

Design and Technology (Food Technology)

General Certificate of Secondary Education

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

Mark Scheme for June 2013

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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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Annotations

Annotation	Meaning
	Level 1
	Level 2
	Level 3
	Noted but no credit given
	Tick

Question		Answer	Marks	Guidance
1		B	1	High in salt
2		B	1	72°C
3		B	1	Available across the world
4		A	1	From large supermarkets
5		A	1	Reducing the amount of packaging materials they use
6		<ul style="list-style-type: none"> Carbon footprint. 	1	1 mark
7		<ul style="list-style-type: none"> Date mark put on a product / best before / use by date Product is designed to last a set amount of time / limited shelf life 	1	1 mark
8		<ul style="list-style-type: none"> Blue. 	1	1 mark
9		<ul style="list-style-type: none"> Products broken down and reformulated/made in to a new product. 	1	1 mark
10		<ul style="list-style-type: none"> Angina Blood cholesterol/cholesterol levels Breathlessness CHD / heart disease / heart failure Clog/block/narrow arteries Diabetes High blood pressure. Links to cancer Obesity / overweight / gaining weight Osteoarthritis Strokes Varicose veins 	1	1 mark
11		True	1	1 mark
12		False	1	1 mark
13		False	1	1 mark
14		True	1	1 mark
15		False	1	1 mark

Question		Answer	Marks	Guidance
16	(a)	1 – Production 2 – Distribution 3 – Selling 4 – Disposal	4	4x1 mark
16	(b)	<ul style="list-style-type: none"> • Animal welfare issues / free range chickens • Cost of ingredients – can they be sourced locally at a good price – may make reference to individual ingredients or specific ones • Local / British grown / which country they come from / carrots/ mushrooms /butter /wheat / chicken for UK or local • Nature friendly farming – eg Jordan cereals, British farmers who allocate land to plants, insects, wild flowers, wild life • Organically produced foods / named organic food from the list • Production near to where produce sourced from / reference to food miles / carbon footprint / CO2 emissions/ pollution • Use seasonal produce 	3	3x1 mark Credit if have related to individual ingredients or have written generally
16	(c)	<ul style="list-style-type: none"> • Can be formed into different shapes • Easy to store / stackable • Lightweight • Recyclable • Reusable • Strong • Transfers heat easily / cooks more quickly • Withstand high temperatures • Withstands low temperatures / freezer to oven 	2	2x1 mark

Question			Answer	Marks	Guidance
16	(d)	(i)	<ul style="list-style-type: none"> • Card • Plastic • Potato starch film 	1	1 mark for stating suitable packaging material
16	(d)	(ii)	<p>Card sleeve (plus other reasons for card box)</p> <ul style="list-style-type: none"> • Amount of card needed reduced. <p>Card box</p> <ul style="list-style-type: none"> • Biodegradable/will not contribute to waste in landfill sites / Does not produce toxic substances when it breaks down • Compostable • Can be made from recycled card / reducing the number of trees which need to be felled • Comes from a sustainable source / more trees can be planted to replace those cut down / FSC / renewable source • Recyclable <p>Plastic</p> <ul style="list-style-type: none"> • Can be shaped to fit on the pie / no other materials needed / saves using other materials / shrink wrapped • Could be made from potato starch • Can be biodegradable • Some plastics are recyclable / some plastic can be made into another product / won't go to landfill • Some plastics are degradable <p>Potato starch film</p> <ul style="list-style-type: none"> • Biodegradable • Potatoes are grown in the UK • Renewable resource • Sustainable source 	3	3x1 mark 3 marks for reasons Do not accept reference to cost



Question		Answer	Marks	Guidance
16	(e)	<ul style="list-style-type: none"> • Fridge 0 to 8°C • Freezer –18 to -24°C 	2	2x1 mark For fridge accept any temperature in the range 0-8°C Freezer accept any temperature in the range -18 to -24°C
17	(a)	<ul style="list-style-type: none"> • Appeals to consumers / increases consumers /care about the environment • Can sell the energy back to the grid • Does not contribute to CO2 emissions / pollution / global warming • Free energy (after initial outlay) / generate own electricity • No power cuts. • Reduces carbon footprint • Reduces shops costs / money / this might be passed on to the consumer • Renewable energy / will not run out • Sustainable choice • Using less non renewable sources of energy 	3	3x1 mark Do not accept environmentally friendly
17	(b)	<ul style="list-style-type: none"> • Bags for life are larger than plastic bags - therefore not as many are used • Bags for life are stronger – therefore last longer than plastic bags • Can be reused + appropriate reason • Cost of the free bags – affects supermarkets profit • Encourages consumers to become more environmentally aware – not damaging wild life / contributing to landfill sites • Government agreement with supermarkets – to reduce the number of single use carrier bags • Most of the plastic bags given out are not recyclable / biodegradable - go to landfill sites • Positive publicity – impression they care for the environment / entice consumers to the shop 	4	4x1 mark 2 marks for a detailed response which includes a reason Do not accept the same reason twice – can mix and match the reasons as long as they fit

Question		Answer	Marks	Guidance
		<ul style="list-style-type: none"> • Reduces the number of plastic bags used – ref to landfill, use of finite resources, lasts longer reusing • Reduces waste – they last longer than standard plastic bags • Saves non renewable resources – last 10 times longer than ordinary bags – but use less resources than 10 disposable bags / gives an example of non renewable source / oil • When bags are worn out supermarkets replace them for free – they then recycle the original bag / supermarkets want to reduce their waste / costs less for the supermarket 		
17	(c)	<ul style="list-style-type: none"> • Can cost more / ref to distance travelled / amount of packaging • Concern about labelling of food, eg passing off horse meat as beef. • Concern about standards of hygiene eg foreign abattoirs • Concern regarding air/food miles • Consumers want to support local / UK farmers / producers – • Fairtrade issues/has the farmer been paid a fair price for the product • Flavour / taste may not be as good as British. • Freshness / quality may not be as good as British (longer in storage / transit) shorter shelf life • Increased carbon footprint / CO2 emissions / greenhouse gases / pollution • Many foods imported can be produced in the UK • Methods of production - not always done in a humane way / factory farmed / not monitored in the same ways as in the UK / use of child labour • Nutritional profile may not be as good as food from UK if it takes longer to get from field to shop 	4	4x1 mark Do not accept one word answers

Question	Answer	Marks	Guidance
17 (d)	<ul style="list-style-type: none"> • Adjust the heat under a pan to maintain boiling / simmering – higher heat escapes round the side of the pan • Buying ready meals – as this reduces the cooking time • Cook in bulk and freeze – therefore you only need to reheat the product • Cook several dishes in the oven at the same time to ensure all heat & space is being used • Cover pans with lids while cooking to reduce heat loss • Cut food into smaller pieces so that it cooks more quickly • Eat as a family – then the cooker does not need to be used as often • Make good use of energy saving devices – slow cookers, microwave ovens • One pot cooking – so not using all the different parts of the cooker • Plan meals carefully – so not using all the different parts of the cooker • Reduce cooking times by thawing frozen foods in the refrigerator beforehand. • Use a pressure cooker – cooks more quickly / several foods cooked at once • Use a steamer – several foods can be cooked at once with one heat source • Use boiling water from kettle to pan – as it is a <u>more efficient</u> way of heating the water • Use quick methods of cooking eg Stirfry • Use the correct sized pan for the ring / amount of food – so that heat is not wasted • Use the minimum amount of water – heats more quickly 	4	<p>4x1 mark 1 mark for the statement and one for an example or explanation Do not credit reference to energy as it is in the question Do not accept the same reason twice</p>

Question	Answer	Marks	Guidance
18 (a)	<ul style="list-style-type: none"> • Addresses the injustices of conventional trade, – traditionally discriminates against the poorest, weakest producers • Allows a producer to improve their living – have more control over their lives • Fair terms of trade for farmers and workers – requiring companies to pay sustainable prices (which must never fall lower than the market price) • Fairtrade premium paid – in addition to agreed Fairtrade price – invests in education, health. • Community involved – in the decisions. • Improved local facilities – money given to local projects linked to health, education, housing • Improved working conditions – related to age of workers/amount of time they work/conditions in factories/on farms • Local sustainability issues – enables crops to be continued to be grown • Protect workers' basic rights – health & safety standards, no discrimination, no bonded or illegal child labour • Tackle poverty – producers get better prices for their products / fair stable price • Women workers – empowerment 	6	<p>6 marks</p> <p>If candidates list in bullet form – maximum marks – 2</p> <p>Level 1 (0–2 marks) Basic discussion, if candidates only write in point form a maximum of 2 marks should be awarded, showing some understanding of how Fairtrade helps to address moral issues within society. 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 Fairtrade helps to address moral issues within society. 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 understanding of how Fairtrade helps to address moral issues within society. 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
18	(b)	<ul style="list-style-type: none"> • Fairtrade ingredients – use one of the following • Green beans • Beansprouts • Chocolate • Cocoa • Coffee • Fruit / dried fruit – must name suitable fruits • Spices • Honey • Hot chocolate • Jams and spreads • Nuts / oils/seeds • Olive oil • Sugar • Syrup/treacle • Tea. • Suitable for families – reference to portion size/appeal of ingredients to different age groups • Attractive – reference to how it has been made attractive – glazes/decorations/colour/shape/ mix of flavours • Stored at room temperature – clear reference to ingredients used not requiring temperature control/no high risk foods used/product is cooked and ready to eat cold 	4	4x1 mark

Question		Answer	Marks	Guidance
18	(c)	<ul style="list-style-type: none"> • Mobius loop.  <ul style="list-style-type: none"> • Recycle now. 	2	2x1 mark 1 mark for naming the symbol 1 mark for drawing the symbol
18	(d)	<ul style="list-style-type: none"> • Address/contact details • Allergy information • Cooking instructions. • Date mark/use by/best before • GM labelled • If nutritional claim must have nutritional info • Ingredients • Name of manufacturer • Name of product/product description • Place of origin • Storage instructions • Weight 	2	2x1 mark

Question		Answer	Marks	Guidance
18	(e)	<ul style="list-style-type: none"> • Additional contact information – email/tweet etc • Adverts for other product ‘have you tried’ • Barcode • Batch code/product code • By royal appointment crest • Charity works/donations/support • Dietary group eg vegetarian, coeliacs, etc • Display until • FSC • Guarantee/quality assurance • How to open • No artificial colours/preservatives • Number of servings • Nutritional information/traffic light / GDA label / • Pictures of the food • Price • Reference to how produced eg organic / free range / red tractor symbol / GM free etc • Serving suggestions • Special offers • Sustainable information eg recycling information/food miles etc. 	1	1 mark

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