

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, 5 June 2007

(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. The picture below shows some popular snack foods.



(a) (i) Name **one** snack food shown in the picture which has a high sugar content. [1]

.....

(ii) Name **one** snack food shown in the picture which has a high fat content. [1]

.....

(b) (i) The Food Standards Agency has reported that *one quarter of the population is obese*. State what the term *obese* means. [1]

.....

(ii) Explain in detail, the consequences of a diet which is high in

- sugar,

.....

.....

..... [3]

- fibre.

.....

.....

..... [3]

(c) Manufacturers develop new food products. The picture below shows some new fruit drinks.



(i) Give **one** reason why manufacturers develop new food products. [1]

.....

(ii) State **two different** reasons why a consumer is likely to buy the fruit drinks. 2 x [2]

Reason 1:

.....

Reason 2:

.....

(iii) Some people are concerned about the environment. Give **one** environmental reason why some people would *not* buy these drinks. [2]

.....

.....

(iv) Describe **one** function of vitamin C in the body. [2]

.....

.....

.....

2. (a) Raw foods are processed to provide food materials which can be used in different ways.

Complete the table below. *One example has been done for you.*

[3]

Raw food	Food material	Food product
Milk	Cheese	Cheesecake
Soya bean	Vegetarian sausages
.....	Flour

(b) The basic food materials for making a cake are shown below. Each one performs important functions.



(i) Describe the *physical* functions of margarine in a cake.

[2]

.....

.....

.....

(ii) Describe the *physical* and *sensory* functions of sugar in a cake.

2 x [2]

.....

.....

.....

.....

.....

.....

(c) Study the two cake recipes given below, then answer the questions that follow.

Recipe 1		Recipe 2	
100g	S.R. Flour	200g	S.R. Flour
100g	Caster Sugar	100g	Caster Sugar
100g	Margarine	100g	Margarine
2	Eggs	1	Egg
2tbs	Hot water	2tbs	Milk

- (i) State the ratio of fat to flour in Recipe 1. [1]
- (ii) State the ratio of fat to flour in Recipe 2. [1]
- (iii) Describe how the differences between the recipes affect the finished cakes. [2]

.....

.....

.....

(d) The picture below shows a large quantity of cakes being made in industry. Manufacturers try to make sure that each cake is identical in every production run. Explain **three** aspects of quality assurance that enable manufacturers to achieve consistent qualities in their cakes.

3 x [2]



Quality Assurance 1:

.....

.....

.....

Quality Assurance 2 :

.....

.....

.....

Quality Assurance 3:

.....

.....

.....

3. (a) Name **three** groups of micro-organisms that cause foods to deteriorate. 3 x [1]

Group 1:

Group 2:

Group 3:

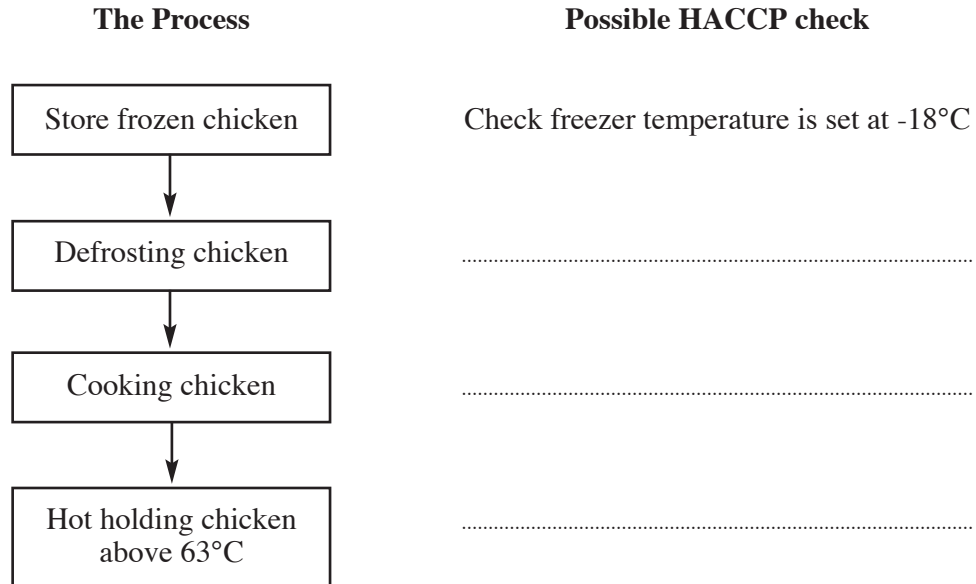


(b) For the **two** food products listed in the table, name a suitable method of preventing or slowing the growth of micro-organisms and explain the principle involved. *Use each method only once.* 2 x [3]

Food Product	Method of preventing or slowing the growth of micro-organisms	Principle involved
Fish
Vegetables

- (c) Many supermarkets sell whole roasted chickens. The diagram below shows a simplified production process. Identify a HACCP check that should be made at **each** of the stages shown. 3 x [2]

The first example is given.



4. (a) Symbols are used on food packaging labels. Explain what **each** symbol means.

(i)  [1]

(ii)  [1]

(b) A nutrition label for a 300g pot of ‘green thai chicken curry with rice’ is given below.



Typical Values per 100g	
Energy	190 kcal
Protein	6.3g
Carbohydrate	18.8g
Fat	9.8g

(i) Explain what a kilocalorie (kcal) is. [1]

.....

(ii) Give the total number of calories provided in this pot. [1]

.....

(iii) Give **two** nutritional reasons why protein is needed in the diet. [2]

Reason 1:

Reason 2:

(iv) **Circle** the **two** vitamins likely to be present in fat. [2]

A B C D

- (v) Some food manufacturers make dehydrated curries that are capable of being stored for up to 12 months.

Place a tick (✓) in the right hand column of the table below to show the **two** groups of additives which extend shelf life. [2]

Groups of Additives	Extends shelf life
Emulsifiers	
Anti-oxidants	
Stabilizers	
Preservatives	

- (vi) Banana goes brown when the skin is removed. Give **one** cause of the browning effect and **one** method of preventing it.

Cause of browning [2]

.....

Method of prevention [1]

- (c) Sensory analysis tests are used by food technologists to evaluate products in the development stage.

- (i) Name **one specific** example of a sensory analysis test. [1]

.....

- (ii) State the purpose of the test named in part (i). [1]

.....

- (iii) Describe how to set up the test named in part (i). [3]

.....

.....

.....

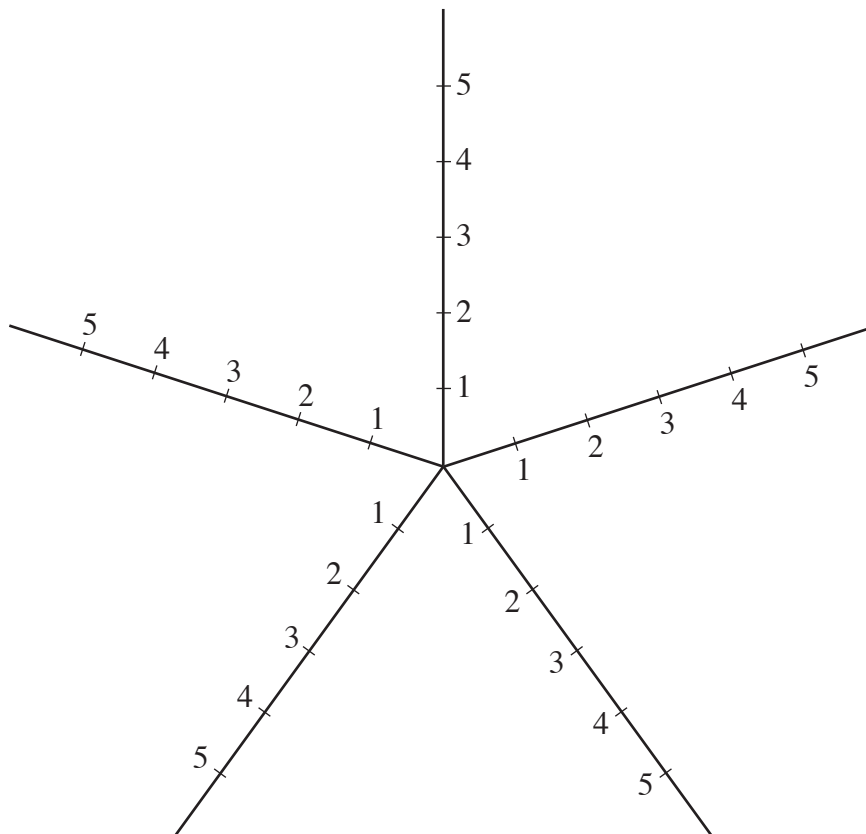
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- (d) A star profile diagram can be used to show the results of a sensory analysis test on a product.

Use the information in the table provided below to complete a star profile diagram for a chicken curry. [5]

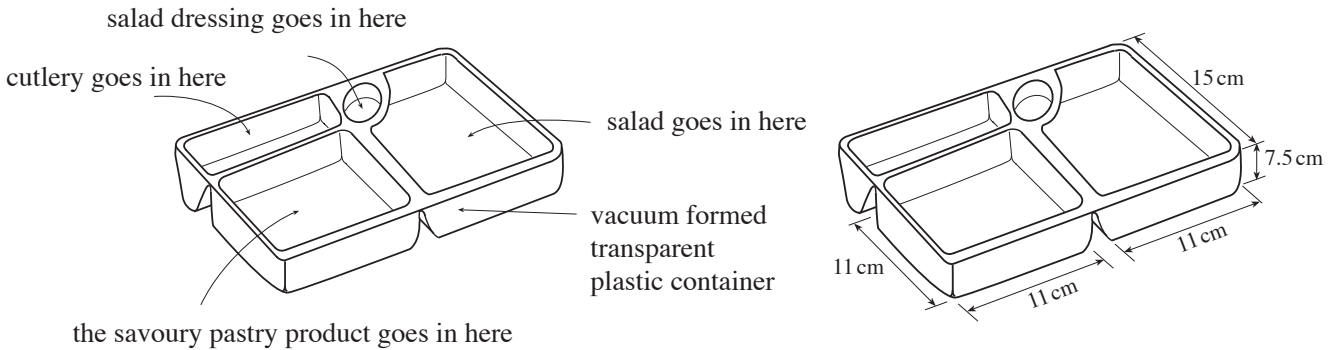
Key: 1 = Excellent 5 = Very poor

Aroma	Satisfactory
Consistency of sauce	Very good
Appearance	Good
Texture of chicken	Excellent
Spicy flavour	Very poor



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5. A manufacturer is planning to develop a healthy ready to eat meal for one person. The general idea for the product is shown below. You have been asked to design a savoury pastry product for this meal.



(a) **Sketch, colour and label two different** designs for an interesting, healthy, savoury pastry product.

The pastry product must:

- fit into the section of the container indicated above;
- have an interesting pastry casing or base;
- contain a good source of protein;
- have a high fibre content.

Marks will be awarded for:

- (i) the design of an interesting, healthy, savoury, pastry product containing protein and fibre; 2 x [3]
- (ii) detailed labelling of **all** the food materials used to make the pastry product; 2 x [4]
- (iii) quality of communication, including a **cross-section** and **dimensions** of the pastry product. 2 x [4]

Design 1	Do not draw the packaging

Design 2	Do not draw the packaging

Tick (✓) the box to show your **best** design

Design 1

Design 2

(b) Give **three detailed** product specification points for manufacturing your chosen design.
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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