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| Surname | Centre Number | Candidate Number |
| Other Names | | 0 |



GCSE

4091/01

DESIGN & TECHNOLOGY

UNIT 1

FOCUS AREA: FOOD TECHNOLOGY

A.M. FRIDAY, 25 May 2012

2 hours

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|-------------------|-------------|
| Question 1 | |
| Question 2 | |
| Question 3 | |
| Question 4 | |
| Question 5 | |
| Question 6 | |
| Question 7 | |
| Question 8 | |
| TOTAL MARK | |

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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.

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 photograph shows two Vegetarian Kiev's.
The product is contained in a plastic tray inside a card box.



Product information:

- serves two people;
- total weight of pack 310g;
- cost per pack £3.99;
- they must be stored in a refrigerator;
- the Vegetarian Kiev's can be frozen;
- they must be cooked in an oven before eating.

- (a) **Circle** the correct weight of **one** Vegetarian Kiev. [1]

310g

210g

155g

- (b) The Vegetarian Kiev's must be cooked in an oven. Give **one** reason for this. [1]
-

(c) The Vegetarian Kiev's must be stored in a refrigerator. Explain in detail why this method of storage is essential. [2]

.....
.....

(d) The Vegetarian Kiev's include a cheesy garlic butter centre. Give **two** different reasons why this centre is included.

Reason 1: [1]

Reason 2: [1]

(e) Before starting to design the Vegetarian Kiev's, a design specification was written.

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

(i) The cost of the Vegetarian Kiev's. [2]

.....
.....

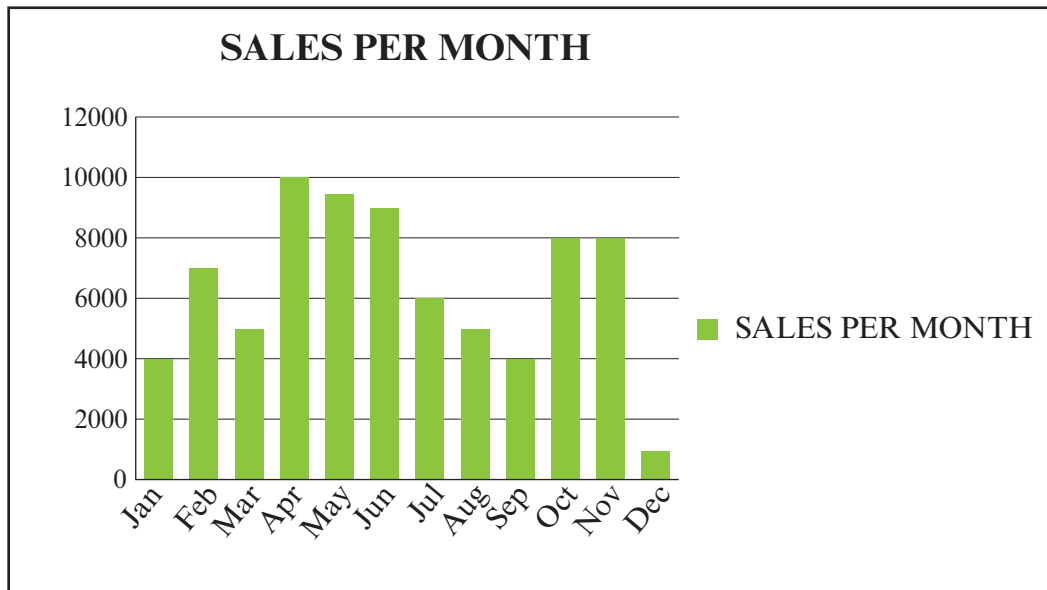
(ii) The aesthetic appeal of the Vegetarian Kiev's. [2]

.....
.....

(iii) The function/purpose of the Vegetarian Kiev's. [2]

.....
.....

(f) The bar chart below shows the sales of the Vegetarian Kievs.



(i) State in which month exactly 6000 were sold.

[1]

(ii) Calculate the average sales per month for the first four months (Jan-Apr).

Show all workings.

[2]

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. [1]

| <i>Statement</i> | <i>True</i> | <i>False</i> |
|--|-------------|--------------|
| Government Food Regulations state that food packaging must not be hazardous to human health. | | |

(b) Designers of sustainable products consider the six Rs. Name **two** of the Rs. [2]

(i) (ii)

(c) (i) Complete the table by correctly naming **each** logo shown below. [2]

| | |
|--|--|
| <i>Logo A</i>  | <i>Logo B</i>  |
| | |

(ii) Explain the meaning of logo A in relation to food products sold in supermarkets. [2]

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.....

(d) Discuss ways you can reduce energy costs during practical food lessons in school. [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) Name **two** research methods you could use to collect information.

Method 1: [1]

Method 2: [1]

(b) State **one** piece of information that is included in a product specification. [1]

.....

(c) Describe the differences between a design brief and a design specification. [4]

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.....

(d) A manufacturer of one pot chilled savoury meals is planning to extend its range.



Specification

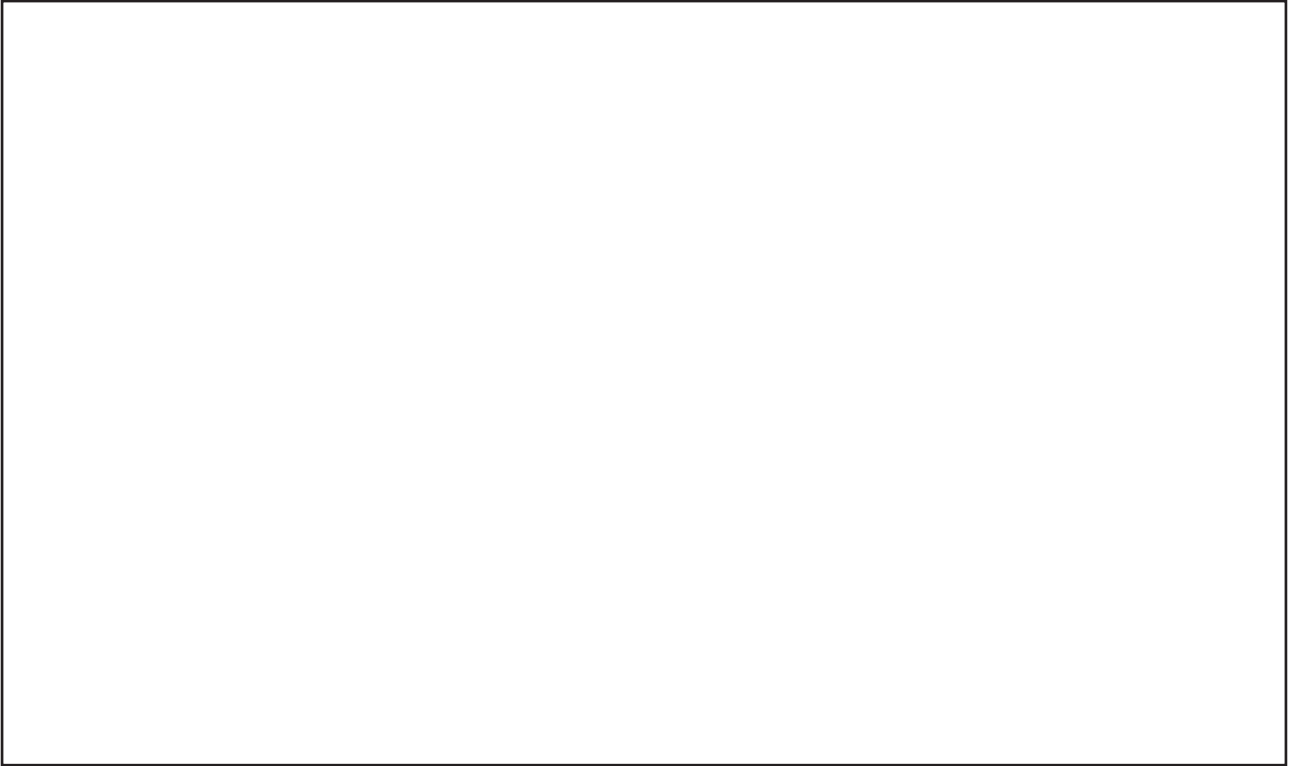
The design must:

- be a one pot chilled savoury meal **without** pasta;
- look colourful;
- include interesting vegetables;
- include a sauce with a combination of flavours;
- include a good source of carbohydrates and protein.

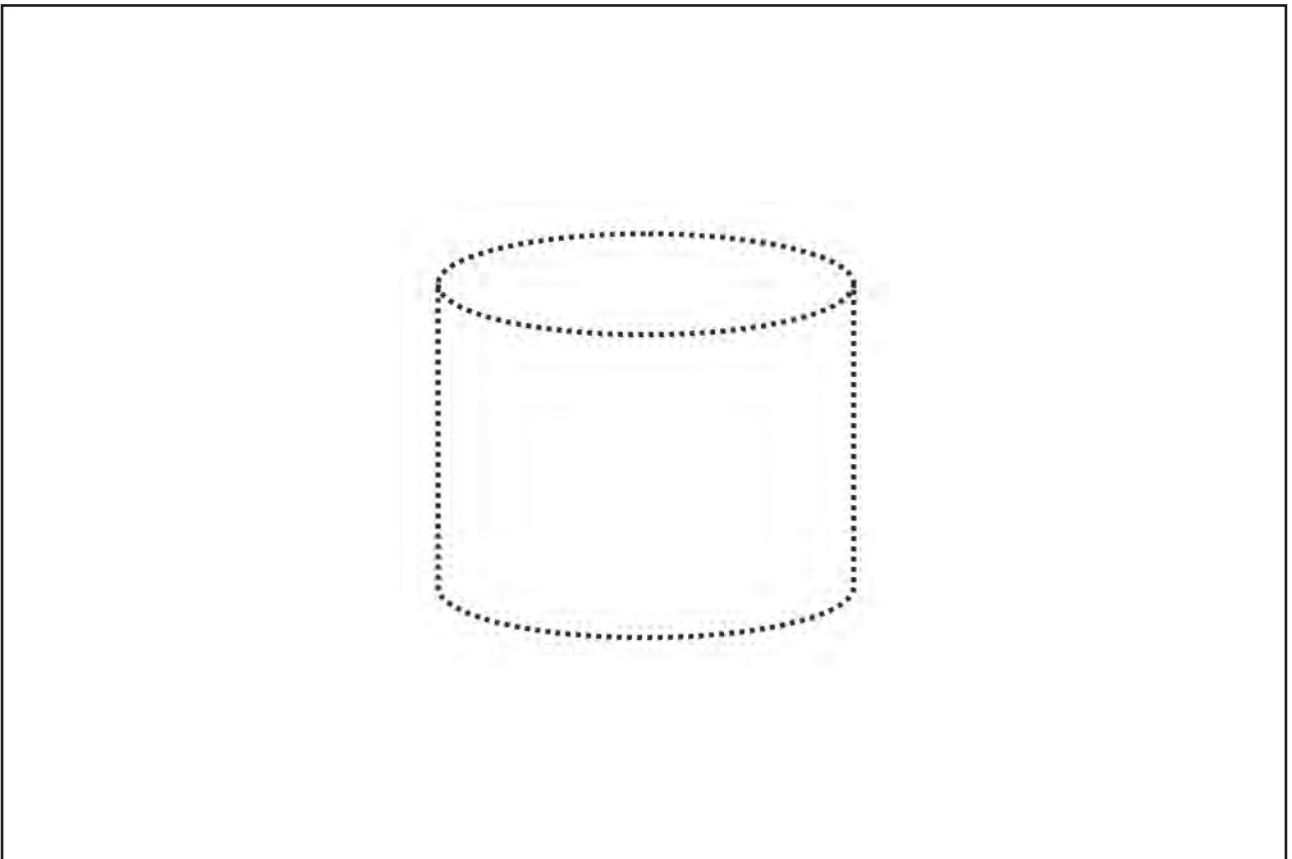
Marks will be awarded for:

- | | |
|---|-----|
| (i) a savoury product without pasta; | [1] |
| (ii) a colourful product; | [1] |
| (iii) including interesting vegetables; | [3] |
| (iv) including a sauce with a combination of flavours; | [3] |
| (v) labelling of all the food materials used to make the product, including the ingredients used to make the sauce; | [4] |
| (vi) stating the good source of carbohydrates and protein; | [2] |
| (vii) quality of communication to include a cross section and plan view. | [4] |

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



Draw and label your cross section 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) Food products can be manufactured using different scales of production. State the correct scale of production for the products shown.

(i)



Scale of production: [1]

(ii)



Scale of production: [1]

(b) 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>Statement</i> | <i>True</i> | <i>False</i> |
|---|-------------|--------------|
| During production it is safer for workers as tasks are carried out by CAM machines. | | |
| The quality of CAM made products is consistent. | | |

(c) The picture shows some Victoria Sandwich Mini Cakes.



A floor standing mixer like the one shown below was used to make the sponge mixture for the Victoria Sandwich Mini Cakes.



Describe **one** advantage to the manufacturer of using the floor standing mixer to make the sponge mixture. [2]

.....

.....

(d) Electronic sensors are used to monitor changes during the manufacturing of many products. Identify a sensor that could be used to monitor a change during the production of the Victoria Sandwich Mini Cakes and explain why the monitoring is important. [4]

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

(a) Draw a line from **each** type of fat to its correct description.

[2]

Margarine extracted from pressed seeds or fruits.

Oils blended from vegetable oils.




(b) Fats have many functions in food products. Complete the table by identifying **each** use of fat and name a product where this occurs. [4]

One example has been done for you.

| <i>Use of Fat</i> | <i>Explanation</i> | <i>Name of Product</i> |
|-------------------|---|------------------------|
| Greasing | Stops foods sticking to baking trays. | Biscuits |
| | When fat is mixed with sugar it turns light and fluffy. | |
| | Rubbing fat into flour prevents gluten formation and gives a crumbly texture. | |

(c) It is important when selling food products to make them look attractive. Decorating a product's surface with a glaze will help achieve this.

Complete the table by naming the type of glaze used and explain how this improves the product. [6]

| <i>Product</i> | <i>Type of glaze used</i> | <i>How the glaze improves the product</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> |

(d) A luxury lemon meringue pie uses eggs to make each component part. Name **one** component part of the lemon meringue pie and explain the function of the eggs. [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> <p>.....</p> |
|  | <p>.....</p> | <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> |

(b) Name the **three** ingredients that are missing from the list below and which are used to make flaky pastry. [3]

Strong plain flour

.....

Pinch salt

.....

.....

- (c) (i) The statements listed show the different stages in the making of choux pastry. Complete the flow diagram by putting the statements in the correct order in the blank boxes. [5]

Flow diagram



Flow diagram statements:

- **Pipe or spoon onto a greased baking tray.**
- **Add the flour and beat well to form a paste.**
- **Gradually beat the eggs into the paste.**
- **Cook the paste out for 2 minutes. Leave to cool.**
- **Put the margarine and water into a saucepan. Bring to the boil.**

(ii) State **two** desirable properties of cooked unfilled choux pastry.

Property 1: [1]

Property 2: [1]

(d) Bread making includes many different stages. Explain the importance of the **two** bread making stages named below.

Kneading:
.....
..... [2]

Proving:
.....
..... [2]

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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]

| <i>Statement</i> | <i>True</i> | <i>False</i> |
|--|-------------|--------------|
| Spreadsheets of food costings cannot be stored and edited. | | |
| Recipes can be accessed from a variety of sources on the internet. | | |

(b) State **two** benefits of using CAD in the development of a new chilled dessert.

Benefit 1: [1]

Benefit 2: [1]

(c) A production system has three main stages. Explain what you understand by:

(i) the Input stage:
..... [2]

(ii) the Process stage:
..... [2]

(iii) A system used during the manufacturing of food products can be either Open-loop or Closed-loop.

Draw a line from **each** system type to its correct description. [2]

Closed-loop system shows the stages of an activity which move in one direction only.

Open-loop system includes a decision making stage which relies on feedback to control the output.

(d) Many pieces of industrial equipment are used by manufacturers to aid food production and include the use of CAM.

Complete the chart below by correctly naming **each** piece of equipment. [2]

| | |
|---|--|
|  |  |
| | |

(e) Bread makers are good examples of how CAM is used in the school environment.

Explain the advantages of using a bread maker to manufacture bread. [3]

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