

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 2015

Design and Technology: Food Technology

45451

Unit 1 Written Paper

Monday 1 June 2015 1.30 pm to 3.30 pm

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.
- Section A relates to the context given 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 2(d).



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

Section A

Answer this question in the spaces provided.

Question 1 is about designing new products.

You should spend about 35 minutes on this question.

Context: Pastry products produced by local bakeries.

1 Design Brief

A local bakery wants to create a new pastry product with a filling.

Design Criteria

A successful product will:

- use a freshly made pastry, not a ready prepared standard component
- include two or more ingredients in the filling
- offer sensory appeal
- show a creative use of ingredients.



1 (a) (i) Describe **three** ideas for **different** pastry products. Each idea must:

- use a freshly made pastry, not a ready prepared standard component
- include two or more ingredients in the filling.

You will be asked to develop **one** of your ideas in question 1(a)(ii).

Do **not** repeat the example given below.

Example

Idea: Savoury sausage and onion roll. Uses red onion, Cumberland sausage and diced apple filling. Made into a roll with a homemade pastry.

[3 × 3 marks]

Idea 1:

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Idea 2:

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Idea 3:

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Turn over ▶



1 (a) (ii) A local bakery wants to produce a pastry product that meets the following design criteria.

A successful product will:

- use a freshly made pastry, not a ready prepared standard component
- include two or more ingredients in the filling.

It must also:

- offer sensory appeal
- show a creative use of ingredients.

In the box opposite, use detailed annotated sketches to show how **one** of your ideas from question 1(a)(i) can be developed to meet the design criteria above.

Do **not** include any packaging details.

[10 marks]

Tick the box below to show which of your ideas you will choose to develop.

Idea 1 Idea 2 Idea 3



Name of product _____

Type of pastry used _____

Turn over ▶



0 5

- 1 (b)** The test kitchen wants to make a batch of the **pastry** that you used in your final design. Complete the plan below to show how to make the pastry used in your final design. Include quality control checks that are needed.

[8 marks]

How to make the pastry	Quality control checks



1 (c) A food processor is often used for speed and efficiency when making a batch of pastry.
Explain how food workers can use the food processor safely.

[5 marks]

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1 (d) Explain why bakeries may want to use locally sourced fresh foods.

[4 marks]

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Section B

Answer **all** questions in the spaces provided.

Question 2 is about product analysis.

You should spend about 20 minutes on this question.

- 2** A lasagne product is shown below.



The following is an information label for a lasagne product.

Lasagne Nutrition Facts		MAIN INGREDIENTS:
Amount Per Portion		
Nutrients	%Guideline Daily Amounts (GDA)	
Saturated fat	34%	Minced beef
Carbohydrates	5%	Tomatoes
Protein	17%	Lasagne sheets
Vitamin C	13%	Cheese
Calcium	19%	Milk
Iron	17%	Onions
		Red peppers
		Butter
		Flour

- 2 (a)** Why is Guideline Daily Amounts (GDA) information useful for consumers?

[2 marks]

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2 (b) Choose **three** of the nutrients shown on the label of the lasagne product on page 8.

Complete the table below to show the three nutrients you have chosen. For each nutrient explain its function and identify **one** ingredient from the label which contains this nutrient.

[6 marks]

Name of nutrient	Nutrient function	Ingredient which contains this nutrient

2 (c) The nutritional profile of the lasagne needs improving.

2 (c) (i) Give **two** ways to increase the carbohydrate level of the lasagne.

[2 marks]

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- 2.....
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2 (c) (ii) Give **two** ways to decrease the saturated fat level of the lasagne.

[2 marks]

- 1.....
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- 2.....
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Turn over ►



2 (d) A new lasagne product is being developed to meet the needs of students. Their consumer profile is shown below.



Consumer profile

- 18 - 25 year old university students.
- Some follow a vegetarian diet.
- Have a limited income.
- Want affordable, healthy food.

Using the information in the profile, discuss how the lasagne could be developed to meet the needs of the students.

You should make reference to the use of alternative protein foods in your answer.

Quality of Written Communication will be assessed in this question.

[10 marks]

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Extra space to be used if required.....

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Turn over for the next question

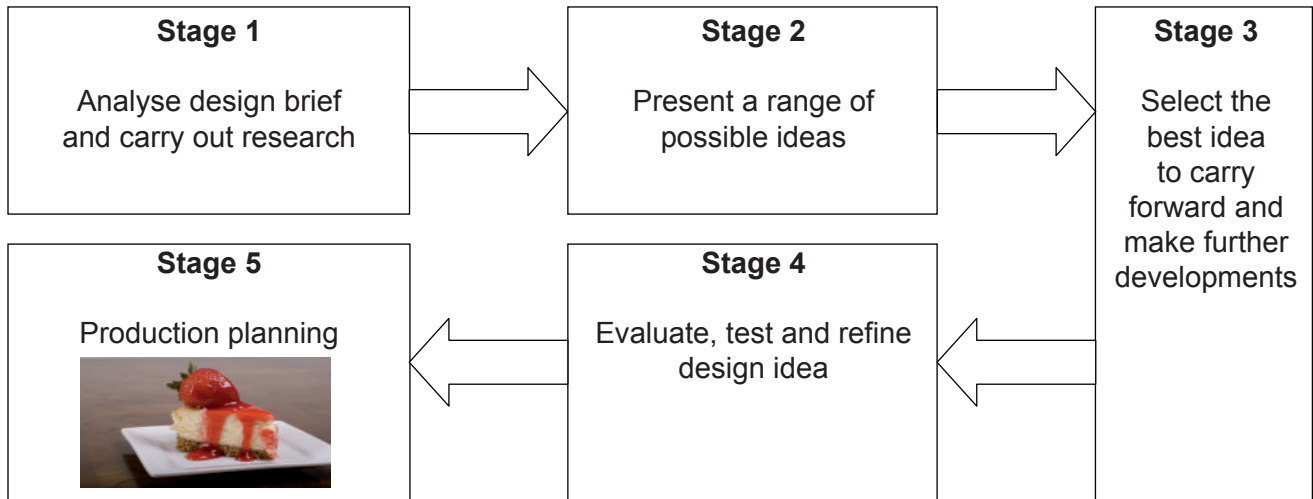
Turn over ▶



Question 3 is about prototype development.

You should spend about 20 minutes on this question.

3 Look at the chart below which shows the main stages of a prototype development for a cheesecake product.



3 (a) (i) For each of the following name one stage where it may be used.

[3 marks]

General design criteria:

A product specification:

A manufacturing specification:

3 (a) (ii) Describe two types of research that are useful at Stage 1.

[2 × 3 marks]

Research type 1

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Research type 2

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3 (b) Discuss the advantages of using a computer programme to analyse the nutritional value of the cheesecake at **Stage 4**.

[4 marks]

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Question 3 continues on the next page

Turn over ▶



3 (c) During prototype development, the test kitchen uses 500 g of raspberries to make a smooth fruit puree for a cheesecake topping.

Two items of equipment, shown below, could be used when making the puree.



A sieve



An electric hand blender

Describe how workers could set up a fair test to help them decide which item of equipment is best to use.

[6 marks]

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Question 4 is about hygiene in food production.

You should spend about 25 minutes on this question.

4 The following questions are asked by a new food worker.

4 (a) In the boxes below state what advice must be given to the new worker to ensure they follow the correct hygiene procedures when working with food.

[3 × 2 marks]

Why can't I wear my own clothes?

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What must I do if I feel ill?

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What must I do if I cut myself?

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Question 4 continues on the next page

Turn over ▶



4 (b) (i) Complete the table below to show **one** possible cause for each type of contamination when making a chicken curry and rice product.

[3 marks]

Type of contamination	Cause of contamination
Physical contamination	
Chemical contamination	
Biological contamination	

4 (b) (ii) Contamination often leads to food poisoning.

Name **three** symptoms of food poisoning.

[3 marks]

- 1
- 2
- 3

4 (b) (iii) Explain how to prevent food poisoning when reheating a frozen chicken curry and rice ready meal product.

[4 marks]

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4 (c) (i) Give **four** reasons why manufacturers package food products.

[4 marks]

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4 (c) (ii) Describe **different** packaging materials that are suitable for a frozen chicken curry and rice ready meal product.

Give reasons for your choice.

[4 marks]

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Turn over ▶






Question 5 is about the use of materials and components in food production.

You should spend about 10 minutes on this question.

5 The ingredients in the table below are used in the test kitchen.

5 (a) State which ingredients are acid and which ingredients are alkali.

[3 marks]

Ingredient	 <p>Bicarbonate of soda</p>	 <p>Lemon juice</p>	 <p>Vinegar</p>
Acid or alkali			

5 (b) Give **one** reason why:

5 (b) (i) bicarbonate of soda is used in ginger biscuits.

[1 mark]

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5 (b) (ii) lemon juice is used in a fruit salad.

[1 mark]

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5 (b) (iii) vinegar is used in marinades for barbecued meats.

[1 mark]

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5 (c) Explain why manufacturers use additives in their food products.

[5 marks]

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Turn over for the next question

Turn over ▶



Question 6 is about technological developments.

You should spend about 10 minutes on this question.

6 A news report gives the following information about Genetically Modified (GM) food.

What is Genetically Modified (GM) food?

Genetically modified food is produced from plants which have had their genetic make-up tweaked in the lab.

Scientists “cut and paste” a gene from another organism into a plant’s DNA to give it a new characteristic.

This can be done to increase production or to allow the plant to grow in different environments around the world.



6 (a) What are the advantages of Genetically Modified (GM) foods?

[4 marks]

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6 (b) Why are some food manufacturers and consumers concerned about the use of Genetically Modified (GM) foods?

[4 marks]

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END OF QUESTIONS



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