

Surname	Centre Number	Candidate Number
Other Names		0

**GCSE**

4091/01



S17-4091-01

**DESIGN AND TECHNOLOGY****UNIT 1****FOCUS AREA: Food Technology**

TUESDAY, 23 MAY 2017 – MORNING

2 hours

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
<b>Section A</b>	1.	15
	2.	10
	3.	10
	4.	25
<b>Section B</b>	5.	10
	6.	15
	7.	20
	8.	15
<b>Total</b>	<b>120</b>	

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010001**ADDITIONAL MATERIALS**

You will need basic drawing equipment, coloured pencils and a calculator for this examination.

**INSTRUCTIONS TO CANDIDATES**

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. Where the space is not sufficient for your answer, continue at the back of the book, taking care to number the continuation correctly.

You are reminded of the necessity for good English and orderly presentation in your answers.

**INFORMATION FOR CANDIDATES**

The number of marks is given in brackets at the end of each question or part-question.

## Section A

Marked out of 60 60 minutes

1. This question is about Product Analysis. It is worth a total of 15 marks.

The photographs show fresh potato gnocchi.

	
<p>Product description: Steamed potato, wheatflour and egg dumplings.</p>	

Product information:

- Serves two people
- Cost £2.10
- Weight 400g
- Can be cooked by boiling or frying
- Must be kept refrigerated

- (a) (i) Circle the cost per person for the potato gnocchi. [1]

£1.10

£1.15

£1.05

- (ii) Give **one** reason why the cost of the potato gnocchi is not expensive. [1]

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- (b) The target group for the potato gnocchi has been identified as working adults/couples. Explain why the manufacturer has targeted this group of people. [2]

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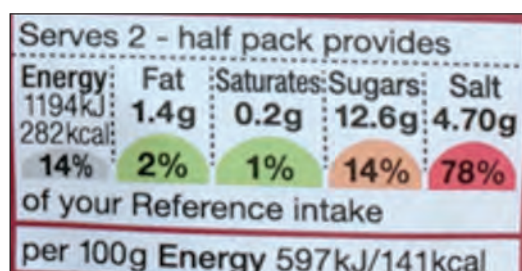
.....

- (c) The potato gnocchi has been produced by batch production. Explain why this would be the most suitable scale of production. [2]
- .....
- .....

- (d) (i) The potato gnocchi is made using four ingredients. Complete the table below to identify the function of **each** ingredient used in the making of the potato gnocchi. (**Two ingredients have already been done for you.**) 2 x [1]

<i>Ingredient used</i>	<i>Function of ingredient</i>
Steamed potato	Light, soft texture and provides main taste.
Salt	To season the potato, develop the flavour.
Wheatflour	
Egg	

- (ii) The nutritional value of the potato gnocchi is shown below. The salt content is high at 78% of the dietary reference intake.



Suggest **two** ways the manufacturer could develop the flavour of the potato gnocchi whilst reducing the salt content. [2]

- I. ....
- II. ....

- (e) Before starting to design the potato gnocchi a specification was written. Describe what you think was the most important specification point for the quality of the potato gnocchi. [2]
- .....
- .....

- (f) The table below shows the taste test results for the potato gnocchi.

<b>Product characteristic</b>	<b>Taster 1</b>	<b>Taster 2</b>	<b>Taster 3</b>
Soft texture	4	3	3
Smooth texture	5	4	5
Salty taste	2	1	1
Strong potato flavour	5	4	3
Suitability of individual gnocchi size	5	5	4

- (i) State which product characteristic achieved the second highest score. [1]
- .....

- (ii) The total score available for texture is 30. Calculate as a percentage (%) the actual total for texture the product was awarded. [2]

*(Show all your workings).*

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2. This question is about the general issues of Design and Technology. It is worth a total of 10 marks.

(a) The picture below shows a cooked roast chicken.



Some of the chicken was used for a lunchtime meal. Suggest how the leftover chicken could be reused to make other meals. [2]

I. ....

II. ....

(b) The amount of electrical energy used in a food technology classroom could be reduced by not using a food processor for carrying out preparation tasks. Identify **two other** ways of reducing electrical energy in the classroom. [2]

I. ....

II. ....

(c) (i) Sales of organic foods have increased. Explain why people are choosing organic when buying fresh fruit and vegetables. [2]

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(ii) The photographs below show how fresh fruit can be sold in a supermarket.



Photograph A



Photograph B

Discuss why some consumers would refuse to buy the fresh fruit shown in photograph A. [4]

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3. This question is about the Designers that you have studied. It is worth a total of 10 marks. During your course you have studied the work of Jamie Oliver and Heston Blumenthal.

(a) Name the designer associated with **each** of the images below.

[2]

	
<p>(i) .....</p>	<p>(ii) .....</p>

(b) Write a short essay in the space below to describe the style and main features of Heston Blumenthal's work. [8]

*Marks will be awarded for the content of the answer and the quality of written communication.*

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4. This question is about the Design Process and how it is used. It is worth a total of 25 marks.

(a) Draw a line to match the term to the correct meaning. [3]

<i><b>Term</b></i>	<i><b>Meaning</b></i>
Target Market	Refining and improving your ideas.
Evaluation	A group of people who would be interested in the product.
Development	Testing and comparing your product to the design specification.

(b) Research is an important starting point for a designer. State **one** form of research a designer may carry out. [1]

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(c) When developing a new food product it is important to test and model the proposed ideas. Explain why this stage of development is essential. [3]

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- (d) A food manufacturer is planning to introduce a new range of **products** to be sold called '**from scratch, fresh meal kits**'. These styles of kits do not require the customer to do any preparation, they just have to **use the ingredients** and follow the instructions to cook the meal.



Specification.

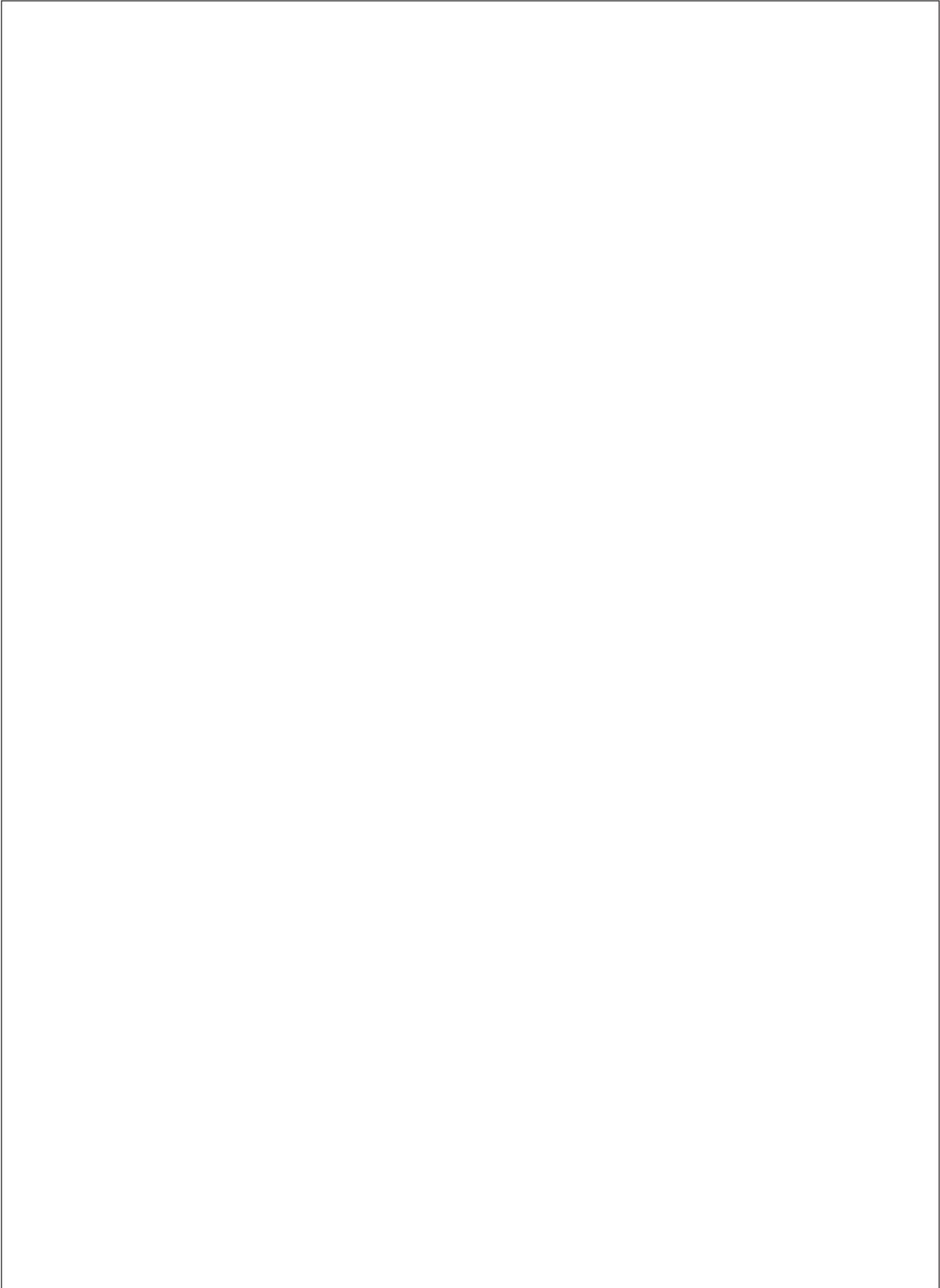
**The design must:**

- show prepared ingredients required to produce a savoury from scratch fresh, nutritious meal;
- be suitable for cooking on the hob in a short amount of time;
- include a flavoursome sauce;
- include a range of textures and flavours;
- provide a range of nutrients.

**Marks will be awarded for:**

- (i) the design of a suitable from scratch fresh meal kit for cooking on the hob and including instructions for cooking; [2]
- (ii) written details and sketches of all the prepared ingredients to be used to make the savoury, cook from scratch meal; [4]
- (iii) stating the sources of the main nutrients, carbohydrates and protein; [2]
- (iv) the identification and discussion of foods which provide a range of textures and flavours; [4]
- (v) including an interesting flavoursome sauce; [2]
- (vi) quality of communication to include a well annotated design drawing. [4]

Draw, label and annotate your design of the 'from scratch fresh meal kit' in the box below.  
*Include instructions for cooking.*



## Section B

Marked out of 60 60 minutes

Examiner  
only

5. This question is about Commercial Manufacturing Processes. It is worth a total of 10 marks.

- (a) Using words from the list below complete the table to match the manufacturing process with the correct meaning. [2]

Sieving	Forming	Filling	Enrobing
<b>Manufacturing process</b>		<b>Meaning</b>	
		Coating or covering a food product with another ingredient to give it an outer layer.	
		Putting a measured amount of a mixture into the centre of a food product.	

- (b) Describe when a manufacturer may use mass production. [2]

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- (c) A floor standing mixer like the one shown below was used in the making of the mediterranean vegetable and pesto focaccia.



- (i) Name **one** process that would be completed by the floor standing mixer. [1]

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Examiner  
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(ii) Describe **one** advantage to the manufacturer of using the floor standing mixer. [2]

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(iii) After baking the product quality control checks would be carried out. Name a quality control check and explain why the check is important. [3]

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6. This question is about Materials and Components. It is worth a total of 15 marks.

- (a) The ingredients used to make a white roux based sauce have different functions. Using the word bank below, select the correct ingredient and complete the sentences.

[3]

**plain flour****oil****margarine****semolina****milk**

..... melts and combines with the dry ingredient to form a paste.

A sauce or a paste can be thickened by using .....

Adding ..... can help give a creamy and suitable consistency to a sauce.

- (b) The picture below shows a jar of pickled onions. The onions have been preserved for a longer shelf life.



- (i) State the name of the liquid in the jar that is used to preserve the onions. [1]

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- (ii) Name **one** other method used to preserve foods. [1]

.....

(c) The picture below shows a sour cherry and almond frangipane tart.



(i) The rich shortcrust pastry case has been made using butter and egg yolk. Explain the function of the egg yolk in the pastry case. [2]

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(ii) Explain why the manufacturer has applied a glaze to the top of the frangipane tart. [2]

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(d) Many food materials have to be processed before they can be used.

Explain what primary processing is and give an example of a primary processed food.

[2]

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.....

Example of a food product: ..... [1]

(e) When making a bread product for a coeliac explain how you would adapt the recipe and why this is necessary. [3]

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7. This question is about Tools, Equipment and Making. It is worth a total of 20 marks.

(a) Name the skills shown in the pictures below.

[3]

		
<p>.....</p>	<p>.....</p>	<p>.....</p>

(b) (i) It is important to follow good hygienic practices when preparing foods. Identify **two poor** practices which could cause food poisoning after preparing raw meat. [2]

I. ....

II. ....

(ii) Salmonella is one type of food poisoning. Name **two** other types of food poisoning. [2]

I. ....

II. ....



(c) The picture below shows a pork and apple pastry plait.



(i) Use notes and sketches to explain how the pastry plait has been assembled. [6]

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(ii) The pork and apple pastry plait has been glazed. Name **two** ingredients that could be used to glaze the pastry. [2]

I. .... II. ....

- (d) The picture below shows a meal of sweet and sour chicken with rice. The sauce used for the sweet and sour chicken is a blended sauce made using cornflour.



- (i) Explain how the cornflour would be prepared before adding it to the sauce ingredients. [2]

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- (ii) State why the cornflour is added to the sauce. [1]

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- (iii) A safety check using a temperature probe like the one shown below would be carried out during the making of the sweet and sour chicken.



Identify the stage of making when the temperature probe could be used and why it is used. [2]

Stage of making: .....

Why used: .....

.....

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8. This question is about ICT, CAD, CAM, Systems and Processes. It is worth a total of 15 marks.

(a) State what the letters ICT stand for. [1]

I ..... C ..... Technology

(b) Place a **tick (✓)** in the table below to match the most suitable software package to use for each of the tasks. 3 x [1]

<b>Task</b>	<b>Word processor</b>	<b>Spreadsheet</b>	<b>PowerPoint</b>
A slide show displaying a range of design proposals.			
A written report on the findings from carrying out a questionnaire.			
A breakdown of ingredient costs for the trialling of a range of products.			

(c) The block diagram below shows a simple cake production system.



(i) Name **one other** input. [1]

.....

(ii) Name **two other** processes. [2]

Process I. .... Process II. ....

(iii) Feedback is essential to control systems. Describe how feedback would be used during the weighing of ingredients. [2]

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Examiner  
only

(iv) Explain why the manufacturer uses Computer Aided Manufacture (CAM) to deposit the cake mixture into the tins. [2]

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(d) Give **two** reasons why Computer Aided Design (CAD) was used to produce the design of the wedding cake.



Reason 1:

..... [2]

Reason 2:

..... [2]

**END OF PAPER**



