

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

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General Certificate of Secondary Education
June 2004

**DESIGN AND TECHNOLOGY:
FOOD TECHNOLOGY
Foundation Tier**

3542/F



Monday 21 June 2004 9.00 am to 11.00 am

F

In addition to this paper you will require:
a pen, pencil, ruler, eraser, pencil sharpener and
coloured pencils.

For Examiner's Use	
Number	Mark
1	
2	
3	
4	
5	
6	
7	
TOTAL	
Examiner's initials	

Time allowed: 2 hours

Instructions

- Use blue or black ink or ball-point pen. Use pencil and coloured pencils only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** the questions in the spaces provided.
- All working must be shown.
- Do all rough work in this book. Cross through any work you do not want marked.

Information

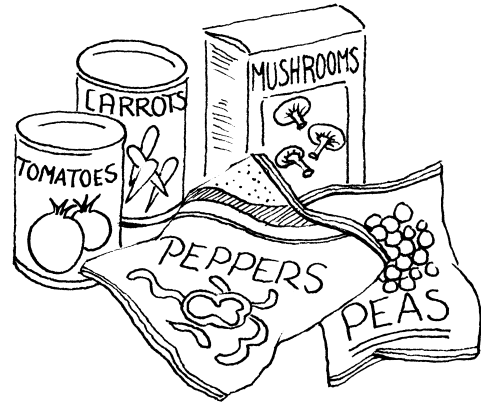
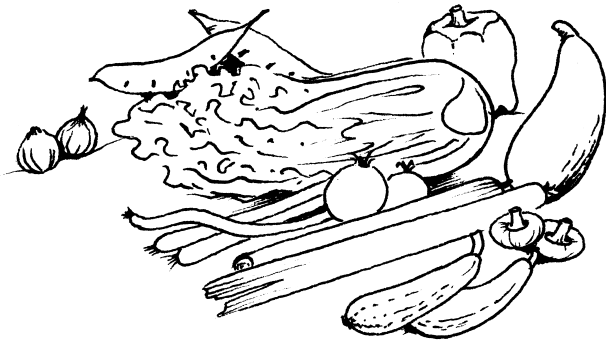
- The maximum mark for this paper is 125.
- Mark allocations are shown in brackets.
- Wherever calculations are needed you should show your working.
- You are reminded of the need for good English and clear presentation.

NO QUESTIONS APPEAR ON THIS PAGE

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

Question 1 is about gathering information on food products.

1 A food manufacturer wishes to extend the range of vegetable products on sale.



(a) (i) Name **three** methods of finding out information about vegetable products.

- 1
- 2
- 3

(3 marks)




(ii) Write **three** questions you could ask consumers to find out what type of vegetable products they would buy.

- 1
- 2
- 3

(3 marks)

Turn over ►

(b) The table below shows nutritional profiles for a range of multi-cultural vegetable products.

Product per 100 g	Energy (kJ/kcal)	Protein (g)	Carbohydrate (g)	Sugar (g)	Fat (g)	Dietary fibre (g)
Samosas 	1155 kJ 276 kcal	9.7	28.2	1	13.8	1.4
Spring rolls 	1027 kJ 246 kcal	2.8	31.6	3.4	14.9	1.6
Stir fry 	323 kJ 77 kcal	2.1	6	2.5	5	2.3

Use the information in the table to answer the questions below.

(i) Which product provides the best healthy option?

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(1 mark)

(ii) Explain why.

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(2 marks)

(iii) Explain why the stir fry has the lowest energy content.

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(3 marks)

(c) Give reasons why sales of multi-cultural vegetable products have increased.

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(5 marks)

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TURN OVER FOR THE NEXT QUESTION

Turn over ►

Question 2 is about food product development.

2 A manufacturer wishes to extend the range of ready prepared pizza products.

The *test kitchen* works to the following design criteria.

The successful product will:

- be a pizza product
- use fresh vegetables
- be served in individual portions
- be eaten hot or cold
- have a variety of textures.

(a) (i) With the aid of notes and sketches, produce **two** different design ideas which meet the design criteria. Do **not** draw any packaging.

Design idea 1

(4 marks)

Design idea 2

(4 marks)

(ii) Choose **one** of your design ideas for the manufacturer to develop.

Idea 1

Idea 2

Explain in detail how your chosen design idea meets the design criteria.

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(4 marks)

(b) (i) Write a product specification for your chosen pizza design idea.

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(5 marks)

QUESTION 2 CONTINUES ON THE NEXT PAGE

Turn over ►

(ii) List the ingredients needed to make your chosen design idea in the *test kitchen*.

Explain why each ingredient is used.

Quantities	Ingredients	Reasons for use

(8 marks)

(iii) Produce a plan for making your chosen idea in the *test kitchen*. (8 marks)

Show details of **two** critical control points used. (2 marks)

You may use flow charts, diagrams, notes or sketches in your answer.

TURN OVER FOR THE NEXT QUESTION

Turn over ►

Question 3 is about developing prototypes.

- 3 (a) Describe, with reasons, **two** ways of developing a mixed vegetable soup which will appeal to consumers from different cultures.

Vegetable soup
200 g potatoes, 1 carrot, 2 onions, salt, pepper, 1 tbs vegetable oil, 1 tbs flour, 200 ml vegetable stock



Development 1	Reason
Development 2	Reason

(4 marks)

- (b) Name an item of electrical kitchen equipment used to produce a smooth textured soup.

.....
(1 mark)

- (c) Explain how food workers can use this item of equipment safely.

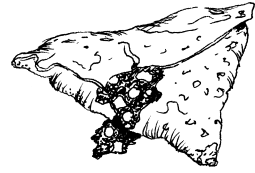
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(4 marks)

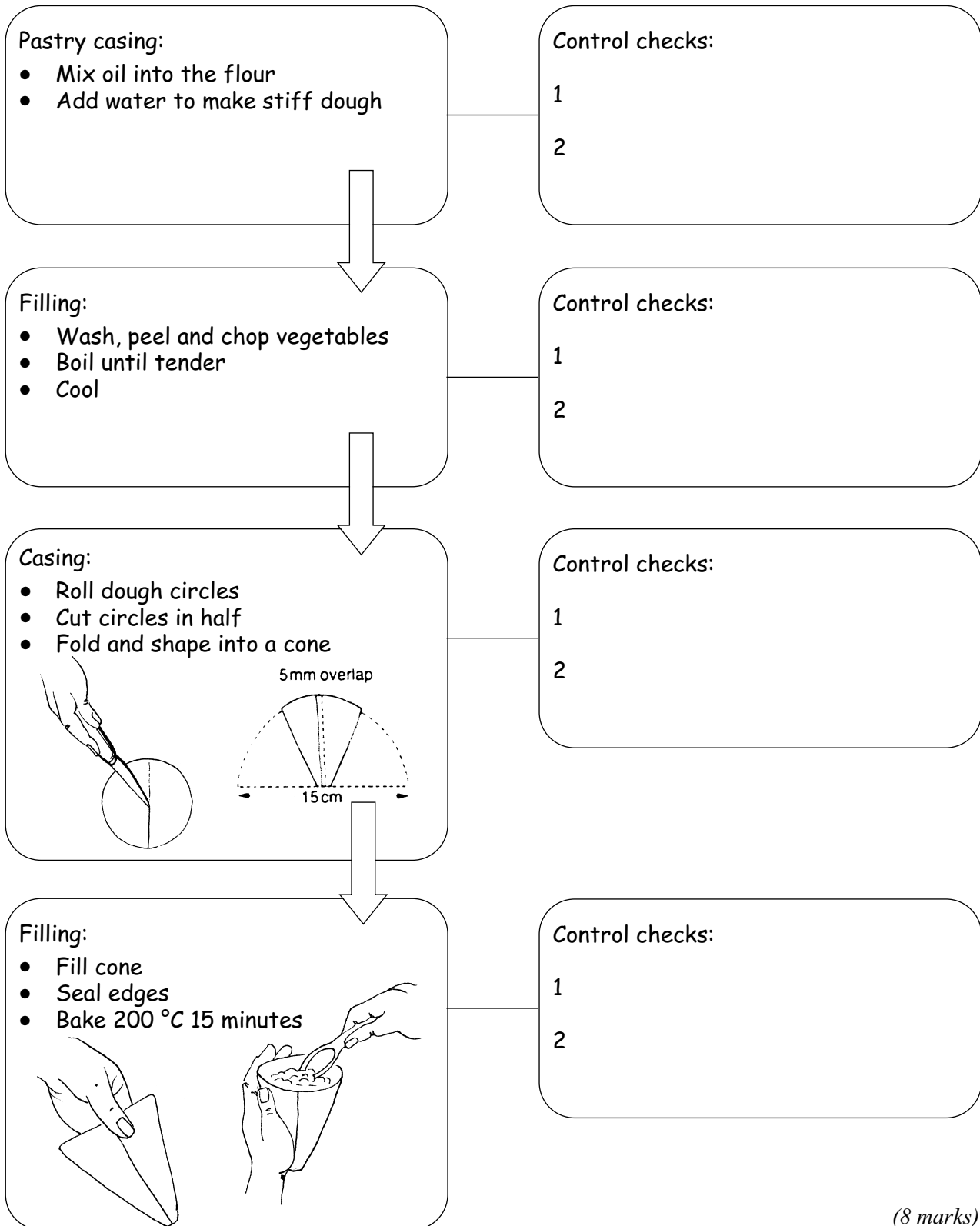
Question 4 is about control checks.

4 The test kitchen is developing a vegetable based samosa product.

The flow diagram shows stages in the making of this product.



(a) Describe **different** control checks that would be made at each stage.



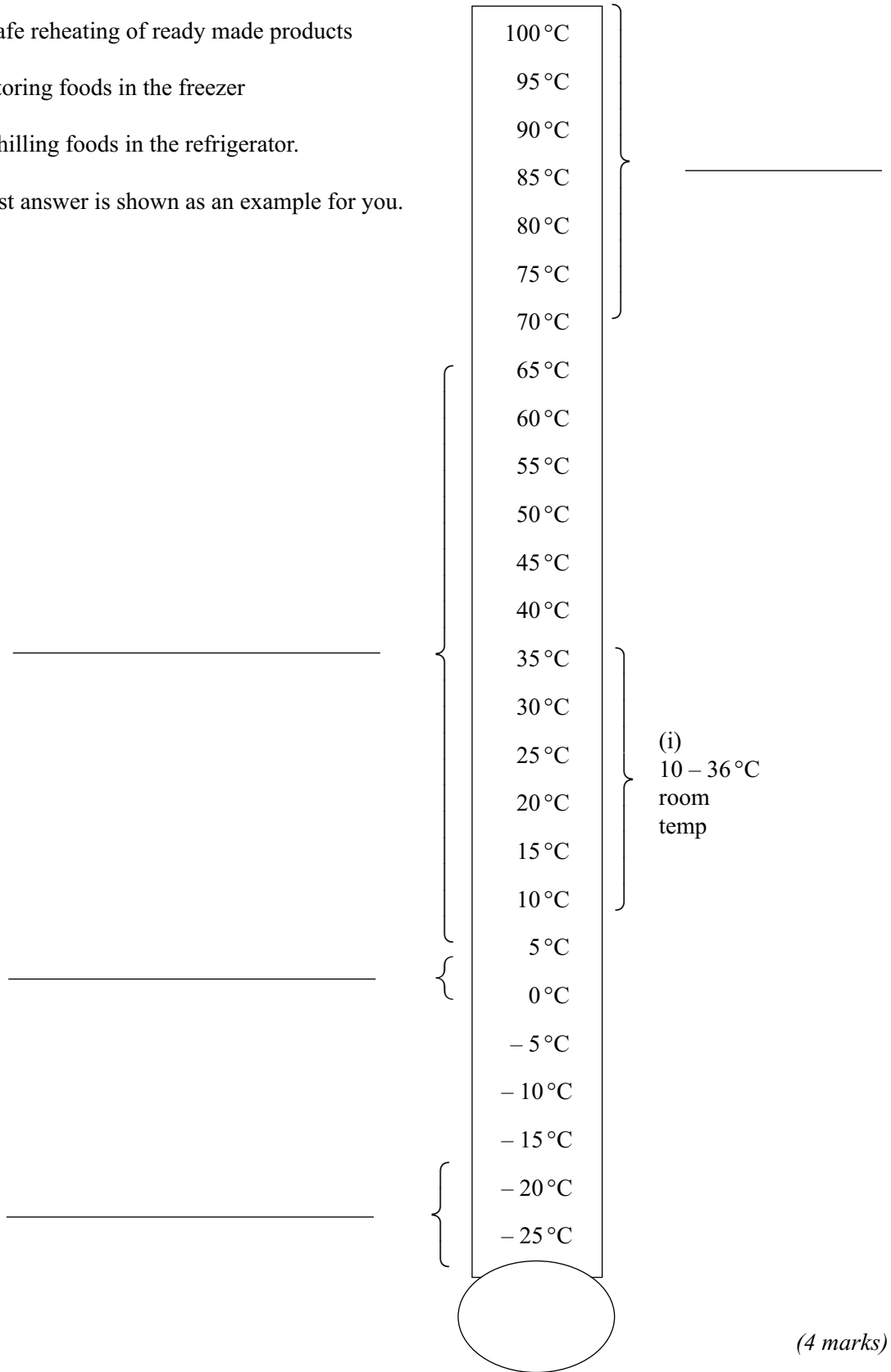
(8 marks)

(b) Temperature control is important for safe food products.

Label the diagram to show the temperature ranges needed for the following:

- (i) room temperature 10–36 °C
- (ii) danger zone for bacterial growth
- (iii) safe reheating of ready made products
- (iv) storing foods in the freezer
- (v) chilling foods in the refrigerator.

The first answer is shown as an example for you.



(4 marks)

(c) Explain how to use a food probe to take the temperature of food.



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(4 marks)

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TURN OVER FOR THE NEXT QUESTION

Turn over ►

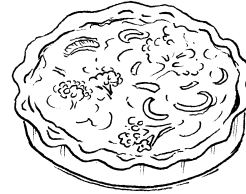
Question 5 is about problems during manufacture.

5 A food manufacturer is producing a batch of cheese and vegetable flans.

Cheese and vegetable flan

Pastry: flour, fat, salt, water

Filling: milk, cheese, eggs, salt, pepper,
broccoli, onion, parsley



The following problems are noticed after the product is cooked.

- Explain the cause of each problem.
- Describe how to prevent each problem.

Problem	Cause of problem	To prevent problem
The filling is not set.		
The pastry base is thin and collapses during cooking.		
Pieces of metal are found in the finished product.		

(12 marks)

Question 6 is about production costs and packaging.

6 Manufacturers use computers to help them work out batch production costs.

(a) What is meant by batch production?

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(3 marks)

QUESTION 6 CONTINUES ON THE NEXT PAGE

Turn over ►

(b) A manufacturer uses a spreadsheet to work out the costs of a 5 kg batch of salad. The spreadsheet is shown below.

spreadsheet2004						
	A	B	C	D	E	F
1	Ingredients	weight bought(kg)	cost	cost per kg	weight used(kg)	cost used
2	tomatoes	10.00	£3.60	£0.36	1.75	£0.63
3	olives	10.00	£10.00	£1.00	0.50	£0.50
4	red onion	2.50	£1.50	£0.60	0.50	£0.30
5	cucumber	5.00	£7.00	£1.40	1.00	£1.40
6	olive oil	0.50	£3.50	£7.00	0.10	£0.70
7	feta cheese	1.00	£3.50	£3.50	1.00	£3.50
8	lemon juice	0.50	£1.30	£2.60	0.15	£0.39
9					5.00	£7.42
10						
11						

Use the information given on the spreadsheet to answer the following questions.

(i) What is the total cost of a 5 kg batch of salad?

.....
(1 mark)

(ii) Which is the most expensive ingredient per kg bought?

.....
(1 mark)

(iii) Which is the most expensive ingredient used?

.....
(1 mark)

(iv) Which is the ingredient used in the largest amount?

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(1 mark)

(c) What are the advantages of using a computer spreadsheet to work out the final selling price?

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(4 marks)

(d) Describe **one** way of packaging a frozen vegetable curry and rice product.

Include:

- a labelled sketch of the packaging idea (4 marks)
- named packaging materials (2 marks)
- reasons for the choice of packaging material. (3 marks)

Labelled sketch:

Packaging materials used:

Reasons for choice:

Question 7 is about preserving vegetables.

7 Manufacturers often use freezing as a method of preserving vegetables.

(a) (i) Name **two** vegetables suitable for freezing.

1

2

(2 marks)

(ii) Explain how freezing helps to stop decay in vegetables.

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(2 marks)

(b) The following information is shown on a pack of frozen vegetables.

Explain the meaning of the information given.

Labelling information	What it means
	
150g e	
Best before July 11th	

(6 marks)

(c) Why do consumers often prefer to buy frozen vegetables rather than fresh vegetables?

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(6 marks)

END OF QUESTIONS

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THERE ARE NO QUESTIONS PRINTED ON THIS PAGE