Surname	Centre Number	Candidate Number
Other Names		0

GCSE

4091/01

DESIGN AND TECHNOLOGY
UNIT 1
FOCUS AREA: Food Technology

A.M. WEDNESDAY, 15 May 2013

2 hours

Suitable for Modified Language Candidates

	Leave Blank
Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
Question 6	
Question 7	
Question 8	
TOTAL MARK	

4091 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.

Examiner only

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 two custard slices.
The product is contained in a card box with a plastic tray.

Product description
Butter enriched puff pastry slices layered with vanilla custard, topped with glacé icing and yellow chocolate flavoured feathering.

Product information:

- serves two people;
- cost per pack £1.19;
- they must be kept refrigerated;
- suitable for vegetarians.

(a) The custard slices are layered using puff pastry. Give **one** reason why puff pastry has been used. [1]

.....

(b) Explain why the custard slices must be kept refrigerated. [2]

.....

.....

Examiner only

(c) State the scale of production used to make the custard slices. Why would this be the most suitable scale of production?

Scale of production: ..... [1]

Explanation: ..... [2]

.....

.....

(d) Before starting to design the custard slices a design specification was written.

Write a detailed specification point for **each** of the following headings.

(i) The aesthetic appeal of the custard slices. [2]

.....

.....

(ii) The function of the custard slices. [2]

.....

.....

(iii) The target audience for the custard slices. [2]

.....

.....

Turn over.

Examiner only

(e) The chart below shows the taste test results for the custard slices.

Product Characteristic	***Taster 1***	***Taster 2***	***Taster 3***
Creamy custard texture	3	4	3
Strong vanilla flavour	2	3	2
Suitable portion size	4	5	5
Overall sweetness of the slices	2	3	4
Buttery pastry flavour	4	5	4

(i) State which product characteristic achieved the highest marks. [1]

.....

(ii) Calculate the percentage (%) of scores which are 4 or more. [2]

Show all workings.

.....

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Examiner only

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

(a) Complete the table below to show if the statement is true or false by placing a **tick (✓)** in the correct column. [2]

Statement	*True*	*False*
Food labelling laws state the manufacturer's name and address must be included on a food label.		
The display until/sell by date must be included on a food label.		

(b) The bread and butter pudding shown below makes use of the 'R' reuse. Stale bread has been used in the making of the product.

Name a different food product where reuse can be applied. Explain how it is put into practice.

Name of food product: .....

[1]

Explanation: .....

.....

[2]

(c) The picture below shows the Red Tractor Assurance logo. It can be applied to food products. Explain the meaning of the Red Tractor logo. [2]

Explanation: .....

.....

.....

(d) Many farmers markets and farm shops sell local produce. Discuss the impact made to the environment by consumers choosing to buy local produce. [3]

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.....

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Examiner only

3. This question is about the Designers that you have studied. It is worth 10 marks.

During your course you have studied the work of Jamie Oliver and Delia Smith.

(a) Study the book titles below.
State the name of the designer that matches the book titles. [2]

	Book Titles	***Name of Designer***
(i)	MINISTRY OF FOOD THE NAKED CHEF	.....
(ii)	ONE IS FUN! SUMMER COLLECTION	.....

(b) Describe the influence that Jamie Oliver has had on the nation's cooking and eating habits. What are his opinions in relation to home cooking?
Use the space below for your answer. [8]
Marks will be awarded for the content of the answer and the quality of written communication.

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Examiner only

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

(a) (i) Name **one** information source that could be used when designing. [1]

.....

(ii) State **two** ways of communicating design ideas. [2]

I. .....

II. .....

(b) Modelling is an important part of the development process in Food Technology. Explain why this stage is necessary when developing a new food product. [2]

.....

.....

(c) Explain the importance of a manufacturing specification. [2]

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Examiner only

(d) A manufacturer is planning to extend its range of savoury pastry products.

Specification

The design must:

- be a savoury pastry product;
- be a single portion;
- include a combination of flavours;
- include a range of textures;
- have an attractive appearance;
- provide a good source of protein.

Marks will be awarded for:

(i) a savoury product; [1]

(ii) a single portion product; [1]

(iii) including a combination of flavours; [3]

(iv) including a range of textures; [3]

(v) an attractive appearance; [2]

(vi) stating the good source of protein; [1]

(vii) labelling of all the food materials used to make the pastry; [3]

(viii) quality of communication. [4]

Draw and label your plan view of your design in the box below.

Draw and label your cross section in the box below.

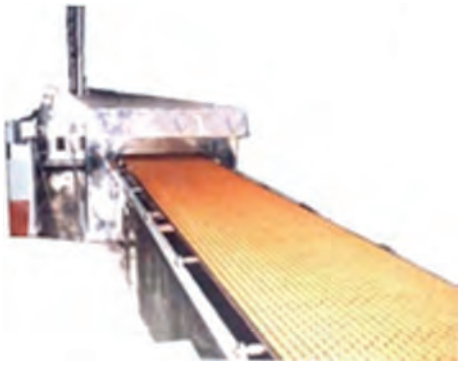
Examiner only

Section B

Marked out of 60 *60 minutes*

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

(a) Complete the table by naming the industrial equipment shown below. [2]

Equipment	***Name***
	
	

(b) The picture below shows a decorated cake. It has been produced using one-off production. State **one** advantage of having a cake made by this method. [1]

Advantage: .....

.....

.....

Examiner only

(c) The machine shown in the picture below is a rotary cutter used during the manufacturing of biscuits.

(i) Explain how the rotary cutter speeds up the manufacturing process. [2]

.....

.....

.....

.....

.....

(ii) Describe in detail **one** advantage for the manufacturer when using this machine to manufacture the biscuits. [2]

.....

.....

.....

(d) Explain what is meant by continuous flow production. Name a food product that is produced using this method of manufacturing. [2]

Explanation: .....

.....

.....

Name of food product: ..... [1]

Turn over.

Examiner only

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

(a) Complete the chart by matching the products shown to the correct nutritional/dietary requirement. Use the list of words to help you. [3]

Vegetarian Diabetic Lactose Intolerant Coeliac

Product	*Nutritional / dietary requirement*
	.....
	.....
	.....

Examiner only

(b) There are five main nutrients required by the body. Name **two** of the nutrients. [2]

Nutrient 1: .....

Nutrient 2: .....

(c) The picture below shows a cheese and tomato quiche.

Complete the chart below by placing a **tick (✓)** in the correct column to show the main function of each ingredient used to make the quiche. [4]

Some ingredients have already been completed for you.

*Place a **tick (✓)** in each column only once.*

Ingredients	***Functions***					
	Setting	**Flavouring**	**Bulking**	**Binding**	**Texture**	**Shortening**
Margarine						
Plain flour						
Cold water						
Eggs						
Cheese		✓				
Tomato					✓	

Examiner only

(d) Food materials can be combined in different ways to produce different types of structures.

Name the type of structure in the food product shown below. How is it achieved?

Name of structure: ..... [1]

How it is achieved: .....

.....

.....

[2]

(e) The picture below shows a food product that has been produced using a modified starch.

Explain in detail why modified starch has been used in the 'Cup a Soup'. [3]

.....

.....

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Examiner only

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

(a) Complete the table by naming the equipment pictured below. Give the main use for **each** one. [6]

Equipment	*Name*	*Use*
	.....	....
	.....	....
	.....	....

(b) The picture below shows a crumble topped tart made in school.

(i) Name a piece of electrical equipment that can be used to make the crumble for the top.

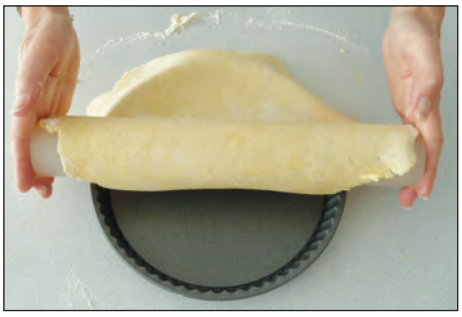
Equipment piece: ..... [1]

(ii) State a visual quality assurance check the student could have carried out when assessing the crumble topped tart. [1]

.....

Examiner only

(c) The pictures below show some of the different stages involved when lining a tin with pastry. Describe what is happening at each stage. Explain why each stage is important.



(i) .....

.....

.....

.....

[2]

(ii) .....

.....

.....

.....

[2]

(iii) .....

.....

.....

.....

[2]

(iv) Explain why some recipes require the pastry case to be baked blind. [2]

.....

.....

(v) Name a dish that makes use of baking blind. [1]

.....

Examiner only

(d) The picture below shows a Swiss roll.

(i) Name the method used to make the Swiss roll sponge. [1]

.....

(ii) Air is the main raising agent in the Swiss roll. Explain how air is incorporated (added) during the making of the Swiss roll. [2]

.....

.....

Examiner only

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

(a) Underline the correct word in **each** of the following sentences. [2]

- Spreadsheets can be used to calculate **recipes / costings**.
- It is **true / false** that star profiles can be constructed using ICT to present data.

(b) (i) CAM is used in industry during the automatic production of food products.

Give **two** reasons why food manufacturers use computers in many stages of production. [2]

Reason 1: .....

Reason 2: .....

(ii) CAM involves the use of electronic sensors to monitor changes in food.

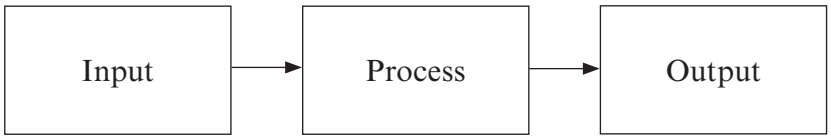
Two stages that take place during the making of Bakewell Tarts are identified in the table below.

Describe **two** changes that could be monitored by the electronic sensors.

Stages in making Bakewell Tarts	***Changes monitored by electronic sensors***
Weighing of ingredients for the sponge top.	.... [2]
Baking of the Bakewell Tarts.	.... [2]

Examiner only

(c) A production system has three main stages as shown below. [2]



Add **two** further elements that are required at the input stage.

- Raw ingredients
- .....
- .....

(d) (i) CIM is an essential system used in the production of high volume products such as cereals and snack foods. State the meaning of CIM. [1]

C ..... Integrated M .....

(ii) Describe how CIM integrates the manufacturing process. [2]

.....

.....

.....

(e) Describe the main benefits to the supermarket retailer of using barcodes. [2]

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END OF PAPER

Examiner only

For continuation only.