

Candidate Name	Centre Number	Candidate Number
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**GCSE**

4091/01

**DESIGN AND TECHNOLOGY**

**UNIT 1**

**FOCUS AREA: FOOD TECHNOLOGY**

P.M. WEDNESDAY, 25 May 2011

2 hours

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Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
Question 6	
Question 7	
Question 8	
<b>TOTAL MARK</b>	

**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 the answer at the back of the book, taking care to number the continuation correctly.

**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 four sweet and sour spring rolls.

The product is contained in a plastic tray covered with a film lid and a card sleeve.

	
<p>Product description Crisp pastry spring rolls filled with sweet and sour chicken.</p>	

Product information:

- individual portion size;
- total weight of pack 240g;
- they must be stored in a refrigerator;
- the spring rolls can be frozen;
- the spring rolls must be cooked before eating.

- (a) State the meaning of this symbol which is printed on the package. [1]



.....

- (b) Circle the scale of production used to make the sweet and sour spring rolls. [1]

Continuous flow production      One- off production      Batch production

- (c) Name a target group who would find the sweet and sour spring rolls appealing and give a reason for your choice. [2]

Target group: .....

Reason: .....

.....

- (d) The sweet and sour spring rolls include red pepper as part of the filling. Give **two** reasons why red pepper has been used. [2]

Reason 1: .....

Reason 2: .....

- (e) Before starting to design the sweet and sour spring rolls a design specification was written.  
*State with as much detail as you can, the most important design specification point for each of the following aspects.*

- (i) The function of the pastry casing. [2]

.....

.....

- (ii) The size of the sweet and sour spring rolls. [2]

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.....

- (iii) The safety considerations for the consumer of the spring rolls. [2]

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(f) The chart below shows the taste test scores for the sweet and sour spring rolls.

<i>Product characteristic</i>	<i>Taster 1</i>	<i>Taster 2</i>	<i>Taster 3</i>
Crisp pastry casing	2	1	2
Suitable amount of chicken pieces	5	4	5
Golden brown colour	4	3	4
Moist filling	1	2	2
Sweet flavour of filling	3	5	4

Note: the lowest is 1, the highest is 5.

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

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(ii) Calculate the total score awarded by Taster 1 as a percentage.  
(*Show all workings.*) [2]

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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) Designers of sustainable products consider the six Rs. Complete the table by filling in the missing Rs. [2]

Rethink	Reuse	.....
Repair	Reduce	.....

(b) A more sustainable lifestyle is important for good health. Reducing the amount of salt consumed can lead to this. Using the words below complete the sentences about good health. Use each word only once. [3]

Sugar                      Fat                      Diabetes

Reducing the amount of ..... you consume can prevent heart related diseases. If you reduce your intake of ..... it can help prevent ..... and dental caries.

(c) The picture below shows a food product in its packaging.



Explain how the tray which holds the food product can be reused. [2]

.....

.....

(d) The photograph below shows an ECO Refill pack for coffee.



Study the photographs of the ECO refill pack and describe how this style of packaging is better for the environment. [3]

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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 Gordon Ramsay and Delia Smith.

(a) Fill in the name of the chef associated with each of the images below.

[2]

Name .....	Name .....

(b) Select **one** of these chefs and write a short essay describing their work and the impact they have had on the cooking, presentation and eating of food. [8]

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

Name of designer: .....

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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) Complete the table by selecting the correct term from the list below to match each meaning. [4]

Specification      Design brief      Initial ideas      Modelling      Evaluation

<i>Term</i>	<i>Meaning</i>
	A number of design sketches.
	A list of things the product must have.
	Testing the product against the specification.
	A statement of what you intend to design and make.

(b) Name the stage in the design process when designers would improve their ideas. [1]

.....

(c) A designer often makes a prototype. Explain why prototyping is useful. [2]

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- (d) A manufacturer is planning to extend its range of single portion cheesecake style desserts.

Specification.

The design must:

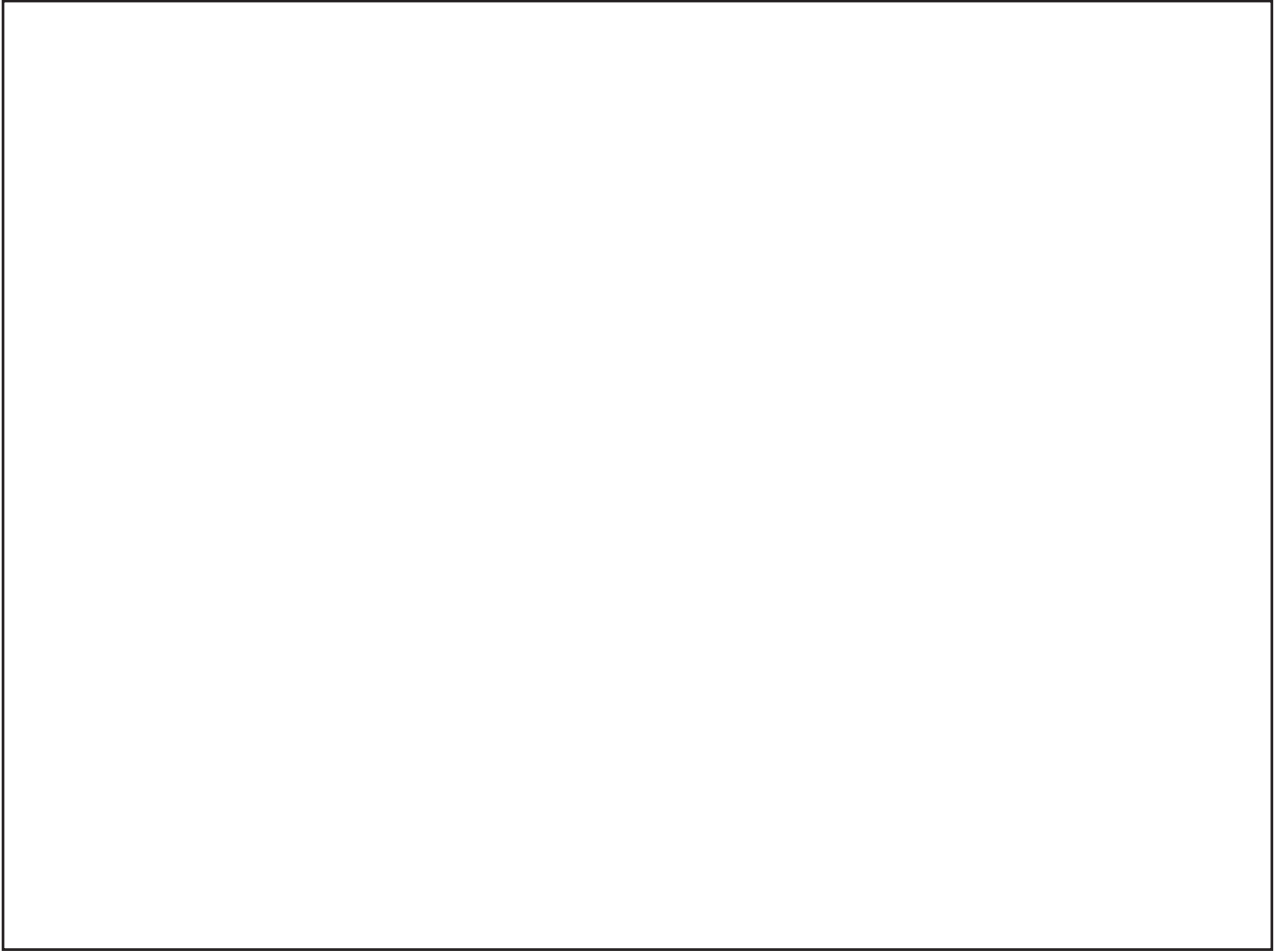
- be a cheesecake style dessert;
- be a single portion;
- provide a good source of fibre;
- include fruit;
- look appealing to the consumer.

Sketch **one** idea for the cheesecake style dessert. Use notes to explain your idea.

Marks will be awarded for:

- |   |     |
|---|-----|
| (i) one appealing design to satisfy the specification;  | [8] |
| (ii) labelling of suitable materials used to make the cheesecake style dessert including the source of fibre; | [3] |
| (iii) stating the sensory functions of the ingredients;   | [3] |
| (iv) quality of communication to include a cross section and sizes.   | [4] |

Draw and label your design here.



Draw your cross section here.



**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) CAM (Computer Aided Manufacture) is used during the commercial production of many food products. Complete the table below by placing a **tick** (✓) in the correct column to show whether each statement is true or false. [2]



<i>Statements</i>	<i>True</i>	<i>False</i>
Repetitive tasks are carried out quickly which saves time.		
It reduces the amount of products made within a set time so increases costs.		

(b) Food products can be manufactured using different scales of production. Complete the table by inserting the correct scale of production for the products shown. [2]

Mass production

Batch production

One-off production

	
(i) .....	(ii) .....

(c) Manufacturers use many different pieces of equipment during the commercial manufacturing of food products.

Name each piece of equipment shown below and explain why it is important to a manufacturer.

(i)



Name ..... [1]

Importance: .....

.....

.....

[2]

(ii)



Name ..... [1]

Importance: .....

.....

.....

[2]

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

(a) Flours have different characteristics. Complete the table below by placing a **tick (✓)** in the correct column to show whether each statement is true or false. [2]

<i>Statements</i>	<i>True</i>	<i>False</i>
Strong plain flour has a high gluten content which is needed in bread making.		
Wholemeal flour has all of the bran and germ removed.		

(b) The picture below shows a decorated biscuit. The ingredients used to make the biscuit base are listed alongside.



Biscuit base ingredients.

- Plain flour
- Bicarbonate of soda
- Butter
- Soft brown sugar
- Golden syrup
- Ginger

(i) State the sensory function of the ginger. [1]

.....

(ii) Explain the physical function of the plain flour. [2]

.....

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.....

(c) The Eatwell Plate shows the proportions and types of foods needed to make up a healthy balanced diet.



(i) Name the food group that sweet biscuits would fit into. [1]

.....

(ii) Explain the importance of protein as part of a balanced diet. [2]

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(d) The shelf life of a product can be extended by using a number of different methods.

(i) Name **one** method that involves the application of heat. [1]

.....

(ii) Name **one** method that has the heat removed. [1]

.....

(e) Additives are substances which are added to foods during the manufacturing or processing stage.

(i) Name **two** main groups of additives. [2]

Group 1: .....

Group 2: .....

(ii) Explain in detail **one** advantage to the manufacturer of using additives. [3]




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

(a) Complete the chart by naming the equipment pictured below and give the main use for each one. [6]

<i>Equipment</i>	<i>Name</i>	<i>Use</i>
		<p>.....</p> <p>.....</p> <p>.....</p>
		<p>.....</p> <p>.....</p> <p>.....</p>
		<p>.....</p> <p>.....</p> <p>.....</p>

(b) Following food safety practices when preparing foods is vital to avoid contamination and food poisoning.

State **two** safety practices that must be followed when preparing food. [2]

Safety practice 1: .....

.....

Safety practice 2: .....

.....



- (c) (i) Using the words from the word bank below complete the sentences showing the method for making a roux sauce. Use each word only once. [6]



thicken      paste      gelatinisation      margarine      boil      milk

Method for making a roux sauce.

Melt the ..... in a saucepan. Add the flour and stir well.

It should form a ..... otherwise known as a Roux.

Gradually add the ..... mixing well and allow the sauce to ..... . This will enable the sauce to ..... . This is called .....

- (ii) Name a flavouring that could be added to a roux sauce. [1]

.....

- (iii) Name a food product that includes a roux sauce. [1]

.....

(d) Students are making a batch of 20 chicken pies similar to the one shown below.



(i) State a quality assurance check that would be carried out during the making of the pies. [1]

.....

(ii) Explain how this quality assurance check is carried out and why it is important. [3]

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.....  
.....  
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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 **two** ways ICT can be used to support your designing and making. [2]

1. ....

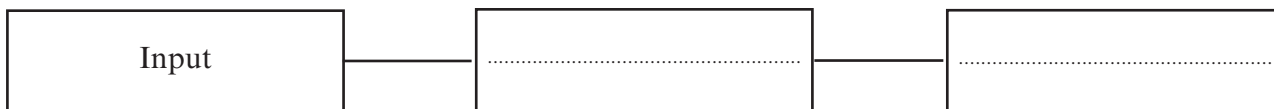
2. ....

(b) State **two** ways Computer Aided Manufacture (CAM) can be used in a school environment during the manufacturing of food products. [2]

1. ....


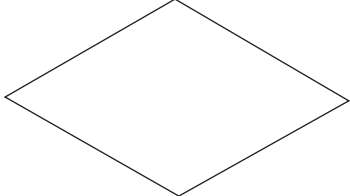

2. ....

(c) A simple system has three main stages. Fill in the missing stages to complete the table below. [2]



(d) Standard symbols are used in a flowchart.

(i) Complete the table below by stating the meaning of each symbol. [3]

<i>Symbol</i>	<i>Meaning</i>
	<p>.....</p>
	<p>.....</p>
	<p>.....</p>

(ii) Explain the purpose of using a flowchart. [2]

.....

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(e) Feedback is an important feature when controlling systems during the manufacturing of products.

(i) Explain what is meant by the term feedback. [2]

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(ii) Describe how feedback would be used when baking bread. [2]

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**For continuation only**

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