

Design and Technology (Food Technology)

General Certificate of Secondary Education

Unit **A522**: Food Technology: Sustainable Design

Mark Scheme for June 2012

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.








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1. Annotations

Annotation	Description
	Caret sign to show omission
	Level 1
	Level 2
	Level 3
	Repeat
	Noted but no credit given
	Tick

2. Subject-specific Marking Instructions

Marking crossed out and duplicated answers

OCR currently provides examiners with 'rules' for marking crossed out answers (which may be partially or wholly correct) and duplicated answers. Duplicated answers refer to two (or more) alternative responses to the same question, or responses to more optional questions than required within the paper rubric.

The rules are as follows:

Crossed out answers

- where a candidate crosses out an answer and provides an alternative response the crossed out response is not marked and gains no marks
- where a candidate crosses out an answer to a whole question, but makes no second attempt and the inclusion of the answer would not cause a rubric infringement, the assessor should attempt to mark the crossed out response and award marks appropriately.

Duplicated answers

- normally all responses are marked and the highest mark given
- where alternate answers are provided to a multiple choice question, no mark should be awarded (for example: following a request to tick one box, the candidate ticks two or more boxes)
- where the candidate provides contradictory responses, no mark should be awarded (for example: the candidate writes a statement such as 'water freezes at 0°C this means it is a liquid at -10°C'). The candidate, here, does not seem to understand the context of the 'question'
- where the candidate has adopted a 'scattergun' approach by providing multiple answers to a single response question, no mark should be awarded

Section A

Question		Answer	Marks	Guidance
1		A	1	Sugar
2		C	1	Best before
3		C	1	Chickens that can roam around outside and have spacious indoor areas
4		D	1	Artificial fertilisers and pesticides are not used
5		B	1	Pregnant women
6		<ul style="list-style-type: none"> • Can be frozen • Suitable for freezing • Freezable 	1	1 mark
7		<ul style="list-style-type: none"> • Enzyme formation • Formation / growth of bones / teeth • Heart regulation / keep normal heartbeat • Muscle contraction / relaxation • Prevents rickets • Prevents stunted growth • Regulating blood pressure / Clotting blood • Release of hormones • Sending / receiving nerve signals • Strong / maintenance of bones / teeth • To prevent osteoporosis 	1	1 mark Do not accept growth on its own or healthy bones / teeth
8		<ul style="list-style-type: none"> • Green 	1	1 mark
9		<ul style="list-style-type: none"> • Ethical Trading Initiative • Ethical Trade Initiative 	1	1 mark Words must be exactly the same as in answer

Question		Answer	Marks	Guidance
10		<ul style="list-style-type: none">0 - 8°C	1	1 mark Accept any number given on its own between 0 and 8°C

Question		Answer	Marks	Guidance
11		False	1	1 mark
12		True	1	1 mark
13		True	1	1 mark
14		True	1	1 mark
15		False	1	1 mark

Section B

Question	Answer	Marks	Guidance
16 (a)	<p>Cans / aluminium</p> <p>Advantages</p> <ul style="list-style-type: none"> • Allows food to have a long shelf life • Can have high recycled content / Can be made from recycled aluminium • Can heat up / chill quickly / transfers heat quickly • Different sizes / shapes • Easy to print on • Effective barrier to light, moisture and gas / micro organisms • Lightweight • Maintains 'fizz' until can is opened • Recyclable • Stackable / easy to store • Strong / sturdy / difficult to break • Suitable for variety of different foods • Withstands high temperatures <p>Disadvantages</p> <ul style="list-style-type: none"> • Cannot be used in a microwave • Cannot see the food • Comes from a non-sustainable source • Cost / more expensive material • Cost of recycling • Danger to wildlife • Easily damaged / dented • Not compostable / biodegradable / difficult to dispose of • Not re-useable • Ring cans / cans can be difficult to open • Risk of injury from sharp edges after opening 	6	<p>6x 1 mark</p> <p>Allow repeats of the same points for the different materials Do not accept rot</p> <p>Do not accept opposites for the same materials e.g. Aluminium Advantage – strong Disadvantage – dents when dropped</p> <p>Plastic Advantage – can be recycled Disadvantage – not recyclable</p>

Question		Answer	Marks	Guidance
		<p>Plastic Advantages</p> <ul style="list-style-type: none"> • Available in different thicknesses • Can be made from recycled materials • Can be moulded into a variety of shapes • Can be recycled • Can be resealed after opening • Can be used in the microwave • Can withstand high temperatures / low temperatures • Cheap to produce • Easy to print on • Light weight • Most do not react with foods • Re-usable • Some are biodegradable • Some are compostable • Transparent so you can see the product <p>Disadvantages</p> <ul style="list-style-type: none"> • Can be difficult to dispose of / ref to not breaking down / biodegrading / compost • Damaged/pierced easily • Danger to wildlife • Made from oil – not sustainable / non renewable • Not recyclable 		
16	(b)	<ul style="list-style-type: none"> • By putting symbols / logo / pictures on the product / accept name of recycling symbol • Telling you to recycle it • Work with different organisations to create recycling zones / bins 	1	1 mark

Question		Answer	Marks	Guidance
16	(c)	<ul style="list-style-type: none"> • Biodegradable materials • Make the box from recycled / part recycled materials • Minimise the number of colours used in the printing – • Putting in a reusable container • Use packaging materials from sustainable /managed forests / FSC forest stewardship council • Use packaging materials which can be recycled • Use paper case / card • Use the minimum amount of packaging material / less packaging materials 	2	2x1 mark
16	(d)	<ul style="list-style-type: none"> • Go stale quicker / drying out • The shelf life will be shorter • Will not last as long 	1	1 mark
16	(e)	<ul style="list-style-type: none"> • Cake tin • Clingfilm • In an air tight container / container / covered container • Wrap in foil 	1	1 mark
16	(f)	<ul style="list-style-type: none"> • % of ingredient if in the name of the product • Address / contact details • Allergy information • Date mark / use by / best before • GM labelled • If nutritional claim must have nutritional information • Ingredients • Lot mark / product code • Name of manufacturer • Name of product / product description • Place of origin • Weight 	4	4x1 mark Question relates to cake – therefore do not accept cooking instructions and storage (ref in the question)

Question		Answer	Marks	Guidance
17	(a)	<ul style="list-style-type: none"> • Amount of greenhouse gasses produced / CO₂ – through using fossil fuels for electricity / heating / transport / food production / storage • Food miles – reference to increasing with distance travelled • Impact the product has on the environment / pollutants • Landfill sites – production of CO₂ • Measuring emissions of carbon dioxide / emissions that cause climate change / global warming • Reference to the whole of the product life cycle – farm to disposal • The amount of emissions produced in the making of product & packaging – measurement • Using fossil fuels in production – these produce more carbon emissions 	4	4x1 mark Either 4 separate points or 2 explained answers or 1 explained and 2 separate points
17	(b)	<ul style="list-style-type: none"> • Access to recycling plants more difficult / Tetra packs sent abroad for recycling • Costs more than just having one material to recycle • Difficult / need to separate the different materials • Made of variety / layers of materials – plastic / foil / paper / card • More processes involved in separating the different materials 	2	2x1 mark Cost must be qualified

Question		Answer	Marks	Guidance
17	(c)	<ul style="list-style-type: none"> • Actively promoted as part of a healthy diet / healthy alternative to fizzy drinks / reference to dietary guidelines / more nutritious / no added sugar • Cheaper than buying fruit to squeeze • Contains vitamins / Vitamin C – accept reference to any vitamin found in fruits • Counts as one of the 5-a-day • Fortified / fortified with vitamins / added vitamins • No added colours / preservatives / flavourings • Packaging is appealing • Quicker / easier than squeezing own fruit • Sold in individual packs / drink on the go / suitable for packed lunches • Variety of different flavours / more fruit juices available 	3	3x1 mark Cheaper and quicker must be qualified

Question	Answer	Marks	Guidance																																				
17 (d)	<ul style="list-style-type: none"> Must use seasonal summer vegetables or fruits <p>Possible vegetables</p> <table border="0"> <tr> <td>Asparagus</td> <td></td> </tr> <tr> <td>Aubergine</td> <td>Beetroot</td> </tr> <tr> <td>Broad Beans</td> <td>Broccoli</td> </tr> <tr> <td>Carrots</td> <td>Courgettes</td> </tr> <tr> <td>Cucumber</td> <td>Fennel</td> </tr> <tr> <td>Fresh Peas</td> <td>Garlic</td> </tr> <tr> <td>Green Beans</td> <td>Lettuce / Salad Leaves</td> </tr> <tr> <td>potatoes</td> <td>Peppers</td> </tr> <tr> <td>Radishes</td> <td>Rocket</td> </tr> <tr> <td>Runner Beans</td> <td>Salad Onions</td> </tr> <tr> <td>Sorrel</td> <td>Spinach</td> </tr> <tr> <td>Tomatoes</td> <td>Watercress</td> </tr> </table> <p>Possible fruits</p> <table border="0"> <tr> <td>Blueberries</td> <td>Currants – black, white and red</td> </tr> <tr> <td>Cherries</td> <td>Elderberries</td> </tr> <tr> <td>Gooseberries</td> <td>Greengages</td> </tr> <tr> <td>Loganberries</td> <td>Plums</td> </tr> <tr> <td>Raspberries</td> <td>Strawberries</td> </tr> <tr> <td>Tayberries</td> <td></td> </tr> </table> <ul style="list-style-type: none"> Makes reference that an ingredient is grown in the UK / is on the above list Should show creativity – e.g. shape / flavours / novel combination of ingredients Nutritious product – reference any nutrients in the product / one of 5 a day 	Asparagus		Aubergine	Beetroot	Broad Beans	Broccoli	Carrots	Courgettes	Cucumber	Fennel	Fresh Peas	Garlic	Green Beans	Lettuce / Salad Leaves	potatoes	Peppers	Radishes	Rocket	Runner Beans	Salad Onions	Sorrel	Spinach	Tomatoes	Watercress	Blueberries	Currants – black, white and red	Cherries	Elderberries	Gooseberries	Greengages	Loganberries	Plums	Raspberries	Strawberries	Tayberries		4	<p>4x1 mark</p> <p>Candidates can use notes and or drawings</p> <p>Seasonal Credit 1 mark if candidates have labelled fruit / vegetable either as annotation or in name of dish or you can tell by the drawing the fruit / vegetable.</p> <p>UK grown produce Credit 1 mark if they have stated correctly that one of the fruits or vegetables on the list is from the UK</p> <p>Or Credit can be given if named or can see a different UK produced fruit or vegetable from the list</p> <p>E.g</p> <p>Strawberries – 1 mark (given for either seasonal or UK)</p> <p>Strawberries grown in the UK - 2 marks – (UK / seasonal)</p> <p>Strawberries and blackberry - 1 mark seasonal + 1 UK</p>
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Question		Answer	Marks	Guidance
17	(e)	<ul style="list-style-type: none"> • Allows you to eat out of season • Can be cheaper than fresh • Can take less time to cook / cook from frozen • Longer shelf life than fresh / lasts longer / fresher for longer • No preservatives • No waste • Not needing to shop as often • Reference to portion size needed / single portions • Saves preparation time / no preparation required • Vitamin C in vegetables is the same / better than fresh • Wide range of products 	2	2x1 mark Saves time / cheaper must be qualified
18	(a)	<ul style="list-style-type: none"> • See how it contributes to daily requirements / RDI/ to see how much of a nutrient • To check Guideline Daily Amounts • To make informed choices / compare products / want healthy options • To prove nutritional claim / required by law if a nutritional claim is stated • To see how it contributes to a balanced diet / help plan a balanced diet • To see if it meets dietary needs / states a special diet e.g. low in fat, salt, cholesterol, high energy, low fat diet • To see what it contains / check for specific nutrients • To use as a promotional tool 	2	2x1 mark Do not accept reference to allergies or additives

Question		Answer	Marks	Guidance	
				Content	Levels of response
18	(b)	<ul style="list-style-type: none"> • Does not link to the Eatwell Plate – reference to good meal planning / quality of life • Does not follow the guidelines for healthy eating – base meals on starchy foods / eat lots of fruit and vegetables / eat more fish / cut down on saturated fat and sugar / eat less salt / drink plenty of water <p>High in fats</p> <ul style="list-style-type: none"> • Coronary heart disease / angina • Obesity • Can be fatal • Linked to cancer • Lethargy / breathlessness • Higher cholesterol levels / narrowing of arteries • High blood pressure • Diabetes • Osteoarthritis • Varicose veins <p>High in sugar</p> <ul style="list-style-type: none"> • Increase in cases of diabetes • Tooth decay • Sugars provide short term energy – therefore can feel hungry soon after eating them • Overweight / obesity 	6	<p>To gain full marks candidates must have discussed three of the different aspects from fat, salt, sugar, fibre.</p> <p>If candidates list in bullet form – maximum 2 marks</p> <p>When discussing high in fats do not accept reference to fats causing heart attacks</p> <p>If awarding 0 marks you must put SEEN next to the response instead of a level</p>	<p>Level 1 (1-2 marks) Basic discussion, if candidates only write in point form a maximum of 2 marks should be awarded, showing some understanding of how the products impact on health. There will be little or no use of specialist terms. Answers may be ambiguous or disorganized. Errors of grammar, punctuation and spelling</p> <p>Level 2 (3-4 marks) Adequate discussion, showing an understanding of how the products impact on health. 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</p> <p>Level 3 (5-6 marks) Thorough discussion, showing a clear of how the products impact on health. 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.</p>

Question			Answer	Marks	Guidance	
					Content	Levels of response
			<p>Low in fibre</p> <ul style="list-style-type: none"> • This is required for a healthy digestive system • Increased cases of bowel disorders / cancers with diets lacking in this • Fibre provides bulk and therefore makes you feel full for longer – less likely to fill up on ‘snack’ foods <p>High in salt</p> <ul style="list-style-type: none"> • Linked to high blood pressure • Can lead to the development of strokes / heart disease in later life • Should be less than 6 g per day <p>Contain additives</p> <ul style="list-style-type: none"> • Some links to allergies and hyperactivity in children • Concern over long term effects 			0=no response worthy of credit

Question			Answer	Marks	Guidance
18	(c)	(i)	<ul style="list-style-type: none"> • Celebrations – e.g. wedding, christenings, birthdays etc • Family traditions / way brought up • Food / regional traditions / where you come from (Yorkshire puddings / Indian – spicy food) • Foods available to different cultures vary enormously – due to climate, agricultural methods, soil quality • Religion - Hindus do not eat beef / Islam (Muslims) do not eat pork / must be Halal meat / Jews meat and dairy not cooked in the same pans or served at same meal / meat slaughtered in a special way / fasting / Lent • Staple foods accept reference to country and food e.g. bread in Europe, pasta / Italy, noodles / China, Unleavened bread (chapattis, naan) / India and Middle East • Want to eat the foods that are from the country the family are from 	3	<p>3x1 mark Accept 2 references to religion</p> <p>Accept reference to own country</p>

Question	Answer	Marks	Guidance
18	<p>(ii) Manufacturers</p> <ul style="list-style-type: none"> • Clearly labelling foods - so people can make informed choices / authentic ingredients used / reflect the country and its culture • Including ranges of foods from different countries / traditions - gives example of food from a particular country • Increasing range of 'meal kits' / ingredients allow authentic meals from different cultures to be prepared • Increasing range of ready made foods – continually being added to – linked to immigrants / foreign workers wanting traditional foods / demands from multicultural society • Providing foods which adhere to religious food requirements eg Halal meat for Muslims, Kosher for Jews <p>Retailers</p> <ul style="list-style-type: none"> • Have different sections of the supermarket / shelves for different products – eg Indian foods • Have promotions - at different times of year to celebrate different cultural events / gives example of cultural event / list types of promotions / recipe card / in-store magazines / television / internet • Specialist ethnic food shops sell ingredients and foods from different cultures • Takeaways / restaurants allow consumers to follow traditional diets / try foods from different culture 	4	<p>4x1 mark Either 4 separate points or 2 explained answers or 1 explained and 2 separate points</p> <p>Do not accept the same point for manufacturers and retailers</p>

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