

Surname	Centre Number	Candidate Number
Other Names		0



GCSE

4091/01



S15-4091-01

DESIGN AND TECHNOLOGY

UNIT 1

FOCUS AREA: Food Technology

A.M. TUESDAY, 19 May 2015

2 hours

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

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 a sushi style vegetarian wrap.

	
	<p>Product description: Ready to eat vegetarian wrap. With soy sauce, pickled ginger and wasabi sachet.</p> <p>Main ingredients: Sushi rice, mixed vegetable strips, seaweed, egg and vegetable based wrap.</p>

Product information:

- Single portion size;
- Cost £3.00;
- Weight 210g;
- Ready to eat;
- Must be kept refrigerated.

- (a) A vegetable based wrap has been used to form the outer layer of the product.
State why the wrap has been used.

[1]

(b) The sushi style vegetarian wrap has been cut in half before being packaged. Explain why the manufacturer has presented the wrap in this way. [2]

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.....

(c) Explain why the soy sauce, pickled ginger and wasabi sachet are packaged separately by the manufacturer. [2]

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.....

(d) Name **one** ingredient used in the product that could be considered unsafe to a consumer if not stored correctly. Explain why this ingredient could be harmful to the consumer.

Ingredient: [1]

Explanation:

..... [2]

(e) The sushi style vegetarian wrap includes seaweed. Give **two** different reasons why the seaweed has been included. [2]

Reason 1:

Reason 2:

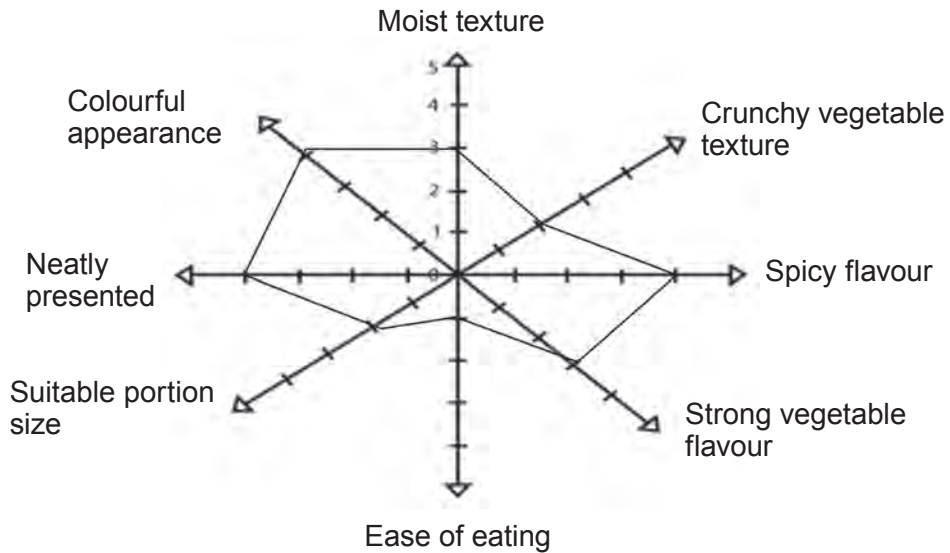
(f) Before starting to design the sushi style vegetarian wrap a design specification was written. Write a detailed specification point for the following heading.

The function of the sushi style vegetarian wrap. [2]

.....
.....

(g) The star profile below shows the taste test results for the sushi style vegetarian wrap.

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



(i) Calculate the total score awarded for the sushi style vegetarian wrap. [1]

.....



(ii) The maximum score available for texture and flavour is 20. Calculate as a percentage (%) for texture and flavour the actual total that the product has achieved. [2]

(Show all your workings.)

.....

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

(a) Complete the table by correctly naming **each** logo shown below. 2 × [1]

	
.....

(b) (i) Designers of sustainable products consider the six Rs. Name the **two** missing Rs in the list below. 2 × [1]

- REUSE
- RECYCLE
- REFUSE
- REDUCE

.....

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(ii) Explain how a consumer could apply the R 'refuse' when shopping in a supermarket. [3]

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(c) Explain what is meant by the term 'lifecycle' in relation to a food product. [3]

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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 below by selecting the correct term from the list to match **each** meaning. 3 × [1]

Prototyping Specification Research Design brief

<i>Term</i>	<i>Meaning</i>
	The testing of ideas before the final make.
	Short statement that outlines the problem to be solved.
	Things to explore before designing.

(b) Name **one** piece of information that is included in a plan for making. [1]

.....

(c) Evaluation must take place as your research progresses. Explain when evaluation could take place during research and why it is important. [3]

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- (d) A manufacturer is planning to extend its range of dessert products by introducing a sweet dessert that is served and eaten hot.

Specification.

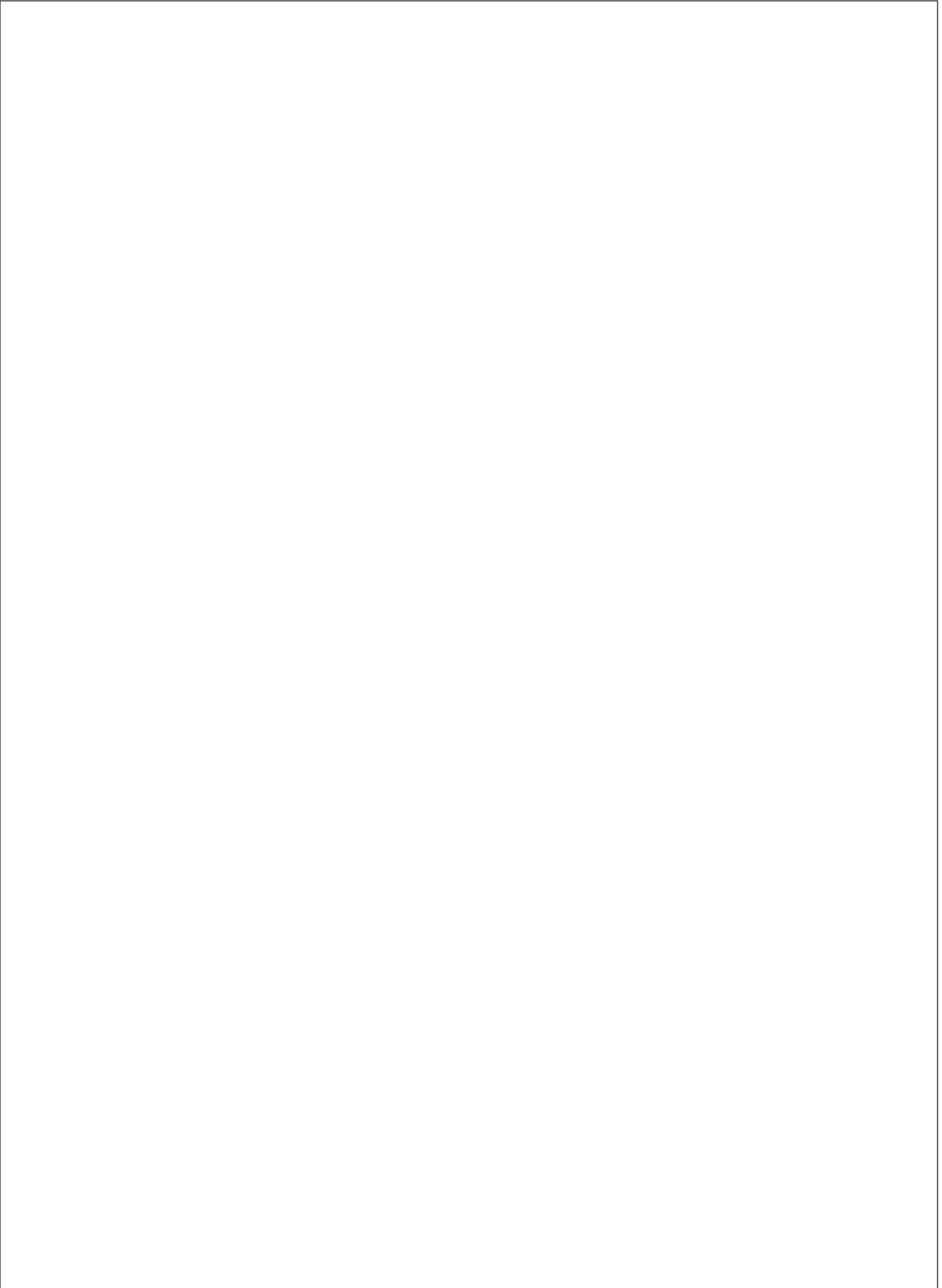
The design must:

- be a sweet dessert product;
- be suitable for serving and eating hot;
- include a sauce to be served with it;
- include foods that would give a combination of flavours;
- include fruit;
- contain a range of foods that provide different textures;
- provide a good source of calcium.

Marks will be awarded for:

- | | |
|--|-----|
| (i) a sweet dessert product that is suitable for serving and eating hot; | [2] |
| (ii) including an interesting sauce to be served with it; | [2] |
| (iii) including foods that would give a combination of flavours; | [2] |
| (iv) including fruit in the sweet dessert; | [1] |
| (v) including foods that will give different textures in the sweet dessert; | [2] |
| (vi) stating the good source of calcium; | [1] |
| (vii) labelling all the food materials used to make the sweet dessert and sauce; | [4] |
| (viii) quality of communication to include a design drawing. | [4] |

Draw and label your design in the box below.



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) Put a **tick** (✓) in the grid below to indicate whether the following statements are true or false. 3 × [1]

<i>Statement</i>	<i>True</i>	<i>False</i>
Batch production allows for different fillings to be added when a bakery is making set amounts of meat pies.		
Continuous flow production requires highly skilled workers to carry out making tasks.		
Mass production is when small numbers of many products are manufactured on an assembly line.		

- (b) A custom made anniversary cake like the one shown below has been produced using one-off production. Give **one** detailed disadvantage to the consumer when having a cake made by this method. [2]



Disadvantage:

.....

(c) The picture below shows a pastry based fruit tart made using batch production.



The decoration of the top of the fruit tart would be completed by workers by hand instead of using machines. Explain why this method would be used for this stage. [2]

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(d) The machine shown in the picture below is a mandolin slicer. It is used in small scale production during the manufacturing of many fruit and vegetable based products.



(i) State **one** health and safety advantage of using the mandolin slicer to prepare vegetables. [1]

.....



(ii) Explain how using this piece of machinery can be more beneficial to the user in relation to sizes of vegetable pieces. [2]

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

(a) Complete the table by suggesting an improvement for **each** product to improve the sensory characteristic identified. 2 × [1]

<i>Product</i>	<i>Sensory characteristic</i>	<i>Improvement</i>
(i) 	Plain taste
(ii) 	Appearance/browning of pastry product

(b) The picture below shows some Chelsea buns made using an enriched yeast mixture.



Name **one** ingredient that is used to enrich the yeast mixture when making the Chelsea buns and explain how the ingredient enriches the mixture.

Ingredient: [1]

Explanation:

..... [2]

(c) The picture below shows a Bakewell tart.



Name the **three** different component parts of the Bakewell tart.

[3]

Part 1:

Part 2:

Part 3:

(d) Eggs are one of the main ingredients used to make many different food products.



(i) Name the main nutrient found in eggs.

[1]

.....

(ii) Explain in detail what happens to the nutrient when heat is applied during the cooking process.

[3]

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.....
.....

(e) Give **one** detailed reason why a manufacturer may use antioxidants in the manufacturing of a food product.


[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 **four** equipment pieces shown below.

4 × [1]

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

(b) (i) The picture below shows a food processor. Name **two** safety points that must be checked before the food processor can be used.

2 × [1]

	Safety point
	<p>1.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>2.</p> <p>.....</p> <p>.....</p> <p>.....</p>

- (ii) A food processor is a labour saving device. Name **two** processes it can be used for during the making of a cheese and vegetable pasty to save both energy and time. 2 × [1]

Process I:

Process II:

- (c) The picture below shows some rock buns.



- (i) Name **two** main ingredients that would be used in the making of the rock buns. 2 × [1]

I:

II:

- (ii) Name the term given to describe the consistency of the rock bun mixture when all the ingredients have been combined. [1]

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(d) The picture below shows a biscuit product with chocolate feathering as a form of decoration.



Using notes and sketches explain how the chocolate feathering decoration has been added to the top of the biscuit. [5]

Notes:

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- (e) Name a method of thickening that could be used in the making of the fresh tomato sauce pictured below and explain how the named method thickens the sauce.



Method of thickening: [1]

Explanation:

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.....

..... [3]

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

(a) Draw a line to join **each** design-related task below to the correct ICT software. 3 × [1]

- | | |
|----------------------------|------------------------|
| Make a bar chart | Internet search engine |
| Download an image | Word processor |
| Check spelling and grammar | Spreadsheet |

(b) State the full meaning of CPU. [1]

Central P Unit

(c) Production systems are used when manufacturing food products. Place a **tick (✓)** in the correct box to indicate the correct stage of production for the statements shown below. 5 × [1]

<i>Statement</i>	<i>Input</i>	<i>Process</i>	<i>Output</i>
Ingredients			
Finished food product			
Equipment			
Creaming the raw materials			
Baking and decorating			

(d) Computer Aided Design (CAD) is used in the food industry.

Explain how Computer Aided Design (CAD) could be used during:

(i) The modelling and developing of a food product. [2]

.....

.....

(ii) The designing stages. [2]

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.....

(e) Explain why a manufacturer may use a computer to control the adding of ingredients to a product. [2]

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END OF PAPER

