

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 2011

# Design and Technology: 45451 Food Technology

**Written Paper**

**Thursday 23 June 2011 1.30 pm to 3.30 pm**

**For this paper you must have:**

- a 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.

**Information**

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.
- The question in Section A relates 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) (iii).

**Advice**

- You are advised to answer the questions in the order in which they are written.



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

**Section A**

Answer this question.

Section A is about designing new products.

You should spend about 30 minutes on this question.

**Research Context:** Bread based snacks

**Design Theme:** Savoury snack and dip products

**1 (a)** On the opposite page, produce **two** design ideas for a new range of savoury snack and dip products.

You **must** annotate your sketches to explain how your design ideas meet each of the design criteria. Do **not** draw any packaging.

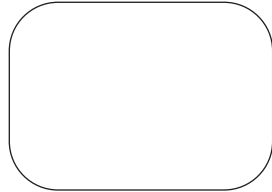
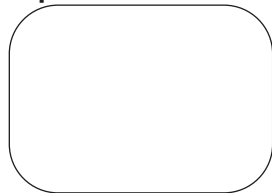
Here are the design criteria for this product.

The product must

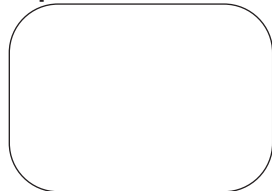

- be a savoury product
- include snacks made from a basic bread mixture
- provide choices for consumers who prefer healthier options
- provide sensory appeal.



**Design idea 1**

<b>Bread based snack</b>		<b>Dip 1</b>  <b>Dip 2</b> 
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**Design idea 2**

<b>Bread based snack</b>		<b>Dip 1</b>  <b>Dip 2</b> 
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**Question 1 continues on the next page**

**(10 marks)**

**Turn over ►**



**1 (b) (i)** Using the chart below, produce a plan for making the bread based snack from **one** of your design ideas from page 3.

Tick (✓) the box to show which design idea you have chosen.

Design Idea 1

Design Idea 2

Stages of making the bread product	Control checks

(9 marks)



**1 (b) (ii)** Which ingredient in your design will provide carbohydrate?

.....  
(1 mark)

**1 (b) (iii)** Explain the health problems that may occur when a person eats:

too much carbohydrate

.....  
.....  
.....  
.....

too little carbohydrate.

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(4 marks)

**Question 1 continues on the next page**

**Turn over ►**



**1 (c)** Some consumers have specific needs because of their diet or culture.  
Explain how savoury snack products could be developed for these consumers.  
Give examples in your answers.

**1 (c) (i)** snack products for consumers with special dietary needs

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*(3 marks)*

**1 (c) (ii)** snack products for consumers with cultural needs

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*(3 marks)*

<b>30</b>



**Section B**

Answer **all** questions in this section.

Question 2 is about product analysis.

You should spend about 20 minutes on this question.

**2 (a)** The table below shows the nutritional value of sweet and sour chicken products.

Nutrient per 100g	Sweet and sour chicken Product A	Sweet and sour chicken Product B
Energy	140kcal	200kcal
Protein	85.2g	80.5g
Carbohydrates	10.0g	21.2g
Fat	1.5g	7.0g
Fibre	1.0g	0.7g
Salt	0.6g	1.5g

Which of these products is better for a consumer on a healthy option diet?

Tick (✓) the correct answer.

Product A

Product B

Give reasons for your choice.

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(4 marks)

Question 2 continues on the next page

Turn over ►



2 (b) The instructions for making a sweet and sour chicken product are given below.

1. **Marinate** the chicken in garlic, ginger and lemon.
2. Coat the pan with low fat spray.
3. Add diced, skinless chicken.
4. Cook for 5 minutes to **seal** the chicken before adding the sauce.
5. Add the sauce then **simmer** for 30 minutes.
6. Ensure chicken is cooked thoroughly before serving.

2 (b) (i) Explain the terms used above.

**Marinate** .....

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.....

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**Seal** .....

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**Simmer** .....

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(6 marks)





**2 (b) (ii)** Explain why it is important for chicken products to be *cooked thoroughly* before serving.

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(4 marks)

**Question 2 continues on the next page**

**Turn over ►**



**2 (c)** The table below shows the GDA (Guideline Daily Amounts) information for a cooked chicken product.

<b>Cooked chicken product</b>			
	GDA for adults	1 serving provides	% GDA
Calories	2000 kcal	200 kcal	10%
Sugar	90 g	22.5 g	25%
Fat	70 g	7.0 g	10%
Salt	6 g	1.5 g	25%

**2 (c) (i)** Why is GDA information important for the consumer?

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(2 marks)

**2 (c) (ii)** Using information from the table above, give examples of how the cooked chicken product meets the GDA for adults.

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(4 marks)

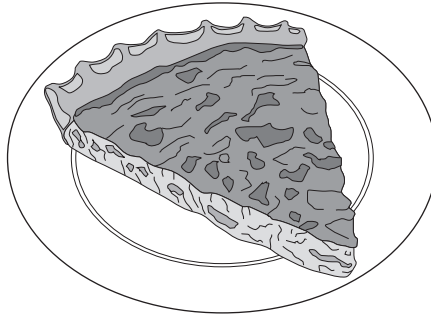
<b>20</b>



Question 3 is about developing new products.

You should spend about 20 minutes on this question.

**3 (a)** The test kitchen has developed the following savoury flan product.



A successful product

- uses home-made pastry, not a standard component
- is served in individual portions
- is suitable for eating without cutlery
- contains a filling which provides a portion towards the '5 A Day'.

**3 (a) (i)** Name the type of pastry suitable for this design idea.

.....

Complete the table to show the quantities of ingredients used for the pastry chosen.

Ingredient	Quantity
Flour	
Fat	

(3 marks)

**Question 3 continues on the next page**

**Turn over ►**



**3 (a) (ii)** Explain why a mixture of different fats is used in some pastries.

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*(3 marks)*

**3 (a) (iii)** Name a suitable material for packaging hot, hand-held pastry products.

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*(1 mark)*

**3 (a) (iv)** Give reasons for your choice.

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*(3 marks)*



**3 (b)** Sensory testing of food products takes place under controlled conditions.  
Using notes or sketches, explain what is meant by *controlled conditions*.

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(6 marks)

16

Turn over ►



Question 4 is about the production of quality food products.

You should spend about 20 minutes on this question.

**4 (a) (i)** A recent survey shows that fewer consumers are buying white flour.

Give reasons for this.

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(3 marks)

**4 (a) (ii)** Explain why some bakeries now use wholemeal flour when making fruit scones.

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(2 marks)

**4 (a) (iii)** Describe different control checks carried out when dried fruit for the scones is delivered to a bakery.

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(4 marks)



**4 (a) (iv)** Give **one** example of a control check that is carried out by computerised equipment during the production of scones.

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Explain why computers are used for this control check.

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*(5 marks)*

**Question 4 continues on the next page**

**Turn over ►**



4 (b) During the production of fruit scones the following problems were found.

Complete the table below to show a cause of **each** problem.

Explain how each problem could be prevented.

<p><b>Problem 1</b></p> <p>A hair was found in the cooked scone</p>	<p>Cause .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>Prevent by .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p><b>Problem 2</b></p> <p>The scones did not rise in the oven</p>	<p>Cause .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>Prevent by .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p><b>Problem 3</b></p> <p>The scones were of different shapes and sizes</p>	<p>Cause .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>Prevent by .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

(6 marks)

20





Question 5 is about issues related to food production.

You should spend about 15 minutes on this question.

**5 (a) (i)** Give **two** examples of different types of food additives.

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(2 marks)

**5 (a) (ii)** Explain some of the advantages **and** disadvantages relating to the use of food additives in food products.

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(4 marks)

**Question 5 continues on the next page**

**Turn over ►**



5 (b) Here is a label from a box of fresh vegetables.



5 (b) (i) What is meant by the term *organic foods*?

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(2 marks)

5 (b) (ii) Explain why more manufacturers are using organic foods.

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(2 marks)



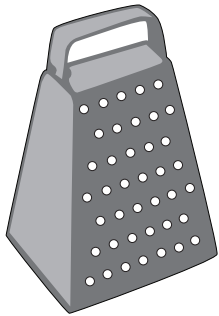
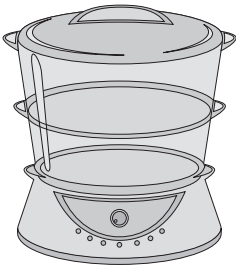
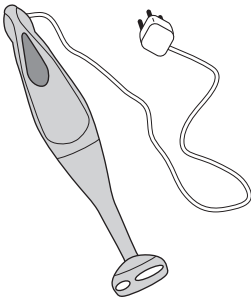


Question 6 is about use of equipment.

You should spend about 15 minutes on this question.

**6 (a)** Give an example of how each item of equipment shown below is used in the test kitchen.

Give reasons why the item is used.

<p>A grater</p> 	<p>Example of use .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Reasons .....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>A steamer</p> 	<p>Example of use .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Reasons .....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>A hand blender</p> 	<p>Example of use .....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Reasons .....</p> <p>.....</p> <p>.....</p> <p>.....</p>

(6 marks)



**6 (b) (i)** What is meant by *food contamination*?

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(2 marks)

**6 (b) (ii)** Explain how food contamination can be prevented by the correct use and care of equipment.

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(3 marks)

**6 (c)** Identify the safety precautions that food workers should take when using electrical equipment.

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(5 marks)

**END OF QUESTIONS**

<b>16</b>



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