

Design and Technology (Food Technology)

General Certificate of Secondary Education

Unit **A524**: Technical Aspects of Designing and Making

Mark Scheme for January 2011

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Question	Expected Answers	Marks	Rationale
1 (a)	<p>Accept any suitable target group</p> <ul style="list-style-type: none"> • School children/teenagers/children • Workers • People taking a packed lunch/picnic • Students • Holiday makers • Elderly <p>Reasons:</p> <ul style="list-style-type: none"> • Labelled 'lunch box'/suitable for lunch box • Choc Chip will appeal to children • Individually wrapped • Nut free zone/nut safety • Easy to pack in a lunch • Easy to transport to school/work/journey • Convenient size/right size/snack size/hand held • Filling/gives energy • Likes cakes 	[2]	<p>2 x 1 mark</p> <p>Do not accept 'adults' unless qualified 'negative responses ie not suitable for...'</p> <p>Reason must match the target group.</p> <p>Must have a target group to get a correct answer for the reason</p>
(b)	<p>Changes to meet the Eatwell plate</p> <ul style="list-style-type: none"> • Plain flour to wholemeal/wholewheat • Reducing the sugar • Changing sugar for a named sugar substitute • Reducing quantity of oil • Using semi or skimmed milk/low fat milk • Removing choc chips and adding any suitable fruit or vegetable. • Reducing the chocolate chips/changing to dark chocolate. • Additional ingredients eg raisins 	[2]	<p>2 x 1 mark</p> <p>Do not allow repeated answers.</p> <p>Do not allow any change which will increase the fat content ie nuts/coconut/cheese</p> <p>Do not allow 'sweeteners' or 'artificial sweeteners'</p> <p>In this instance because it is the Eatwell Plate accept the term 'fruit' or 'vegetable'</p>

Question	Expected Answers	Marks	Rationale
(c)	<p>Quality control checks during manufacture of muffins</p> <ul style="list-style-type: none"> • Purchase of ingredients/within date/use by/best before • Raw ingredients on arrival/damaged packaging • Storage of ingredients at correct temperature/correct place/cool dry • Stock rotated • Weight of ingredients/correct amount • Consistency of mixture/correct mixture • Distribution of choc chips/even choc chips • Amount of mixture in each case/same amounts in each • Muffins cooked at correct temperature/correct length of time/cooked properly • Colour check of cooked muffins • Sensory analysis/taste testing • Bacterial checks on muffins/people/equipment • Metal detection/foreign bodies • Check weight of final product • Check consistent size and shape of final muffins/identical appearance/risen enough • Packets sealed • Visual checks 	[2]	<p>2 x 1 mark for two checks 1 x 1 mark for one check</p>

Question	Expected Answers	Marks	Rationale
(d)	<p>Reasons for carrying out market research:</p> <ul style="list-style-type: none"> • To produce a specification • To identify the needs of a consumer/likes/dislikes/what appeals/ to design a product aimed at specific needs • To decide where it will be sold • Decide how it will be promoted/marketed/advertised/packaged • To identify a gap in the market for a specific group • To know the price a target group will pay for a product • To be able to adapt recipes to suit needs/nutritional needs • To identify what consumer trends are • To be competitive/be able to sell their product/to ensure the product will sell/increase sales/make a profit • To compare with other products/to brand match • To develop a new product 	[2]	<p>2 x 1 mark for two reasons 1 x 1 mark for one reason</p>

Question	Expected Answers	Marks	Rationale
(e)	<p>Products are made in a test kitchen to:</p> <ul style="list-style-type: none"> • Simulate production – identify any problems • Less cost to the manufacturer – try out ideas economically/smaller quantities needed • Allows manufacturer to develop product fully – allows for adaptations • To train workers – reduces wastage later. • Small scale experiments with different ingredients can be made – – allows for adaptation/modification • The product can be developed further – to meet the needs of the user group • Sensory analysis/taste testing – to develop product • Nutritional analysis – to improve or reduce content eg fat • Microbiological tests can be carried out – Shelf life/storage of product can be decided. • To make decisions about ingredients that will be needed (type/amount/scaling up) – so accurate costs can be calculated. • To make decisions about equipment needed – to set up the batch system/to adapt to suit existing equipment • Decisions about cooking – time/temperature/method • To identify the controls that need to put in place (HACCP)/to make sure that hygiene and safety measures are in place • So a product specification can be developed – to ensure successful production in bulk 	[4]	<p>2 x 2 mark for two reasons explained 1 x 1 mark for reason with no explanation</p> <p>Explain means a point with an explanation 1 mark – one point made 2 marks – two points made Maximum 2 marks if there is no explanation 2 x 2 mark for two reasons explained</p>

Question			Expected Answers	Marks	Rationale
2	(a)	(i)	Heath problems linked to sugar – increased risk of <ul style="list-style-type: none"> • Obesity • Tooth decay • Cancers 	[1]	1x 1 mark Do not accept rotten/bad teeth!
		(ii)	Function of sugar in the <u>diet</u> <ul style="list-style-type: none"> • energy 	[1]	1x 1 mark There is only one correct answer.
	(b)		Decorate cakes with: <ul style="list-style-type: none"> • Icing sugar • Castor sugar • Demerara 	[1]	1 x 1 mark Do not accept 'icings'
	(c)		Function of sugar in: <ul style="list-style-type: none"> • <u>Creamed cake</u>—increases bulk/traps air/sweeten/increase or improve or change flavour/aeration/texture/colour - caramelisation • <u>Bread</u> –to aid fermentation of yeast/food for yeast/helps it rise – to sweeten the dough • <u>Fresh fruit salad</u>—sweeten/increase or improve or change flavour/ additional texture through syrup/moistness 	[3]	3 x 1 mark Do not accept the same function twice. Do not accept the words 'taste' or 'flavour' unless qualified Do not accept preserve for the fruit salad Do not accept makes it rise unless qualified Accept sweeten for a bread product

Question	Expected Answers	Marks	Rationale
(d)*	<p>Discuss the factors that can affect people's choice of food. Discussion could include:</p> <ul style="list-style-type: none"> • Cultural – references to countries, foods, origin • Costs of foods – references to limiting choices, limited income, value ranges • Personal preferences – likes, dislikes • Sensory Qualities – taste/smell/appearance/texture • Lifestyle – reference to ready meals, busy lives, grazing • Ethics/Moral beliefs – vegetarians, environmental footprint, fair trade. • Storage facilities – own a freezer, cupboard space • Cooking facilities – reference to electrical goods • Religious beliefs – muslims/pork, hindus/beef, jews/kosher • Peer pressure – celebrity endorsement • Food trends – smoothies/bio products/ probotics etc • Food scares – BSE, CJD, GM foods, Food poisoning/e coli, listeria and pregnancy • Advertising – packaging, BOGOF, celebrity endorsement • Age type of food proffered – older people liking more traditional foods • Disability – may affect skills, RSI , limits choice • Foods in season – home grown, buy local, better flavour , organic crops • Skills – lack of knowledge or skills, or advanced skills TV chefs inspire • Product reputation – Heinz soups instead of home made • Special dietary needs – coeliacs, diabetes, lactose/nuts/ shellfish intolerant • Access to shops – internet, food deliveries • Time of the year – eg winter hot foods eaten 		<p>6 x 1 mark Banded marking Level 1 (0–2 marks) Basic discussion, showing limited understanding of the factors. If answers are presented as a list of bullet points then award Level 1 as a maximum mark. 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.</p> <p>Level 2 (3–4 marks) Adequate discussion, showing some understanding of the factors. 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 detailed understanding of the factors influencing a person's choice of food. 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			Expected Answers	Marks	Rationale
3	(a)	(i)	Highest protein content <ul style="list-style-type: none"> Cheddar cheese 	[1]	1x1 mark
		(ii)	Highest energy content <ul style="list-style-type: none"> Cream cheese 	[1]	1x1 mark
		(iii)	Weight reducing diet: <ul style="list-style-type: none"> Cottage cheese 	[1]	1x1 mark
		(iv)	Nutrient in cheese: <ul style="list-style-type: none"> Calcium Vitamin A Vitamin D Vitamin B/E/K Sodium/salt Phosphorus Selenium/Zinc/Potassium 	[2]	2 x 1 mark Do not accept 'vitamins/minerals' they must be named
	(b)		Information required by law <ul style="list-style-type: none"> Food product name Manufacturer's name and address List of ingredients Storage instructions Date marking/use by date/best before date/date code Instructions for use/cooking instructions Place of origin Weight or volume Description of food product Allergy warning 	[3]	3 x 1 mark Do not accept 'sell by date'/'display until'/'expiry date' and 'nutritional information' Any 3 points from the list

Question	Expected Answers	Marks	Rationale
(c)	Store a packet of cheese <ul style="list-style-type: none"> • Reseal the packet • Wrap in cling film/plastic bag/foil/waxed paper/parchment/ • Store in an air tight box • Put in the refrigerator/Chill/Store 0 – 8 °C 	[2]	2 x 1 mark Accept any 2 points from the list 2 marks for one point given with a clear/justified description Do not accept wrap unless justified
(d)	When cheese is cooked: <ul style="list-style-type: none"> • The cheese melts/softens • Protein coagulates (sets) • Becomes stringy - denatures • Fat is squeezed out of the cheese • Fat burns becoming darker and then burning • Cheese hardens and browns 	[2]	2 x 1 mark for two changes 1 x 1 mark for one change. Fuller description that covers two of the bullet points allow two marks. Do not accept just 'changes colour/texture/shape'

Question			Expected Answers	Marks	Rationale
4	(a)	(i)	Nutrient in blackberries <ul style="list-style-type: none"> • Vitamin C/A/E • Fibre (NSP) • Potassium/ calcium • Fructose/sugar 	[1]	1 x 1 mark Not just vitamins/minerals – must be named Not just carbohydrate
		(ii)	Reason why a person would make their own blackberry jam <ul style="list-style-type: none"> • Grow their own Blackberries/buy local • Glut of blackberries in season • Picked their own/went blackberrying • Reduced for quick sale in a supermarket • They like the taste of home made jam/better flavour • Want to know what ingredients are in their jam • Cheaper than buying jam • Free from artificial flavourings/colourings/chemicals • Lower carbon footprint/food miles 	[1]	1 x 1 mark Do not accept: cheaper unless qualified to preserve it healthier not high in sugar
	(b)		Advantages of batch production <ul style="list-style-type: none"> • Small orders/large amounts can be made • Flavours can be varied • The same machinery can be use for a variety of different jams • Different products can be made eg jams/jellies • Can be used for seasonal variations of the jams • Consistent finish/standard - all products are identical • Can respond to consumer demand • Cheaper than one off production/buying in bulk • Time saved making a large amount 	[2]	2 x 1 mark Do not allow – unless qualified Quicker Faster Cheaper Make lots

Question	Expected Answers	Marks	Rationale
(c)	<p>Explain how jam making preserves the fruit.</p> <ul style="list-style-type: none"> • High temperature/boiling/over 100C - kills micro organisms – stops the actions of enzymes – destroyed at this temp • High sugar content – prevents further bacteria from growing – because it makes the water unavailable • Once in jars the air is excluded – some bacteria need oxygen to grow • Level of acid/use of pectin 	[4]	<p>4 x 1 mark for 4 points 2 x 2 marks for two points well explained</p> <p>Do not give marks for repeating question</p>
(d)	<p>Two foods that can be preserved at home</p> <p>Freezing: any suitable named fruit/named vegetable/ cakes/ pastries/bread/biscuits/meat/fish/poultry or meat/fish products or ready prepared meal</p> <p>Pickling onions/named vegetable/herring/eggs/walnuts/ ginger</p> <p>Chutney any named vegetable/fruit</p> <p>Bottling named fruit/vegetable</p> <p>Drying herbs/fruit</p> <p>Salting meat/fish/beans</p> <p>Smoking fish/poultry</p> <p>Vacuum packed eg poultry, bacon</p>	[4]	<p>4 x 1 mark Do not accept jam making Do not accept repeat of food or method. Food must correctly match the method of preservation</p> <p>For Pickling – accept in vinegar</p>

Question	Expected Answers	Marks	Rationale										
5 (a)	<p>New luxury dessert product</p> <table border="1"> <thead> <tr> <th>Spec point</th> <th>Accept</th> </tr> </thead> <tbody> <tr> <td>Be lower in fat</td> <td>Use of lower fat alternatives eg yoghurt/ Lower fat biscuits Semi/Skimmed milk Lower/reduced fat chocolate Lower fat cream alternatives</td> </tr> <tr> <td>Attractive appearance</td> <td>Decoration(any suitable) Innovative shape Use of colour in <u>named</u> ingredients Layered Named technique eg swirled/feather icing</td> </tr> <tr> <td>Cultural</td> <td>Ingredients from other countries eg Marscapone /Greek yoghurt/ricotta/spices Any named exotic fruits Foods associated with named festivals</td> </tr> <tr> <td>Be suitable for freezing</td> <td>Product/named ingredient that makes it suitable Portion size/container suitable for freezing</td> </tr> </tbody> </table>	Spec point	Accept	Be lower in fat	Use of lower fat alternatives eg yoghurt/ Lower fat biscuits Semi/Skimmed milk Lower/reduced fat chocolate Lower fat cream alternatives	Attractive appearance	Decoration(any suitable) Innovative shape Use of colour in <u>named</u> ingredients Layered Named technique eg swirled/feather icing	Cultural	Ingredients from other countries eg Marscapone /Greek yoghurt/ricotta/spices Any named exotic fruits Foods associated with named festivals	Be suitable for freezing	Product/named ingredient that makes it suitable Portion size/container suitable for freezing		<p>4 x 1 mark Look for a 'complete' product that is well designed.</p> <p>Maximum two marks for a product where the ingredients will not combine to make a complete product.</p> <p>Lower in fat. Award the marks if they use any lower fat ingredient.</p> <p>Attractive. Look for creativity and innovation Cultural. For cultural accept ingredients or design that reflects other cultures. Candidates may name a culture or festival associated with the type of product or ingredient.</p> <p>Freezing. It should contain ingredients that make the product freeze well.</p> <p>Candidates must state that it is suitable for freezing.</p> <p>Do not give a mark to the same ingredient twice.</p>
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Question	Expected Answers	Marks	Rationale
(b)	<p>Ways that the manufacturer could promote the dessert</p> <ul style="list-style-type: none"> • Money off vouchers • Special offer price/BOGOF • Advertising in/on/TV/Radio/magazines/posters/leaflets/internet/on line • Tasting samples • Displays in supermarkets • Attractive/colourful/eye catching packaging • Celebrity endorsement 	[2]	<p>2 x 1 mark</p> <p>Accept advert or advertising</p>

Question	Expected Answers	Marks	Rationale
(c*)	<p>Discuss why the manufacturer would want to develop lower in fat products.</p> <p>Points to include:</p> <ul style="list-style-type: none"> • Government initiative to improve the health of the nation • Increase market potential/widen the range/appeal to a wider market • To meet healthy eating guidelines/eatwell plate advice • To promote as part of a healthy eating range • Increase sales/profits • Compete with other manufacturers • Enables consumers to make an informed choice • Responds to consumer demand • Moral responsibility in response to increased obesity in UK • Concern over heart disease in UK 	[6]	<p>6 x 1 mark Banded marking This is A* question</p> <p>Level 1 (0–2 marks) Basic discussion, showing limited understanding of the reason. If answers are presented as a list of bullet points then award Level 1 as a maximum mark. 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.</p> <p>Level 2 (3–4 marks) Adequate discussion, showing some understanding of the reasons. 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 detailed understanding of the implications to the manufacturer in terms of their responsibility to encourage healthier eating. 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>Terms we are looking for are: Saturated Fats, Eatwell plate, Coronary Heart Disease, Cholesterol, Healthy eating guidelines/dietary goals, Government initiative/White Paper</p>

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