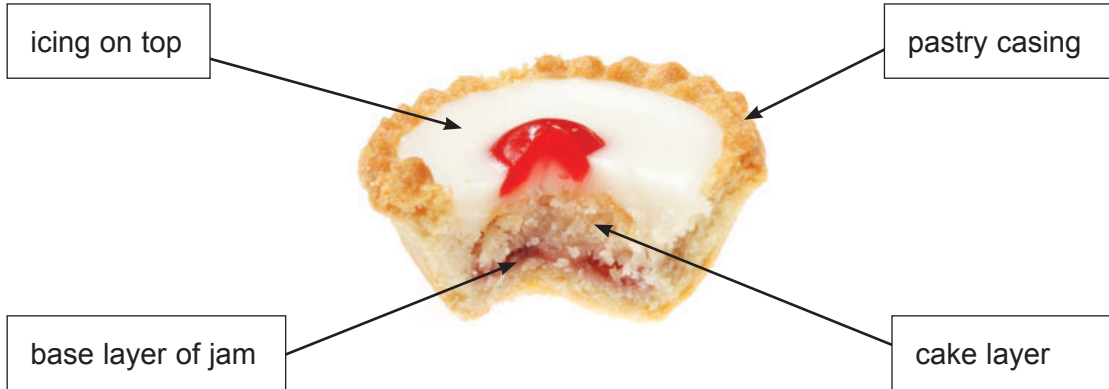
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Question 3 is about materials and components.

You should spend about 20 minutes on this question.

3 (a) (i) Look at the baked product shown below.



Explain why manufacturers use the following ingredients for this baked product:

Flour

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Eggs

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Sugar

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Baking powder

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(8 marks)

Question 3 continues on the next page

Turn over ▶



3 (a) (ii) Explain what is meant by the *shortening effect* of ingredients used in cakes and pastries.

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(4 marks)

3 (b) (i) Explain what is meant by *standard components*. Give examples used in cake and pastry products.

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(4 marks)



3 (b) (ii) Explain why manufacturers use *standard components*.

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(4 marks)

20

Turn over for the next question

Turn over ▶



Question 4 is about the production of quality food products.

You should spend about 20 minutes on this question.

4 (a) The following problems were found when making desserts in the test kitchen.

Complete the table to show how food workers could avoid these problems happening again in the future.

<p>Problem 1: The cream for piping on the top of a trifle does not thicken.</p>	<p>To avoid this problem in the future, the food worker must</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Problem 2: A high level of bacteria is found in a milky rice pudding.</p>	<p>To avoid this problem in the future, the food worker must</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Problem 3: The apples for a fruit pie turn brown.</p>	<p>To avoid this problem in the future, the food worker must</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

(3 x 2 marks)



4 (b) Describe how to produce a good shape and structure when making each of the following food products.

Do not repeat any of your answers.

A strawberry jelly

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Chocolate muffins

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Icing on a cake

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(6 marks)

Question 4 continues on the next page

Turn over ▶



4 (c) Some desserts contain gelling agents.

Describe how gelling agents work.

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(3 marks)

15



Question 5 is about modern-day food production.

You should spend about 15 minutes on this question.

5 (a) The following terms are often printed on food packaging.

Explain what is meant by each term.

Environmentally friendly

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Sustainable sources

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(6 marks)

Question 5 continues on the next page

Turn over ▶



5 (b) (i) The table below shows sales of Fairtrade products in the UK from 1999 to 2009 (£million).

 [®]	1999	2003	2006	2009
<i>Coffee</i>	15.0	34.3	93.0	160.0
<i>Tea</i>	4.5	9.5	25.1	70.3

The Fairtrade Foundation

Explain what is meant by Fairtrade and discuss why sales of Fairtrade products have increased.

Quality of Written Communication will be assessed in this question.

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(8 marks)

5 (b) (ii) Explain the disadvantages of using Fairtrade ingredients when designing new food products.

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(3 marks)

17

Turn over for the next question

Turn over ▶






Question 6 is about the use of equipment.

You should spend about 15 minutes on this question.

6 (a) The following items of equipment are used when making food products.

For each item give **one** advantage and **one** disadvantage.

<p>A microwave oven</p> 	<p>Advantage</p> <p>.....</p> <p>.....</p> <p>Disadvantage</p> <p>.....</p> <p>.....</p>
<p>A large scale oven</p> 	<p>Advantage</p> <p>.....</p> <p>.....</p> <p>Disadvantage</p> <p>.....</p> <p>.....</p>
<p>A breadmaker</p> 	<p>Advantage</p> <p>.....</p> <p>.....</p> <p>Disadvantage</p> <p>.....</p> <p>.....</p>

(6 marks)



6 (b) (i) What are the recommended temperatures for the following?

Reheating cooked foods

Storing chilled foods

(2 marks)

6 (b) (ii) Name an item of equipment used to check the temperature of foods when reheating.

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(1 mark)

6 (b) (iii) Describe the correct procedures to follow when using the equipment you have named in part (b)(ii).

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(3 marks)

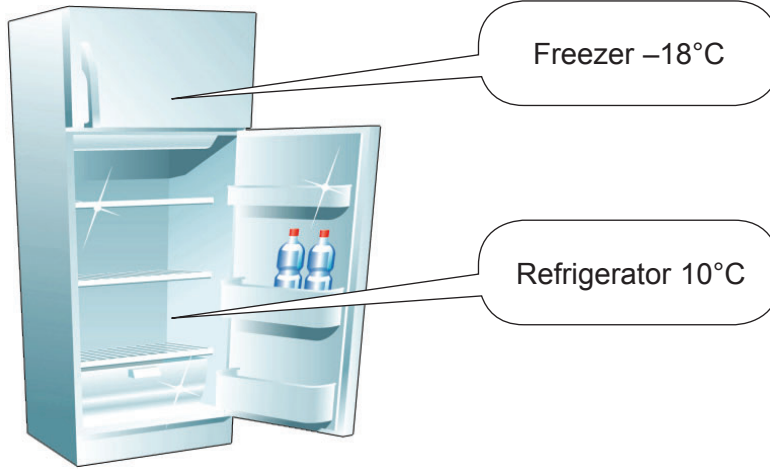
Question 6 continues on the next page

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6 (c)

Routine control checks on a fridge freezer show the temperature settings below. One of the temperature settings given is incorrect.



Explain what will happen to food stored in the freezer section at -18°C .

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Explain what will happen to food stored in the refrigerator section at 10°C .

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(6 marks)

END OF QUESTIONS



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