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Centre Number		Candidate Number	
Candidate Signature			

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General Certificate of Secondary Education  
June 2004



**DESIGN AND TECHNOLOGY:  
FOOD TECHNOLOGY (SHORT COURSE)  
Higher Tier**

**3552/H**

**H**

Monday 21 June 2004 Morning session

**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	
<b>TOTAL</b>	
Examiner's initials	

Time allowed: 1 hour 30 minutes

**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**

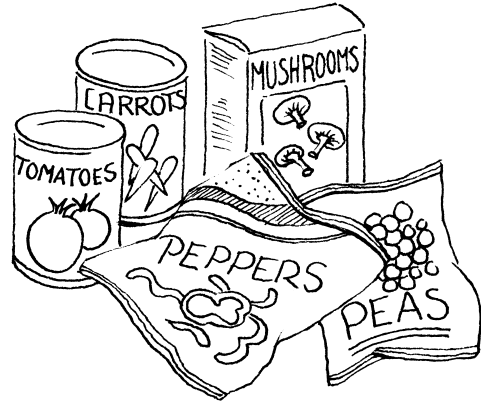
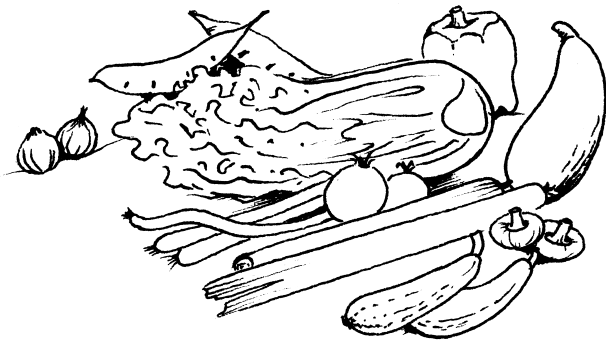
- The maximum mark for this paper is 100.
- Mark allocations are shown in brackets.
- Wherever calculations are needed you should show your working.
- You are reminded of the need for good English and clear presentation.

**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 gathering information about vegetable products.

- 1 .....
- 2 .....
- 3 .....

(3 marks)

(ii) Describe how to carry out **one** method of consumer research to gather information on existing vegetable products.

Method chosen: .....

How to carry this out:

- .....
- .....
- .....
- .....
- .....
- .....

(4 marks)

Turn over ►

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

Product per 100 g	Energy (kJ/kcal)	Protein (g)	Carbohydrate (g)	Sugar (g)	Fat (g)	Dietary fibre (g)
Vegetable samosas	1155 kJ 276 kcal	9.7	28.2	1	13.8 2.2 saturates	1.4
Chinese spring rolls	1027 kJ 246 kcal	2.8	31.6	3.4	14.9 1.2 saturates	1.6
Vegetable kebabs	264 kJ 61 kcal	1.8	4.5	4.3	4.3 0.7 saturates	2.4
Chow mein stir fry	323 kJ 77 kcal	2.1	6	2.5	5 0.6 saturates	2.3

Using information from the table, explain why some vegetable products are often sold as “healthier options”.

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(6 marks)

**Question 2 is about food product development.**

2 A manufacturer wishes to extend the range of vegetarian pastry products.

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

The successful product will:

- use fresh vegetables
- be served in individual portions
- be eaten hot or cold
- include pastry
- be attractive and appealing to a variety of consumers.

(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**

(5 marks)

**Design idea 2**

(5 marks)

**Turn over ►**

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

Explain the function of each ingredient used.

	<b>Quantities</b>	<b>Ingredients</b>	<b>Functions</b>
Pastry:			
Filling:			

(10 marks)

Turn over ►

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

Include details of:

- **two** critical control points (CCPs) used (2 marks)
- **two** examples of feedback given after control checks. (2 marks)

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



**Question 3 is about making prototypes.**

- 3 (a) The test kitchen is developing a new vegetable soup product.
- Describe a different hazard that occurs at each production stage.
  - Explain how each hazard can be controlled by the manufacturer.

<b>Vegetable soup</b>
200 g potatoes, 100 g leeks, 1 carrot, 1 onion, 50 g lentils, salt, paprika, pepper 1 tbs wheatflour, 200 ml skimmed milk 100 ml single cream, 1 tbs vegetable oil



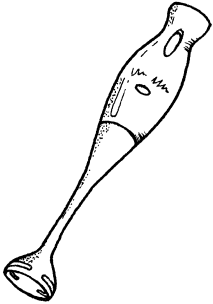

The chart below shows stages in the making of this product.

<b>Production stage</b>	<b>Hazard</b>	<b>How hazard is controlled</b>
Delivery and storage of raw materials		
Preparation of vegetables		
Cooking soup and adding the cream		
Packaging product ready for sale		

(8 marks)

**Turn over ►**

(b) Explain, with reasons, the safety precautions taken by food workers using the following equipment.

Equipment	Safety precaution	Reasons
 Electric hand blender	1	
	2	
 Food probe	1	
	2	

(8 marks)

(c) (i) Manufacturers always try to produce a consistent outcome.

What is meant by a consistent outcome?

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(4 marks)

(ii) How is CAM (Computer Aided Manufacture) used to ensure that final products are consistent?

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(2 marks)

**Question 4 is about production costs.**

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

(a) What is meant by batch production?

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(3 marks)

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

	A	B	C	D	E	F	G
1	<b>Ingredients</b>	<b>weight bought(kg)</b>	<b>cost</b>	<b>cost per kg</b>	<b>weight used(kg)</b>	<b>cost used</b>	
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					<b>5.00</b>	<b>£7.42</b>	
10							
11							

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

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(4 marks)

Turn over ►

**Question 5 is about preserving and packaging vegetables.**

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

(a) Explain how freezing helps to extend the shelf life of vegetables.

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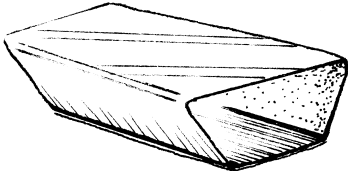
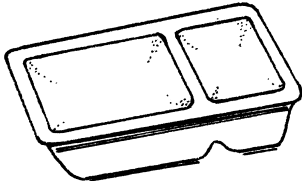
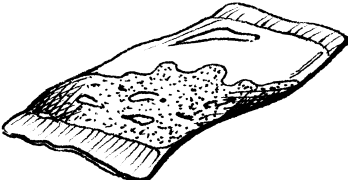
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*(3 marks)*

(b) Explain why the following packaging materials are used for a pack of frozen stir fry vegetables.

Packaging material	Reasons for choice of materials
 Paperboard sleeve	1  2
 Plastic container	1  2
 Plastic bag for the sauce	1  2

*(6 marks)*

- (c) The following information is shown on a pack of mixed vegetables.

Explain the meaning of the information given.

Labelling information	What it means
150g <b>e</b>	
Wash before use	
Use by July 11th	

(6 marks)

Turn over ►

**Question 6 is about organic vegetables.**

**6** Some vegetable products are now labelled “Organic”.

(a) Explain what is meant by the term “organic vegetables”.

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*(2 marks)*

(b) Give reasons why these are becoming more popular with consumers.

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*(5 marks)*

**END OF QUESTIONS**



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