

# **Design and Technology (Food Technology)**

General Certificate of Secondary Education

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

## **Mark Scheme for January 2011**

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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.

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## SECTION A

Question	Expected Answers	Marks	Rationale
1	A	[1]	Provides energy
2	D	[1]	-18°C
3	C	[1]	Increase its shelf life
4	A	[1]	Once only
5	A	[1]	Heart disease
6	<ul style="list-style-type: none"> <li>• Recyclable aluminium</li> <li>• Recycle aluminium</li> <li>• Aluminium that can be recycled</li> <li>• Recycling aluminium</li> </ul>	[1]	Candidates must imply that the aluminium is recyclable Do not accept: <ul style="list-style-type: none"> <li>• recyclable on its own</li> <li>• aluminium on its own</li> <li>• recycled aluminium</li> <li>• reference to reuse</li> </ul>
7	<ul style="list-style-type: none"> <li>• food – may state protein</li> <li>• warmth / 8 - 63°C / in danger zone</li> <li>• time</li> <li>• moisture.</li> </ul>	[1]	1 mark
8	<ul style="list-style-type: none"> <li>• secondary or physical recycling</li> <li>• broken down / decomposes / to produce fertiliser/rots / decay</li> </ul>	[1]	1 mark
9	<ul style="list-style-type: none"> <li>• which will easily breakdown / decay / disappear without causing damage to the soil / atmosphere / environment.</li> <li>• Plant based so breaks down</li> <li>• Can be broken down / decomposes by micro - organisms</li> </ul>	[1]	1 mark

Question	Expected Answers	Marks	Rationale
10	<ul style="list-style-type: none"><li>• loss of water soluble vitamins</li><li>• loss of vitamin C</li><li>• loss of B vitamins</li><li>• vegetables easily over cooked/ go soft</li><li>• can use more fuel than other methods.</li><li>• loss of texture / change in texture</li></ul>	<b>[1]</b>	1 mark <b>Do not accept loss of nutrients /loss of vitamins</b>
11	True	<b>[1]</b>	1 mark
12	False	<b>[1]</b>	1 mark
13	False	<b>[1]</b>	1 mark
14	True	<b>[1]</b>	1 mark
15	True	<b>[1]</b>	1 mark

## SECTION B

Question		Expected Answers	Marks	Rationale
16	(a)	<ul style="list-style-type: none"> <li>• <b>Cheese</b> - reference to a <b>different</b> named cheese from Britain / British cheese / UK Cheddar</li> <li>• <b>Milk</b> sourced in UK for cheese / sauce</li> <li>• <b>Butter</b> – UK butter or from a named area</li> <li>• <b>Flour</b> – UK / England</li> <li>• <b>Onions</b> – locally grown / sourced UK</li> <li>• <b>reference to the sourcing of ingredients</b> additional ingredients from a specific area eg adding carrots / leeks grown in this country</li> </ul>	[2]	2 x 1 mark  Credit reference to local once Credit reference to British / UK once  No reference to the production of pasta Must refer to a named ingredient
	(b)	<ul style="list-style-type: none"> <li>• Suitable for freezing</li> <li>• Suitable for heating to a high temperature (230°C)</li> <li>• Can be used in an oven/microwave/ can be served from it</li> <li>• Can be recycled /compostable</li> <li>• Produce it in different shapes / different compartments</li> <li>• Can be printed on.</li> <li>• Biodegradable</li> <li>• Made from sustainable sources / not dependent on oil</li> <li>• Lightweight</li> <li>• Inexpensive to produce / cheap to produce</li> </ul>	[2]	2 x 1 mark

Question		Expected Answers	Marks	Rationale
	(c)	(i)	<ul style="list-style-type: none"> <li>Forest Stewardship Council.</li> </ul>	1 mark <b>Must be as stated</b>
		(ii)	<ul style="list-style-type: none"> <li>Product comes from forests which are well managed/high environmental standards/are checked regularly</li> <li>Products can be traced from source to the consumer/manufacturer.</li> <li>Checks made on forests</li> <li>Put labels on products to show they come from well managed forests</li> <li>Sustainably managed / replanting of trees / prevents deforestation</li> </ul>	1 mark Candidates must be referring to the trees
	(d)		<ul style="list-style-type: none"> <li>milk</li> <li>cheese.</li> </ul>	1 mark
	(e)		<ul style="list-style-type: none"> <li>growth</li> <li>repair</li> <li>secondary source of energy/energy</li> <li>enzyme / hormone formation</li> </ul>	2 x1 mark Do not accept growth of bones

Question	Expected Answers	Marks	Rationale
(f)	<ul style="list-style-type: none"> <li>• <b>Reduce fat / low fat / low calorie diet</b>            skimmed or semi skimmed milk            use less cheese / use stronger flavoured cheese            use <b>reduced</b> fat cheese            remove or reduce the amount / weight of butter            change butter to margarine            change butter to low fat <b>spread</b></li> <li>• <b>Increase fibre/ high fibre diet</b>            use whole wheat pasta            add extra vegetables            wholemeal breadcrumbs on top            use of nuts/seeds on top            wholemeal flour.</li> <li>• <b>Increase intake of vegetables / 5 a day campaign</b>            add extra vegetables            add named vegetable eg sweetcorn, peas etc.</li> <li>• <b>Reduce saturated fats/ low or reduced cholesterol</b>            use a tomato/vegetable based sauce            use skimmed or semi skimmed milk            use a polyunsaturated margarine            change butter to margarine            reduce the amount of cheese            reduce amount of butter            change butter to low fat <b>spread</b></li> <li>• <b>Reduce salt</b>            remove salt.            use Lo salt            substitute with herb / spice            use unsalted butter</li> <li>• <b>Increase in slow release / starchy carbohydrates</b>            Add more pasta</li> </ul>	<b>[6]</b>	<p>3 x 1 mark change to the ingredients            3 x 1 mark current nutritional advice</p> <p>Do not credit the same point more than once</p> <p><b>Do not accept the following for</b></p> <ul style="list-style-type: none"> <li>• <b>increase fibre – brown pasta</b></li> <li>• <b>increase intake of vegetables - potatoes</b></li> </ul> <p><b>Do not accept low fat butter / low fat margarine / low fat cheese</b></p> <p><b>If candidates write the change to ingredients and nutritional advice in one column credit marks for both sides of the table</b></p>
	<b>Total</b>	<b>[15]</b>	

Question		Expected Answers	Marks	Rationale
17	(a)	<ul style="list-style-type: none"> <li>Name of producer</li> <li>Address of producer</li> <li>Weight</li> <li>Storage information</li> <li>Cooking instructions</li> <li>Product name/description</li> <li>List of ingredients</li> <li>Date marking/best before date/use by date</li> <li>Allergy information</li> <li>Place of origin / where it was produced</li> <li>Nutritional information if claim is made by the manufacturer</li> <li>GM labelled</li> </ul>	[3]	3 x 1 mark <b>Do not accept sell by date or nutritional information on its own</b>
	(b)	<ul style="list-style-type: none"> <li>Product is designed to last a set period of time</li> <li>In food products it is their date stamp/best before/use by date.</li> <li>Reference to change in quality of food / safety</li> </ul>	[2]	2 x 1 mark If put a correct type of date mark eg best before or use by give one mark
	(c)	<ul style="list-style-type: none"> <li><b>Carbon foot print for the by air product will be greater / less for the UK product</b> – linked clearly to air or food miles / carbon foot print and the damage it causes to the environment / global warming / carbon emissions / CO2</li> <li><b>By Air product may be more expensive / UK Grown in UK will cost less / cheaper</b> – because of the cost of transport/storage more people involved in the process of getting product from field to consumer – wages</li> <li><b>Grown in UK / home grown</b>– supports local industry/farming/buy British campaigns</li> <li><b>UK – may have a better nutritional profile</b> - as will get from the field to the shop in less time – therefore less loss of nutrients.</li> <li><b>UK fresher products</b> - may not have been stored for so long / better flavour and texture</li> </ul>	[4]	4 x 1 mark 2 marks for two separate points 1 mark for the development of each point Do not accept opposites of the same point e.g. higher in carbon footprint for the by air product and lower carbon foot print for UK flag



Question	Expected Answers	Marks	Rationale
(d)	<ul style="list-style-type: none"> <li>• Reference to the <b>different types of food labelling</b> – traffic light/slogans/GDA</li> <li>• Clear explanation of the <b>traffic light system</b> – see at a glance the nutritional information (fat /sugar/salt levels) – green low, amber medium, red high – many foods have a mixture of the colours therefore it is wise to go for products with more greens and ambers</li> <li>• Some <b>labelling can be confusing</b> – eg claim to be low in fat – but may be high in sugars – candidates may make reference to recent news items related to this – eg cereal controversy/possible changes to labelling laws in the news in August 2009.</li> <li>• It provides <b>information for individual products</b> – however consumers need to consider what they are eating with in their whole diet</li> <li>• May help with looking at <b>nutritional content if you are on a specific type of diet</b> – eg reduced calorie/low fat – reference to heart disease/diabetes/cancer/salt/sodium/high blood pressure</li> <li>• Many <b>people do not have nutritional knowledge</b> and without this would not know what nutrients the product contained and whether it is considered as part of a healthy diet.</li> <li>• Clear explanation of the <b>Guideline Daily Amount labelling</b> - shows the percentage serving of GDA for calories, sugar, fat, saturates and salt</li> <li>• <b>Comparing products</b> – allows consumers to make choices when using this information</li> </ul>	[6]	<p><b>Level 1 (0-2 marks)</b> Basic discussion, if candidates only write in point form a maximum of 2 marks should be awarded, showing some understanding of how nutritional labelling affects choice food. There will be little or no use of specialist terms. Answers may be ambiguous or disorganized. Errors of grammar, punctuation and spelling.</p> <p><b>Level 2 (3-4 marks)</b> Adequate discussion, showing an understanding of how nutritional labelling affects food choice. 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><b>Level 3 (5-6 marks)</b> Thorough discussion, showing a clear understanding of how nutritional labelling affects food choice. 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> <p><b>Do not accept</b> Reference to high fat diets causing heart attacks. Nutritional labelling as a legal requirement Reference to food allergies / intolerances</p>
<b>Total</b>		<b>[15]</b>	

Question		Expected Answers	Marks	Rationale
18	(a)	<ul style="list-style-type: none"> <li>• Fruits/dried fruits / or one named fruit</li> <li>• Coffee</li> <li>• Tea</li> <li>• Cocoa</li> <li>• Chocolate</li> <li>• Baked products/biscuits/cakes/cookies/cereal bars/puddings</li> <li>• Honey</li> <li>• Rice</li> <li>• Sugar</li> <li>• Quinoa</li> <li>• Herbs / Spices</li> <li>• Nuts/oils/seeds</li> <li>• Vegetables or one named vegetable.</li> <li>• Hot chocolate</li> <li>• Ice cream</li> <li>• Jams and spreads</li> <li>• Olives / olive oil</li> <li>• Syrup / treacle</li> </ul>	[3]	<p>3 x 1 mark</p> <p>Accept only one named fruit and one named vegetable</p> <p>Accept any listed fruit eg bananas, mangoes, avocados, melon, grapes, citrus fruits, coconut</p> <p>Accept any listed vegetables eg green beans, chillies, peppers, purple sprouting broccoli</p> <p><b>Do not accept</b> apples, pears</p>
	(b)	<ul style="list-style-type: none"> <li>• <b>Food producers / farmers get a fair price for their products</b> – also linked to providing them with better working conditions</li> <li>• <b>It requires companies to pay a sustainable price to the producers</b> – this price must not fall below the market price</li> <li>• <b>It helps to reduce discrimination against the poorest and weakest producers</b> – these are often in third world/developing countries/disadvantaged / poverty/ empowerment of women / democratic decision making</li> <li>• <b>Supporting local economy / It enables the development projects to take place in some of the poorest parts of the world</b> – development of education /health / sporting programmes and schools</li> <li>• <b>Sustainable livelihoods</b> - for farmers/workers/and their communities / families</li> </ul>	[4]	<p>2 x 2 marks</p> <p>2 marks for two separate points</p> <p>1 further mark for explanation of the point</p> <p>maximum 2 marks</p> <p>If an explanation fits a different point award the mark</p> <p>Do not credit the same explanation twice</p>

Question	Expected Answers	Marks	Rationale
(c)	<ul style="list-style-type: none"> <li>• <b>A fair amount of the money goes to the farmers</b> – reducing poverty/increasing their earnings</li> <li>• <b>Ethical / moral reasons</b> – money/distribution of wealth</li> <li>• <b>Helping people</b> - less well off than ourselves</li> <li>• <b>Range of foods is increasing</b> – so can now buy everyday products this way.</li> <li>• <b>Good quality products available</b> – comparable or better in flavour to other products</li> </ul>	<b>[3]</b>	2 x 1 mark for 2 points 1 mark for the development of one point <b>Do not accept repeats of answers in part b</b>
(d)	<ul style="list-style-type: none"> <li>• <b>Consumers demands for more of these types of products</b> – wanting chemical free products</li> <li>• <b>Can produce both animal and vegetable products which are organically certified</b> – linked to reputation / good quality</li> <li>• <b>Premium prices for this type of food</b> – therefore they may earn more money</li> <li>• <b>Animals produced / reared without the routine use of drugs</b> - linked to humane production</li> <li>• <b>Use natural fertilizers</b> – not synthetic ones/links to consumers wanting chemical free foods</li> <li>• <b>Genetically modified crops are strictly forbidden</b> – farmers do not want to be linked to this type of production.</li> <li>• <b>More space for animals / higher welfare standards</b> – animal welfare issues / responding to a demand</li> <li>• <b>Flavour of the food is considered to be better</b> – therefore people will buy / farmers sell more</li> <li>• <b>More considerate to the environment</b> – not affecting wildlife / rivers etc.</li> <li>• <b>Chemical free farming</b> – protects the environment</li> </ul>	<b>[3]</b>	2 x 1 mark for 2 points 1 mark for the development on one point  <b>Must relate pesticides / chemicals to the farmers belief / preference / choice</b>

Question		Expected Answers	Marks	Rationale
	(e)	<ul style="list-style-type: none"> <li>• Cost – more expensive</li> <li>• Don't understand the issues</li> <li>• Believe you should support British farmers /local producers/home grown</li> <li>• Fair trade products come from abroad – therefore more CO2 emissions / more food miles in getting products to U.K.</li> <li>• More limited choice / brands which are fair-trade products</li> </ul>	[2]	2 x 1 mark
<b>Total</b>			<b>[15]</b>	

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