

Surname	Centre Number	Candidate Number
Other Names		0



**GCSE**

4091/01



S16-4091-01

**DESIGN AND TECHNOLOGY**

**UNIT 1**

**FOCUS AREA: Food Technology**

A.M. TUESDAY, 24 May 2016

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>	

**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 Salmon and Potato Bake with tomato and fennel sauce, red peppers, baby spinach and sliced potatoes.

The product is contained in a foil tray with a film lid. There is a card outer sleeve.



Product information:

- Single portion size;
- Cost £4.25;
- Weight 370 g;
- Provides 348 calories per pack;
- Ready to cook;
- Must be cooked in an oven;
- Must be kept refrigerated.

- (a) Circle the number of calories half a portion size would provide.

[1]

116

261

174

(b) Explain why the salmon and potato bake is sold in a foil tray. [2]

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(c) Name a target group who would find the salmon and potato bake appealing and explain why they would find the product appealing. [3]

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(d) The salmon and potato bake includes a sauce which has been made using tomato passata and fresh diced tomatoes.

(i) Give a reason why tomato passata has been used in the sauce. [1]

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(ii) Give a different reason why fresh diced tomatoes have been used in the sauce. [1]

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(e) (i) The salmon and potato bake must be aesthetically pleasing to a wide range of customers. Explain how this specification point has been met. [2]

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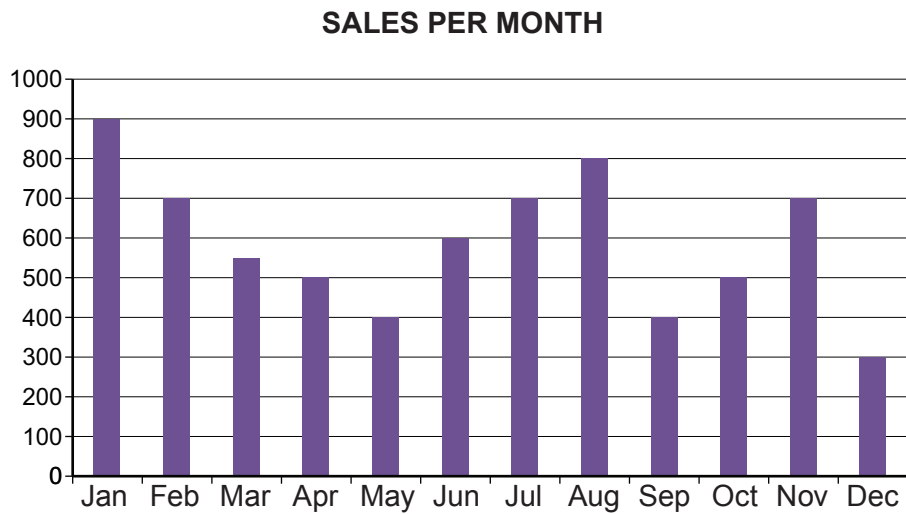
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(ii) The main function of the salmon and potato bake is to provide a calorie controlled meal that aims to keep the customers fuller for longer. Explain how this specification point has been met. [2]

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- (f) The bar chart below shows the monthly sales of the salmon and potato bake.



- (i) State the month with the lowest number of sales. [1]

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- (ii) Calculate the average sales per month for the four month period Jun-Sep. [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.

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

(a)

<i>Statement</i>	<i>True</i>	<i>False</i>
The weight or volume of a food product does not need to be included on a food label according to food labelling laws.		
The E number for additives is a code number used to identify the food additive.		

- (b) The photograph below shows the packaging with the ingredients list for a tuna infusions steam pot.



**INGREDIENTS:** Skipjack Tuna (43%), Dried Couscous (40%) (from Wheat), Extra Virgin Olive Oil (5%), Rehydrated Soy Sauce (3.7%) (Water, Soybean, Wheat, Maltodextrin, Salt), Ginger, Lactose (from Milk), Yeast Extract Powder, Sugar, Garlic Powder, Yeast Powder, Rice Flour, Dried Mushroom, Natural Flavourings, Salt, Herbs, Spice.

- (i) Food labelling laws state an ingredients list must be included on the packaging of the product. Give **one** reason for including this information. [1]

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- (ii) Explain how the ingredients information must be presented on the packaging. [2]

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- (c) The picture below shows a chilled macaroni cheese dish with the nutritional information provided alongside it.



Calories	Sugar	Fat	Saturates	Salt
665	5g	28g	18g	2.4g
33%	6%	41%	88%	40%

Explain how a consumer could apply the R rethink when purchasing a product of this type, taking into consideration the effect on their health. [2]

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- (d) Explain the meaning of the term 'food miles'. [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 Jamie Oliver and Heston Blumenthal.

(a) Complete the table by correctly naming **each** designer.

[2]

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

(b) Select **one** of the designers you have studied and write a short essay describing the style of his work and the influence he has had on people’s eating habits.

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

<i>Term</i>	<i>Meaning</i>
Secondary research	A step by step plan for making a product.
Brief	Information collected by other people.
Flow chart	A clear statement of design intention.

(b) Give **one** reason why a designer would use a questionnaire. [1]

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(c) Explain the importance of producing a design specification for a new product. [3]

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- (d) The school canteen is planning to introduce hot cooked meals at lunchtime and provide teenage students with a nutritious, filling lunchtime meal.

Specification.

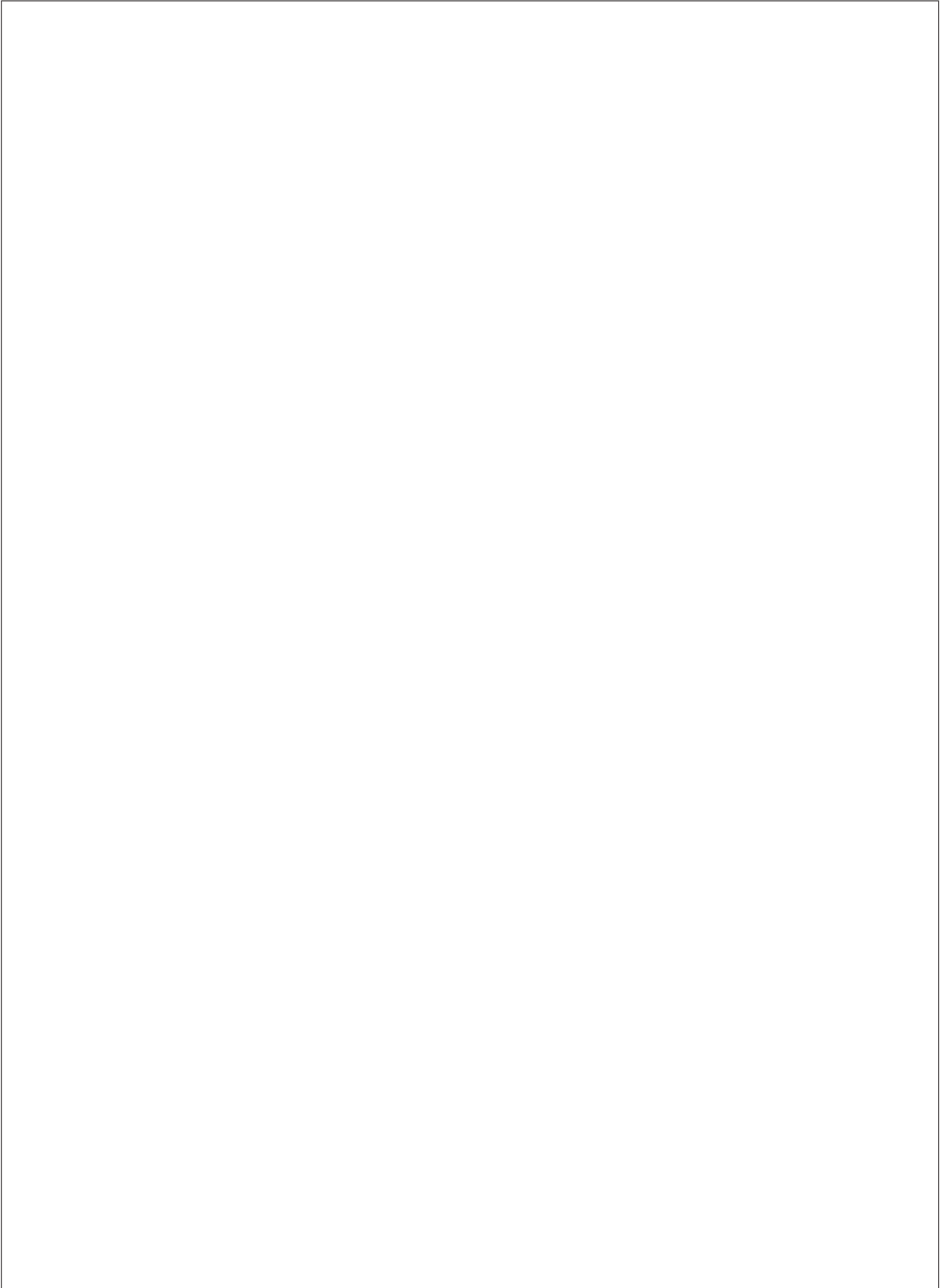
**The design must:**

- be suitable for serving in the school canteen and eating hot;
- be served as a one dish meal;
- provide essential nutrients a teenager needs;
- be flavoursome, have different layers and textures;
- include vegetables.

**Marks will be awarded for:**

- (i) details of a one dish meal suitable for serving and eating hot; [3]
- (ii) details of the foods providing the nutrients, protein, carbohydrates and vitamin C; [3]
- (iii) the design of a layered, flavoursome meal which provides a range of textures; [6]
- (iv) including interesting vegetables; [2]
- (v) 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) Some food products are produced using batch production. Name **two** other scales of production. 2 × [1]

I. ....

II. ....

(b) The picture below shows a production line for plated meals.



(i) Explain why the workers are wearing hair nets. [2]

.....  
.....

(ii) Explain why the workers are plating the meals by hand instead of using machinery. [2]

.....  
.....

(c) Explain the meaning of the term 'assemble' when manufacturing a food product. [2]

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(d) The picture below shows a limited edition beetroot and apple style bread. It has been produced using batch production.



Explain why this is the most suitable scale of production.

[2]

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

(a) Circle the correct flour type used to make each product.

2 × [1]

	
Cornflour / Plain flour	Strong flour / Self raising flour

(b) The picture below shows a vegetable pizza with a yeast dough base.



Complete the chart below by placing **one tick (✓)** in the correct column to show the main function of **each** ingredient used. 4 × [1]

<b>Ingredients</b>	<b>Functions</b>			
	Raising	Flavouring	Bulking	Binding
Flour				
Yeast				
Warm water				
Salt				

- (c) The picture below shows a packet of pre-prepared pastry.



Explain why a consumer may use this pre-prepared pastry when baking products at home. [2]

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- (d) (i) Name a food product where sugar is used to act as a preservative. [1]

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- (ii) Explain how the sugar helps to preserve the food product. [2]

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- (e) The picture below shows a baked meringue nest.



- (i) Name the type of structure in the baked meringue nest. [1]

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- (ii) Explain in detail how the structure is achieved. [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 table by naming the equipment pictured below and give the main use for each one. 6 × [1]

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



- (b) (i) The picture below shows a chicken pie made using shortcrust pastry. Using the words from the word bank below, complete the sentences describing the main stages of making the pie. Use **each** word once. 6 × [1]



**moisten      crumb      seal      flour      decorate      floured**

Rub the margarine into the ..... until it resembles a ..... texture. Add cold water to bind the ingredients together to form a soft pastry dough. Roll the pastry out on a lightly ..... surface. Cut two circles, one for the base and one for the lid. Line the dish with one circle of pastry. Add the chicken filling. .... the edge of the pastry with water. Place the lid on top and push down firmly to ..... Trim off the excess pastry and ..... the edges. Cut decorations from left over pastry.

- (ii) Give **two** tips on how to make successful shortcrust pastry. 2 × [1]

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

- (iii) State **two** improvements that could be made to develop the chicken pie. 2 × [1]

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

- (c) Students are making batches of Victoria sandwich cakes using the all in one method and the creaming method.



Discuss and compare the **two methods** used to make the sponges for the Victoria sandwich cakes. [4]

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

(a) ICT can be used in food technology to complete many tasks. Complete the table below by placing a **tick** (✓) in the correct column to show whether each statement is true or false. 2 × [1]

<i>Statement</i>	<i>True</i>	<i>False</i>
A software programme like Word cannot be used to present data.		
The internet can be used to research information to aid the design process.		

(b) Name the **three** main stages of a production system. 3 × [1]

I. ....

II. ....

III. ....

(c) When designing new food products CAD (Computer Aided Design) can be used to complete many tasks. Explain the benefits of using CAD to:

(i) find out the nutritional value of a product; [2]

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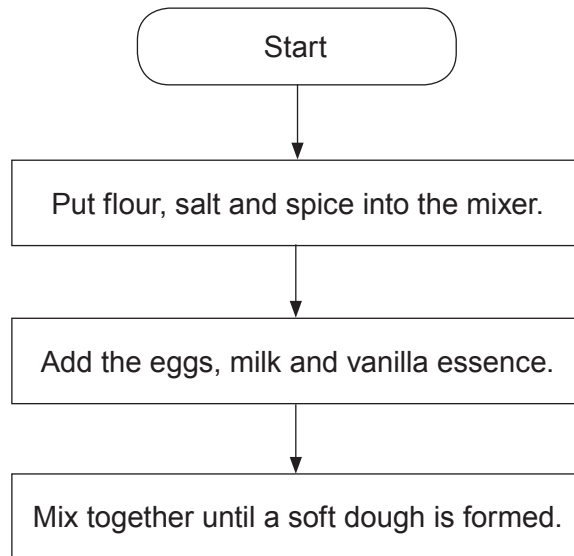
(ii) produce sketches of new food products. [2]

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(d) An example of a simple flow chart is shown below.



List **two** additional pieces of information that would be included to produce a more detailed flowchart. 2 × [1]

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

- (e) The picture below shows an example of CAM (Computer Aided Manufacture) being used in the manufacture of a batch of doughnuts.



Explain how using CAM can increase productivity and save the manufacturer time. [4]

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**END OF PAPER**



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