

Candidate Name	Centre Number	Candidate Number

WELSH JOINT EDUCATION COMMITTEE
General Certificate of Secondary Education



CYD-BWYLLGOR ADDYSG CYMRU
Tystysgrif Gyffredinol Addysg Uwchradd

139/04

DESIGN AND TECHNOLOGY

PAPER 2

FOCUS AREA: FOOD TECHNOLOGY

(Higher Tier – Grades D to A*)

P.M. TUESDAY, 6 June 2006

(1½ hours)

	Leave Blank
Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
TOTAL MARK	

ADDITIONAL MATERIALS

You will need coloured pencils for this examination.

INSTRUCTIONS TO CANDIDATES

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.

No certificate will be awarded to a candidate detected in any unfair practice during the examination.

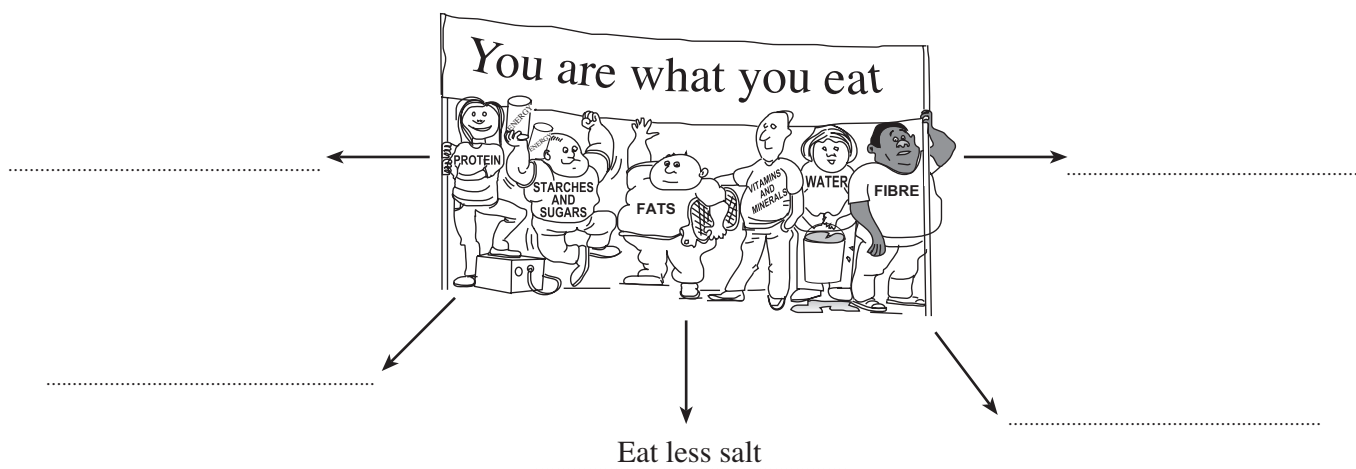
Answer **all** questions in the spaces provided.

1. Food manufacturers often develop products to promote a healthy lifestyle.

(a) Complete the diagram below to show the current *main* healthy eating messages.

An example has been done for you.

[4]



(b) There are many conditions, including those listed below, where poor diet can be a contributing factor.

Coronary heart disease / Diabetes / Osteoporosis (brittle bones) / High blood pressure

Select **two** of these conditions and explain how a poor diet can be a contributing factor.

Condition:

Explanation:

.....
.....

[2]

Condition:


Explanation:

.....
.....

[2]

- (c) Manufacturers produce special ranges of foods to encourage young children to eat healthier meals.

Study the nutrition information from the 'Great for kids' range shown below.



NUTRITION	
Typical Values	Per 200g Pack
Energy kj	880
Protein g	19.0
Carbohydrate g	23.4
of which sugars g	3.2
Fat g	4.2
Fibre g	1.8
Salt g	0.6

- (i) State the salt content per 200g pack. [1]

.....

- (ii) State the sugar content per 200g pack. [1]

.....

(d) Study the image shown below.



Give **two** reasons, other than the style of packaging, why parents would want to buy this product for their children. 2 × [2]

Reason 1:

.....

.....

Reason 2:

.....

.....

(e) Consumers are increasingly choosing *organic* foods. Explain how organic foods are produced. [3]



.....

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.....

.....

2. Wheat is an important primary source of food material. It is milled to produce flour.

(a) List **three** types of wheat based flour and for each one, state a *different* product which can be made using the named flour. 3 × [2]

(i) Flour type:

Product:

(ii) Flour type:

Product:

(iii) Flour type:

Product:

(b) When developing food products, designers need to know the function of food materials.

Describe the *main physical* function of the following food materials in a bread product.

2 × [2]

(i) Yeast:

.....
.....

(ii) Water:

.....
.....

(c) The table below shows the stages in the production of a bread product.

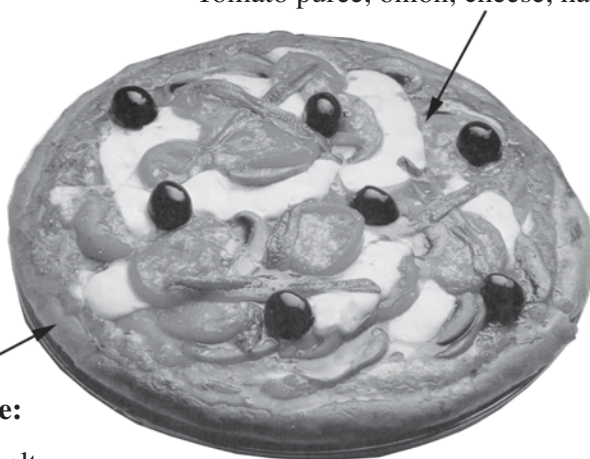
Complete the table by writing a *number* alongside **each** stage to show the correct order of production. [5]

<i>Stage in bread production</i>	<i>Order of production</i>
Kneading	
Baking and cooling	
Weighing, measuring and mixing ingredients	
Shaping	
Proving	

- (d) Food manufacturers design products to fit the specific needs of the consumer. Complete the panels below by giving **two** specific changes to show how this pizza can be modified to meet different consumer needs. 3 × [2]

Food materials in the topping:

Tomato pureé, onion, cheese, ham, black olives, dried herbs.



Food materials in the base:

Flour, yeast, butter, water, salt.

Changes for a *vegan* pizza

.....

.....

.....

.....

Changes for a *luxury* pizza

.....

.....

.....

.....

Changes for a *healthy option* pizza

.....

.....

.....

.....

3. (a) State the **three** different methods *manufacturers* use to increase the shelf life of soup. [3]

Method 1:

Method 2:

Method 3:

(b) Use the label from a carton of soup shown below to answer the following questions.

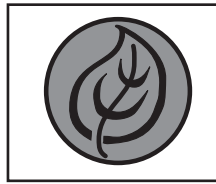


(i) The soup must be used within two days of purchase. Give **two** reasons why the soup has such a limited shelf life. 2 × [2]

Reason 1:

Reason 2:

(ii) State the meaning of these symbols which appear on the label. [2]



(I)



(II)

(iii) Give the **three** factors you should bear in mind when heating this product in a microwave oven. [3]

.....
.....
.....
.....

(c) Smart (modified) starches are frequently used in products such as soup. Explain why a manufacturer would select this type of starch instead of wheat flour. [3]

.....
.....
.....
.....

4. Food manufacturers have to follow a quality assurance system. Good personal hygiene and the correct cleaning of equipment are essential when making food products.



- (a) Describe, with reasons, **four different** hygiene rules that must be followed by food workers. 4 × [2]

Rule 1:

.....

Rule 2:

.....

Rule 3:

.....

Rule 4:

.....

- (b) Explain why these rules are so important in large-scale food production. [2]

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.....

.....

(c) Temperature is used to control bacterial growth in food products.

Explain the significance of **each** of the following temperatures and how they affect bacterial growth. 2 × [2]

(i) -18°C:

.....

.....

(ii) 37°C:

.....

.....

(d) When a product is being manufactured, many quality control checks will be carried out. Two types of quality control checks used in the manufacturing of a biscuit are listed below. Describe what these checks involve. 2 × [2]

(i) Visual check:

.....

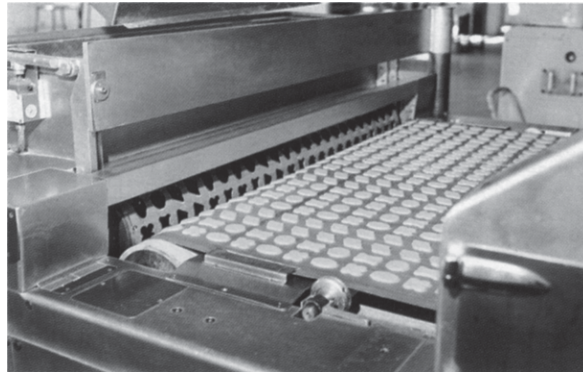
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(ii) Physical contamination check:

.....

.....

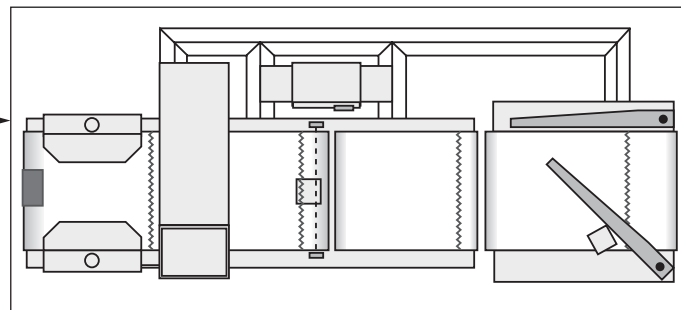
- (e) Computer-controlled equipment is used in high volume production of food products such as biscuits. Rotary cutters and a check-weigher are shown in the images below.



- (i) Describe **one** advantage of using rotary cutters. [2]

.....

.....



Plan view of check-weigher

- (ii) Describe **one** advantage of using a check-weigher. [2]

.....

.....

5. A manufacturer of chilled desserts is planning to develop its range of traditional puddings. Research shows that customers would benefit from increased portions of fruit in their diet.



- (a) Sketch, colour and label **two different** designs for a layered, fruit based dessert.

The product must:

- be suitable for four people;
- have three or more layers;
- contain fruit;
- be a good source of Vitamin C;
- have an interesting casing or base.

Marks will be awarded for:

- (i) the design of an innovative, layered, dessert containing fruit; 2 × [3]
- (ii) detailed labelling of **all** the food materials used to make the product stating their **sensory** function and highlighting the good **Vitamin C** source; 2 × [4]
- (iii) quality of communication, including dimensions and a *cross-section* of the product. 2 × [4]

Design 1	Do not draw the packaging	

Design 2	Do not draw the packaging	
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Tick (✓) the box to show your best design. Design 1 Design 2

(b) Give **three** detailed product specification points for manufacturing your chosen idea. *Do not repeat those included in the question.* [3]

Specification point 1:

.....

Specification point 2:

.....

Specification point 3:

.....

For continuation only.

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