

SPECIMEN

General Certificate of Secondary Education

A524

Design and Technology: Food Technology

Unit A524: Technical aspects of designing and

making

Specimen Paper

Time: 1 hour 15 minutes

Candidates answer on the question paper. **Additional materials:**

Candidate Forename	Candidate Surname	
Centre Number	Candidate Number	

INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- Answer all the questions.
- Do not write in the bar codes.
- Do not write outside the box bordering each page.
- Write your answer to each question in the space provided.

INFORMATION FOR CANDIDATES

- The number of marks for each question is given in brackets [] at the end of each question or part question.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- The total number of marks for this paper is 60.

FOR EXAMINER'S	USE
1	
2	
3	
4	
5	
TOTAL	

Section A

Answer **all** questions.

1 Fig. 1 shows a food preparation area.

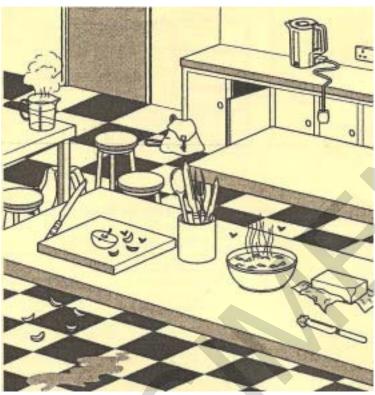
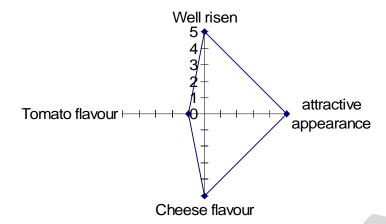


Fig. 1

(a)	State two nazards snown	in Fig. 1.			
	(i)				[1]
	(ii)	.,			[1]
(b)	Bacteria will grow very ea	sily on some high	risk foods		
	(i) State the name of on	e high risk food.			
					[1]
	(ii) Give the name of one	bacteria that coul	d cause fo	ood poisoning.	
					[1]
(c)	On the chart below tick th	ne temperature ran	ge where	bacteria grow quid	ckly.
		Temperature range	√		
		0 - 5°C		1	
		8 - 63°C			
		75 - 100°C			
					[1]
(d)	State one reason why fre	ezing will prevent	bacteria fi	om growing.	
					[1]

(e)	Explain why cucumbers are not suitable for freezing.
	[2]
(f)	Discuss why there has been an increase in the number of reported cases of food poisoning.
	[4]

2 Fig. 2 shows a star profile for a savoury wholemeal pizza product.



(a)	State the area of the product which needs improving.	
		[1]
(b)	State the function of the following ingredients used in bread making.	
	(i) Yeast	[1]
	(ii) Strong flour	[1]
(c)	State two conditions necessary for yeast to function correctly.	
		. [1]
		[1]
(d)	State one function of fibre in the diet.	
		[1]
(e)	Sensory analysis is an ongoing activity during the design and making process for any new product.	
	Explain the difference between a rating and a ranking test.	
		[2]

		Total [
6		

3 Fig. 3 shows three symbols shown on food packaging.

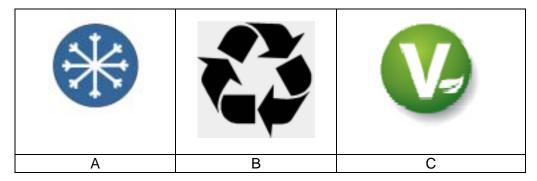


Fig. 3

	3.3	
(a)	Fig. 3 shows different symbols put on food packaging. Tick (\checkmark) which symbol would be put on a vegetarian product.	
		[1]
(b)	A food manufacturer is producing some vegetarian cheese pasties.	
	The ingredients used in the pastry are:	
	plain flour	
	 margarine 	
	• lard	
	• water	
	• salt	
	(i) State one ingredient in the pastry that is unsuitable for vegetarians.	
		[1]
	(ii) As part of the vegetarian range the manufacturer wants to include a different pasty instead of cheese.	
	Name of one alternative protein food that could be used in the pasties to replace the cheese.	
		[1]
(c)	Give one function of protein in the diet.	[.]
(c)		F41
. D		. [1]
(d)	The pasties are an example of a cooked chilled food product.	
	Explain why consumers choose to buy cook/chill products.	
		. [2]
(e)	Describe the cook-chill process.	

(f)	Exp	lain two reasons why a person chooses to become a vegetarian.
	(i)	
		[2]
	(ii)	
		[2]
		Total [12]

Section B

Answer all questions

4 We are all being encouraged to eat more fruit and vegetables.



Fig. 3

(a)	Fig. 3 shows some pictures of different types of vegetables.	
	Name one vegetable in Fig. 3 which is a good source of vitamin C.	
		[1]
(b)	State one function of vitamin C in the diet.	
		[1]
(c)	Vitamin C is easily destroyed when preparing and cooking vegetables.	
	State two ways of preventing the loss of vitamin C during preparation and cooking.	
	(i)	[1]
	(ii)	[1]
(d)	State two dangers of having a high fat diet.	
		[1]
		[1]
(e)	Give two ways of reducing the fat content of a product.	
		[2]

(f) The following are examples of recent newspaper headlines.

Ready meals that come with added health risk

Revealed, foods with dangerous amounts of salt

to be attractive to children

Ready meals eaten by millions are loaded with fat and salt it is claimed

One in three adults will be dangerously overweight within 10 years unless we change our lifestyles now, warn top doctors

	Explain what effect publicity has on manufacturers of ready made meals.
	[4]
	Total [12]
	Total [12] od manufacturers carry out research so they can generate new ideas.
5 Fo	Total [12] od manufacturers carry out research so they can generate new ideas. State one research method a manufacturer may use when generating new ideas.
(a)	Total [12] and manufacturers carry out research so they can generate new ideas. State one research method a manufacturer may use when generating new ideas. [1]
	Total [12] od manufacturers carry out research so they can generate new ideas. State one research method a manufacturer may use when generating new ideas. [1] State one way the results of research could be recorded.
(a)	Total [12] od manufacturers carry out research so they can generate new ideas. State one research method a manufacturer may use when generating new ideas. [1] State one way the results of research could be recorded. [1]
(a)	Total [12] od manufacturers carry out research so they can generate new ideas. State one research method a manufacturer may use when generating new ideas. [1] State one way the results of research could be recorded. [1] Young children often refuse to eat fruit.
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(a)	Total [12] od manufacturers carry out research so they can generate new ideas. State one research method a manufacturer may use when generating new ideas. [1] State one way the results of research could be recorded. [1] Young children often refuse to eat fruit. A food manufacturer wants to develop a new fruit dessert which will appeal to children.
(a)	Total [12] od manufacturers carry out research so they can generate new ideas. State one research method a manufacturer may use when generating new ideas. [1] State one way the results of research could be recorded. [1] Young children often refuse to eat fruit. A food manufacturer wants to develop a new fruit dessert which will appeal to children. The design specification for the fruit dessert product is:

On the diagram below draw and label a new fruit dessert product. In the boxes provided describe how your idea meets each specification point.

To contain fruits	To contain calcium
To contain notes	10 contain calcium
To contain a variety of textures	To be attractive to children

(d)*	Additives are widely used in food products.
	Discuss the implications to the manufacturer and consumer of using additives in food products.
	[6]
	Total [12]
	Paper Total [60]



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OXFORD CAMBRIDGE AND RSA EXAMINATIONS

General Certificate of Secondary Education

DESIGN AND TECHNOLOGY

A524

Food Technology

Unit A524: Technical aspects of designing and making

Specimen Mark Scheme

The maximum mark for this paper is **60**.



Section A		
Question Number	Answer	Max Mark
1(a)	Fig. 1 shows a food preparation area. State two hazards shown in Fig. 1 2 x 1 mark Food uncovered Flies near food Food / liquid on the floor Bag on floor Trolley cable from kettle Hot liquid Stools Knife over edge of table Cupboard door open	[2]
1(b) (i)	Bacteria will grow very easily on some high risk foods. State the name of one high risk food. Meat Fish Eggs Milk Cheese Ready prepared foods Cream Gravy Custard	
1(b)(ii)	Give the name of one bacteria that could cause food poisoning. Pathogenic bacteria Salmonella; E.Coli; Staphylococcus; Listeria; Botulism; Campylobacter	[1]
1(c)	On the chart below <u>tick</u> the temperature range where bacteria grow quickly. 8 - 63°C	[1]
1(d)	State one reason freezing will prevent bacteria from growing. Temperature is too low for bacteria to multiply Water is not available	[1]
1(e)	Explain why cucumbers are not suitable for freezing. 1 Mark for statement 1 Mark for explanation of the statement. Foods with a high water content are not suitable. The water freezes into crystals which burst the cell walls. When it thaws the cells collapse e.g. cucumber/lettuce etc.	[2]

Question Number		Answer		Max Mark
1(f)	Discuss why there has been an increase in the number of reported cases of food poisoning. Level 1 (0-2 marks) Basic discussion, showing limited understanding of why there has been an increase in the number of reported cases of food poisoning Level 2 (3 marks) Adequate discussion, showing some understanding of why there has been an increase in the number of reported cases of food poisoning Level 3 (4 marks) Thorough discussion, showing detailed understanding of why there has been an increase in the number of reported cases of food poisoning Discussion may include:			
	Statement	Explanation	Relevant example	
	Incorrect storage of food products	Reference to the conditions which bacteria require to grow	Naming of relevant high risk foods or examples of cross contamination	
	Correct hygiene procedures not being followed by those preparing foods	Reference to personal hygiene rules	Example of rules which could be broken	
	Poor preparation of foods	Links to transferring of bacteria from raw to cooked foods	Relevant examples of food given	
		Foods prepared to far in advance of serving	e.g. for a buffet	
		In correct reheating of foods / not cooking foods for the correct amount of time to the correct temperatures	Not to above 75C for 2 mins	
		Not keeping hot foods hot and using within the correct amount of time	Above 63C	
	Not following date marking	Particularly important use by date on high risk foods	Example of high risk food	
	Choice of ingredients - raw eggs, unpasteurised cheese	Links to Lysteria		[4]

Question Number	Answer	Max Mark
2(a)	Fig. 2 shows a star profile for a savoury wholemeal pizza product. State the area of the product which needs improving. Tomato flavour	[1]
2(b)(i)	State the function of the following ingredients used in bread making. Yeast Raising agent Makes the bread rise Flavour To provide carbon dioxide	[1]
2(b)(ii)	Strong flour Provides the bulk Provides gluten – hold bread in risen shape	[1]
2(c)	State two conditions necessary for yeast to function correctly. 2 x 1 marks moisture/water food supply warmth	[2]
2(d)	State one function of fibre in the diet. Helps to prevent:	[1]
2(e)	Sensory analysis is an ongoing activity during the design and making process for any new product. Explain the difference between a rating and a ranking test. Rating test this involves giving food products a score Usually you give scores out of 5 It can involve giving a score for a final product or different aspects of the product Ranking test putting the products in order of preference / which they liked the most	[2]

Question Number	Answer	Max Mark
2(f)	Write clear instructions on how to set up and carry out a sensory analysis test. 1 x 4 marks. To gain full marks they need to have 4 points. Employ trained tasters Prepare the charts which must be clear and easy to understand Check the tasting booths are set up correctly. Put each product on the same type of plate / colour / size. Label each product with a symbol. Provide each taster with a glass of water. Sit tasters in individual booths Give out samples one at a time Ensure tasters have a drink of water between samples Record results between samples if doing a rating test Record results after completing tasting all three products if doing a ranking test.	
	Use infra red lighting No windows in booths for tasters to confer	[4]
3(a)	Fig. 3 shows three symbols shown on food packaging. Fig. 3 shows different symbols put on food packaging. Tick (✓) which symbol would be put on a vegetarian product. Symbol 3	[1]
3(b)(i)	A food manufacturer is producing some vegetarian cheese pasties. The ingredients used in the pastry are:- Plain Flour Margarine Lard Water Salt State one ingredient in the pastry that is unsuitable for vegetarians. Lard / Margarine	[1]
3(b)(ii)	As part of the vegetarian range the manufacturer wants to include a different pasty filling instead of cheese. Name one alternative protein food that could be used in the pasties to replace the cheese. Quorn	
	Soya Tofu	[1]

Question Number	Answer	Max Mark
3(c)	Give one function of protein in the diet. Growth / body building Repair Maintenance	
	Secondary source of energy	[1]
3(d)	The pasties are an example of a cooked chilled food product. Explain why consumers choose to buy cook/chill products. 1 mark for statement 1 mark for explanation of the statement Cooks more quickly than a frozen product because it does not have to thaw. Quicker to prepare than using fresh ingredients as no peeling/chopping etc. Quicker to prepare and cook than using frozen food product. Wide range available. Economy range/luxury range/special diet ranges. Some can be ready to eat on the go, suitable for packed lunches, picnics, travel.	[2]
3(0)	Describe the cook chill process	
3(e)	 Describe the cook-chill process. 1 mark for statement 1 mark for explanation of the statement Example of answer Many people do not have enough time (1 mark) so these meals can often be cooked in a matter of minutes (1 mark) Saves time – can be reheated / cooked in minutes Wide variety of products available – reference to dishes from other countries / suitable for special diets e.g. healthy options, low fat, vegetarian. Can buy high quality luxury products. May not have the skills to make the product – but can still eat a balanced diet if choosing the product carefully. Can cost less – than buying all the separate ingredient. 	[2]
3(f)	Explain two reasons why a person chooses to become a vegetarian. 4 x 1 mark 2 x 1 mark for statement 2 x 1 mark for explanation of the statement Example of two marks	

Question Number	Answer	Max Mark
	 For health reasons (1 mark), vegetarian diets are often higher in fibre which helps to prevent digestive problems (1 mark) Religion – may give specific example Objection to the slaughter of animals – considered to be cruel. Health Scares – such as BSE Economically wasteful – the cost to rear animals is expensive which could produce far more food if it was used for cereals. Dietary reasons – may give an example e.g. vegetarian diet is usually lower in fat / higher in fibre Reference to health - in some studies, vegetarians have been shown to be more 'healthy' than meat-eaters, they suffer less from diseases such as heart disease, some cancers, hypertension and Type 2 diabetes, and to live longer. Credit any of these reasons Don't like meat – reference to the taste, texture, mouth feel 	[4]

Question Number	Answer	Max Mark
4(a)	We are all being encouraged to eat more fruit and vegetables. Fig. 3 shows some pictures of different types of vegetables. Name one vegetable in Fig. 3 which is a good source of vitamin C.	
	Pepper	[1]
4(b)	State one function of vitamin C in the diet.	
	Helps absorb calcium from food	
	Helps absorb iron from food	
	Protection against infection	[1]
4(c)	Vitamin C is easily destroyed when preparing and cooking	
()	vegetables.	
	State <u>two</u> ways of preventing the loss of Vitamin C during	
	preparation and cooking.	
	Cook in minimum amount of water	
	Steam / microwave vegetables	
	Lid on pan Use liquid vegetables have been cooked in for gravy	
	Do not over cook – serve crisp	50 3
	Do not over cook derive onep	[2]
4(d)	State <u>two</u> dangers to health of having a high fat diet.	
	2 x 1 mark	
	Obesity	
	Heart disease	
	Type 2 diabetes	
	Breathing problems	
	High blood pressure	[0]
	Coronary heart disease	[2]
4(e)	Give <u>two</u> ways of reducing the fat content of a product.	
. ,	2 x 1 mark	
	Change a high fat ingredient for a lower fat one	
	Cream to yoghurt	
	Red meat to white meat	
	Grill / steam instead of frying	
	Less fat in cake/pastry	
		[2]

Question Number	Answer	Max Mark
4(f)	 The following are examples of recent newspaper headlines. Explain what effect publicity has on manufacturers of ready made meals. 4x 1 marks 1 mark for each briefly explained point – maximum 2 marks 2 marks for detailed explained point – maximum 4 marks • Improved labelling – clearer. • Production of 'healthier' options • Reduction of fat and salt in traditional foods e.g. baked beans with no added salt and sugar. • Supermarkets responding to government initiatives – targeting areas such as bread, breakfast cereals and ready meals (Sainsbury's) • Manufacturers are regularly reviewing sodium content of foods and reducing it where possible. • Traffic light system to be introduced on some foods in relation to the fat content. Consumers are therefore able to make informed 	
	 choices quickly. Actively marketing reduced fat / salt foods in a positive way. 	[4]
5(a)	Food manufacturers carry out research so they can generate new ideas. State one research method a manufacturer may use when generating new ideas. Surveys / questionnaires / asking people Looking at existing products Looking in recipe books Use of internet	[1]
5(b)	State one way the results of research could be recorded. Graph – pie chart / bar graph Written report Table of results In a PowerPoint presentation	[1]

Question Number		Answer	Max Mark
5(c)	will appeal to children The design specificati to contain fruits to contain calcium to contain a variety to be attractive to contain below	wants to develop a new fruit dessert which on for the fruit dessert product is:	
	Specification point		
	To contain fruits	Diagram or notes clearly label / show two different fruits which are suitable for inclusion in a cold dessert. (do not credit fruits on top of the dessert if they would go brown during storage e.g. raw apple)	
	To contain calcium	Clearly shows the ingredients or where the ingredients are that contain calcium e.g. Milk in custard Use of dairy products such as yoghurt, crème fraiche	
	To contain a variety of textures	Must state the ingredients which have textures e.g. Creamy – cream, custard, yoghurt Smooth – cream, yoghurt, custard Chewy – sponge, named fruits Crisp - biscuits, hard fruits Soft - sponge, soft fruits	
	To be attractive to children	Explanation of how it's been made attractive to children How it's been decorated on top e.g. use of ingredients to improve presentation Reference to foods which children like Use of layers—check carefully that the ingredients work as layers	[4]

Question Number	Answer	Max Mark
	Additives are widely used in food products. Discuss the implications to the manufacturer and consumer of using additives in food products. Level 1 (0-2 marks) Basic discussion, showing limited understanding of the implications to the manufacturer and/or consumer. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised. Errors of grammar, punctuation and spelling may be intrusive. Level 2 (3-4 marks) Adequate discussion, showing some understanding of the implications to the manufacturer and/or consumer. There will be some use of specialist terms, although these may not always be used appropriately. The information will be presented for the most part in a structured format. There may be occasional errors in spelling, grammar and punctuation Level 3 (5-6 marks) Thorough discussion, showing detailed understanding of the implications to the manufacturer and consumer. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate can demonstrate the accurate use of spelling, punctuation and grammar. Discussion might include: Help to keep food safe for longer by protecting it against the growth of micro organisms. Extending shelf life is useful to consumers as products keep longer and therefore don't have to be purchased so often. Can be purchased in larger quantities, which are often cheaper. Manufacturer can sell at a more competitive price. Consumers can shop less often. Food is available out of season therefore it increases the consumer's choice of foods. Manufacturers can safely transport foods from other countries / greater distances. Can improve the flavour of foods – e.g. use of vanilla. Can improve the nutritional value of the food e.g. fortification aiding in the processing and manufacture. Some additives linked to hyperactivity in children – school difficulties / usual colourings Allergic reactions – states type of reactions / ingredients not always clear.	
	Some additives do not serve any nutritional purpose.	[6]
	Paper Total	[60]

Assessment Objectives Grid (includes QWC)

Question	AO1	AO2	AO3	Total
1(a)	2			2
1(b)(i)	1			1
1(b)(ii)	1			1
1(c)	1			1
1(d)	1			1
1(e)	2			2
1(f)	1		3	4
2(a)	1		4	1
2(b)(i)	1			1
2(b)(ii)	1			1
2(c)	2			2
2(d)	1			1
2(e)	2			2
2(f)	4			4
3(a)	1			1
3(b)(i)	1			1
3(b)(ii)	1			1
3(c)	1			1
3(d)	2			2
3(e)	2			2
3(f)	4			4
4(a)	1			1
4(b)	1			1
4(c)	2			2
4(d)	2			2
4(e)	2			2
4(f)	4			4
5(a)	1			1
5(b)	1			1
5(c)	4			4
5(d)*			6	6
Totals	50		9	60