

GCSE

Design and Technology: Food Technology

Unit **A525**: Sustainability and technical aspects of designing and making

General Certificate of Secondary Education

Mark Scheme for June 2017

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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
 L1	Level 1
 L2	Level 2
 L3	Level 3
 SEEN	Noted but no credit given
	Tick
 BP	Blank page – this annotation must be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response.

Question		Answer	Marks	Guidance
1		D	1	1 mark
2		D	1	1 mark
3		C	1	1 mark
4		C	1	1 mark
5		D	1	1 mark
6		<ul style="list-style-type: none"> • Less litter in the environment • Reduce Carbon Footprint • Reduce Co2 / methane / greenhouse gas emissions • Reduce landfill sites / waste going to landfill • Reduce pollution • Reduce the number of trees being cut down • Reduce use of non-sustainable materials • Save energy in fuel and transportation 	1	1 mark Do not accept eco-friendly / better for the environment / environmentally friendly / more sustainable etc.
7		<ul style="list-style-type: none"> • RSPCA Assured • RSPCA 	1	1 mark
8		<p>Any product made using roast chicken e.g.</p> <ul style="list-style-type: none"> • Caesar salad • Chicken and pasta bake / salad • Chicken curry • Chicken pie / pasties • Chicken risotto • Chicken salad • Chicken sandwich / wrap • Chicken soup • Chicken stew / casserole • Chicken Stir-fry • Coronation chicken 	1	1 mark Accept any recognisable dish
9		<p>Reduce</p> <p>Dental caries / cavities / need more fillings/ tooth decay Diabetes / type 2 diabetes Dulling of skin / acne / wrinkles Heart disease / CHD High blood pressure</p>	1	1 mark Do not accept rotting teeth or heart attacks Candidates must make it clear that they are reducing

			Impaired cognitive function Obesity Tooth plaque		
10			<ul style="list-style-type: none"> • Eating leftover food • Glass jars reused for jams / storing other items • Plastic containers / tins as containers / to store ingredients / other items • Reusing a carrier bag for shopping • Using cardboard box / plastic bottles for children's play • Using carrier bag as a bin liner • Using paper bags / card sleeves for shopping lists • Using wooden lolly sticks for craft work / stirring • Using yoghurt pots / cardboard egg box to grow plants • Re using bottle for liquid / refilling 	1	1 mark
11			False	1	1 mark
12			True	1	1 mark
13			True	1	1 mark
14			True	1	1 mark
15			True	1	1 mark

Question		Indicative content	Marks	Level of response
16	(a)	<p>Methods of cooking</p> <ul style="list-style-type: none"> • Grill foods as the fat drains away • Reference made to changes in cooking methods / using methods which do not require any fat e.g. baking, grilling steaming, microwaving instead of frying / roasting • Using equipment that requires little or no fat • Use of stir frying as a quick method of cooking that does not use a lot of fat. <p>Planning menus</p> <ul style="list-style-type: none"> • Have fresh fruit for desserts • Look for the reduced fat options when buying meat / ingredients / food products • Eating fats in proportions as on the Eatwell Plate / Guide • Plan menus in advance so you do not make decisions in the shop / use of labelling / online information / research • Reduce meat/bulk out with pulse vegetable / grains / vegetables • Swap higher fat foods to lower fat foods e.g. using skimmed milk, reduce fat cheeses and spreads / less cheese / stronger cheese, light or baked crisps, Fry-light spray instead of oil / animal fat / reduce take-aways • Trim fat off meat before cooking it / skim after cooking • Use chicken / Quorn instead of red meat lower in total amount of fat/ TVP /pulse vegetables • Use fish as an alternative to meat • When buying readymade dishes read the nutritional information - buy lower fat dishes. But do remember they may still be high in calories. Reference to the traffic light system used on food products 	6	<p>6 marks</p> <p>Do not accept reference to sugars, salt, and exercise.</p> <p>Level 3 (5–6 marks) Thorough discussion, showing a clear understanding of how consumers can rethink a diet which is high in fat. 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,</p> <p>Level 2 (3–4 marks) Adequate discussion, showing some understanding of how consumers can rethink a diet which is high in fat. 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 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 consumers can rethink a diet which is high in fat. . There will be little or no use of specialist terms. Answers may be ambiguous or disorganized. Errors of grammar, punctuation and spelling</p> <p>0 - No response worthy of credit If candidates list in bullet form – maximum marks - 2</p>

Question			Answer	Marks	Guidance
16	(b)	i	<p>Preservatives</p> <ul style="list-style-type: none"> • Extends the shelf life / makes it last longer / stays fresh for longer • Prevents growth of micro-organisms 	1	<p>1 mark</p> <p>Do not accept preserves the food as this is just repeating the question</p>
16	(b)	ii	<p>Colours</p> <ul style="list-style-type: none"> • To make food more attractive / improve appearance / appealing / aesthetically pleasing / appetising • To replace colour lost in processing 	1	<p>1 mark</p> <p>Do not accept adds colour</p>
16	(b)	iii	<p>Emulsifiers</p> <ul style="list-style-type: none"> • Accept any reference to the separation of ingredients • Prevents ingredients separating / combines oil and water / stabilises ingredients / splitting • Improves texture 	1	<p>1 mark</p>
16	(c)		<ul style="list-style-type: none"> • Buy loose products / less packaging - not going to landfill sites / less CO₂ / methane production / lower carbon footprint • Buy Fairtrade products – so farmers receive a sustainable income • Buying foods produced in the UK - less food miles / less CO₂ emissions / lower carbon footprint / less pollution / global warming • Buy products in recyclable packaging – less waste going to landfill • Organic produce - artificial chemicals not used which can go into the water system / affect wild life / soil • Use local farm shops / farmers markets - supporting the local economy and know they are produced locally • Using seasonal produce - less food miles / less CO₂ emissions / lower carbon footprint / reference to not importing foods 	4	<p>4 x 1 marks</p> <p>One mark for statement, 1 mark for explanation</p> <p>Do not accept the same explanation twice</p>

16	(d)	<ul style="list-style-type: none"> • Aids absorption of calcium • Antioxidant • Can protect against infection • Helps blood and blood vessel formation • Helps formation of connective tissue / collagen • Helps to absorb iron / works with iron • Helps to protect cells and keeps them healthy • Helps wound healing/ repair cells • Maintains healthy skin / gums • Prevents scurvy • Reduce damage from free radicals • Brain / neurological function 	3	<p>3 x 1 mark</p> <p>Do not accept healthy on its own</p>
16	(e)	<ul style="list-style-type: none"> • Changing the texture – blending into a liquid / puree / making smoothie • Cutting them small / disguising / including them in other foods - example of relevant dish e.g. spaghetti bolognaise, fruit in ice-cream, yoghurt • Introducing new foods gradually - as children's tastes change over time • Presenting them in attractive ways - appropriate examples given e.g. on pizza / shape / size /colourful • Trying different fruits and vegetables - use of raw and cooked foods, dried and fresh fruit 	4	<p>2 x 2 marks</p> <p>Do not accept the same example twice</p>
17	(a)	<p>Plain white flour in pastry Bulk Low gluten content - short crumbly texture Provides structure</p> <p>Butter in the pastry Coats the flour grains to stop the development of gluten / texture / shortening / crumbly Colour</p>	3	<p>3 x 1 mark</p> <p>Do not accept the same function twice Do not accept binds, taste</p>

		<p>Flavour / enriches</p> <p>Sugar in the meringue</p> <p>Caramelises</p> <p>Crisp texture</p> <p>Stabilises the egg white</p> <p>Sweetens</p>		<p>Do not accept just taste / flavour for sugar must say sweeten</p> <p>Do not accept aerate</p>
17	(b)	<p>CAM</p> <p>Increases productivity / faster production / faster than humans</p> <p>Increases reliability / consistent quality / accuracy of finished product</p> <p>Less chance of human error</p> <p>Lowers cost – products made at speed</p> <p>Produces identical products / size / shape / appearance / flavour / weight</p> <p>Reduce hygiene risks as less people are involved</p> <p>Saves money (not employing humans) / reduces production costs</p>	2	<p>2 x1 mark</p> <p>Do not accept cheaper / saves time / quicker unless qualified</p>
17	(c)	<ul style="list-style-type: none"> • Saves preparation time • Saves manufacturing / making time • Saves staff skill / do not have the skills to make • Equipment does not have to be purchased for the processes • Consistent results / pastry always the same • Reduced storage facilities • Employ less people • Quality guaranteed - experts make them • Can be cheaper than buying all the separate ingredients 	2	<p>2 x1 mark</p> <p>Do not accept saves time or cheaper on its own</p>
17	(d)	<ul style="list-style-type: none"> • Calcium • Niacin / Vitamin B3/ nicotinic acid • Iron • Thiamin / Vitamin B1 	2	<p>2 x 1 mark</p> <p>Do not accept vitamin B</p>

17	(e)	<p>Clearly labelled <u>savoury pastry product</u> = 1 mark</p> <p>To be suitable for ovo- lacto vegetarians = 1 mark</p> <ul style="list-style-type: none"> • Dairy products • Eggs • Milk • No use of meat or fish / suet / lard / fish oils / gelatine • Use of TVP / Quorn / tofu / vegetables / beans / pulses /nuts / seeds <p>To include a variety of textures – 2 marks</p> <ul style="list-style-type: none"> • 1 mark for each named texture <p>To be attractive in appearance = 1 mark</p> <ul style="list-style-type: none"> • Colour • Glazes • Use of decoration • Way the ingredients are arranged • shape <p>To be suitable for a celebration meal= 1 mark</p> <ul style="list-style-type: none"> • States the celebration meal being served at • Reference to why it is suitable - link to suitability of ingredients / portion sizes / quantity / hand held for buffet / serving presentation 	6	<p>6x1 mark</p> <p>2 marks for two different named textures</p>
18	(a)	i	1	1 mark
18	(a)	ii	1	<p>1 mark</p> <p>Do not accept growth of bones/ build up of muscle</p>

18	(a)	iii	<ul style="list-style-type: none"> • Contains more fat 	1	1 mark
18	(a)	iv	<ul style="list-style-type: none"> • Maintain cell function • Production of haemoglobin in red blood cells • To carry oxygen in the blood • To prevent anaemia 	1	1 mark Do not accept healthy blood / creates / making blood cells (red)
18	(a)	v	<ul style="list-style-type: none"> • Beef • Braising steak 	1	1 mark
18	(a)	vi	<ul style="list-style-type: none"> • Healthy eyes • Healthy nervous system • Healthy skin / structure of the skin • Normal growth • Release of energy • Transport / metabolism of iron • Normal structure / function of the mucous membranes 	1	1 mark Do not accept healthy eye sight
18	(b)		<ul style="list-style-type: none"> • Curing process uses salt • Meat is soaked in brine solution • Salt is used in the production of bacon 	1	1 mark
18	(c)		<ul style="list-style-type: none"> • Longer tougher fibres in the meat - need long slow cooking to tenderise / soften / collagen becomes soluble • More connective tissue in the meat - needs long moist cooking to tenderise / soften • Tougher part of the animal / cut of meat - does more work e.g. leg 	2	2x1 mark 1 mark for the statement, 1 mark for explanation

Question	Indicative content	Marks	Level of response
18 d	<ul style="list-style-type: none"> • Cut down on fat to avoid weight gain and unnecessary strain on joints • Drinks - water, milk - contains calcium. Read labels on drinks - they may look / sound healthy but contain a lot of sugar • Eating a range of foods - make reference to rainbow of fruits and vegetables / foods from different sections of the Eatwell Plate / Eatwell Guide, a range of foods which contain a variety of different nutrients. • Eating regularly - older people often need to eat smaller meals and more often • Eating the correct proportions of foods for energy - not more than 35% should come from fat / 11% from saturates / no more than 5% from sugar • Eatwell plate / Eatwell Guide - reference to using this as a basis to choose foods to eat / linked to the proportions / description of the different groups - bread, rice, potatoes, pasta and other starch foods / fruit and vegetables / milk and dairy / meat, fish, eggs, beans, non dairy sources of protein, foods and drinks high in fat and or sugar • Increase fibre – eat more wholemeal bread / cereals, fruit and vegetables. Older people liable to develop constipation. • Need nutrient dense foods • Reference made to specific nutrients and their function related to older people- protein - repair, starchy carbohydrates - energy / slow release energy. Fat for essential fatty acids. Calcium - .maintenance of bones and teeth. Vitamin A to keep eyes healthy. Vitamin C to help protect against infection. Vitamin D to work in conjunction with calcium - brittle bones, osteoporosis. Limited amount of sugar, prevalence of diabetes. Iron - red meat to prevent anaemia • Swap sugar snacks for fresh fruits and vegetables • The amount of food will depend on different factors - age, health, activities, portion sizes • Use less salt - predisposed to strokes /TIA's 	6	<p>6 marks</p> <p>Level 3 (5–6 marks) Thorough discussion, showing a clear understanding of the nutritional factors to be considered when planning meals for older people. 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, grammar and punctuation.</p> <p>Level 2 (3–4 marks) Adequate discussion, showing an understanding of the nutritional factors to be considered when planning meals for older people. 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 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 the nutritional factors to be considered when planning meals for older people. There will be little or no use of specialist terms. Answers may be ambiguous or disorganized. Errors of grammar, punctuation and spelling.</p> <p>0 - No response worthy of credit</p> <p>If candidates list in bullet form – maximum marks - 2</p>

		<ul style="list-style-type: none"> • Using the 8 tips for healthy eating -base diet on starchy foods, eat lots of fruit and vegetables / 5 a day, eat more fish / oily fish, reduce salt / less than 6g per day, get active, drink plenty of water, don't skip breakfast, cut down on saturated fat and sugar • Watch calorie intake as older people have a lower Basal Metabolic Rate 		
19	(a)	<p>Whisk / electric mixer / hand mixer / electric whisk</p> <ul style="list-style-type: none"> • Adding air to mixtures / aerating mixtures • Batters • Cake mixtures • Meringues • Mixing creamed cake mixtures • Mixing ingredients together • Whisking / thickening cream <p>Liquidiser / Blender</p> <ul style="list-style-type: none"> • Baby food • Breadcrumbs • Mayonnaise • Puree fruits and vegetables • Reducing size /smoothing / liquefy food • Smoothies / milk shakes • Soups <p>Food processors</p> <ul style="list-style-type: none"> • Biscuits • Blending beans / houmous • Blending soup 	6	<p>6 x 1 mark</p> <p>Accept any correct use or function of the equipment.</p> <p>Do not accept same words on both sides e.g. Blender – Blending</p> <p>Accept Blender – To liquidise ingredients</p> <p>Do not accept repeat answer for use.</p>

		<ul style="list-style-type: none"> • Bread dough • Breadcrumbs • Cakes • Chopping vegetables / nuts / herbs • Crushing foods e.g. biscuits • Grating cheese / vegetables • Mixing / chopping / slicing food • Pastry • Purees 		
19	(b)	<p>Check assembled correctly Check machine is switched off when assembling Check wires are not damaged Disassembled before washing Do not use with wet hands / close to water Keep hands away from moving parts / sharp blades Plug socket not overloaded Switched off after use Tie long hair back / ties out of the way Trailing flexes</p>	2	2x1 mark
19	(c)	<p>Advantage</p> <ul style="list-style-type: none"> • Consistency of product • Easy to use • Quicker / saves time than doing it by hand • Saves human labour / speeds up process <p>Disadvantage</p> <ul style="list-style-type: none"> • Can be expensive to buy • Cost of energy • Cost of energy / use of non renewable resources • Dangerous if you don't follow instructions • Difficult to clean • Heavy to lift • Mixture can go everywhere – walls, clothes 	2	<p>2 x1 mark</p> <p>Do not accept opposites Do not accept faster / quicker on its own Do not accept easy to use unless qualified</p>

		<ul style="list-style-type: none"> • More washing up • Need to be careful with sharp blades • Noisy • Time consuming to clean 		
19	(d)	<ul style="list-style-type: none"> • Hazard Analysis Critical Control Point 	1	<p>1 mark</p> <p>Words must be correct and in correct order</p>
19	(e)	<ul style="list-style-type: none"> • Keep foods out of the danger zone / 0 - 63 °C - temperature bacteria thrive in / can lead to food poisoning • Slows down / stops growth of bacteria / yeasts / moulds growth - extends shelf life / prevents food poisoning / keeps food safe • To preserve the quality of the product / extends shelf life – because micro- organisms dormant below 0°C / slow down between 0 - 5 °C • To prevent food poisoning - bacteria grow quickly / thrive in the danger zone 0 - 63 °C / slowed down in a refrigerator (0 - 5 °C) / dormant below 0°C 	2	<p>2 x 1 mark</p> <p>1 mark for statement, 1 mark for explanation</p> <p>For example: (1st mark) to slow bacterial growth (2nd mark) to prevent food poisoning.</p> <p>Do not accept 'go off'</p>
19	(f)	<ul style="list-style-type: none"> • Allergy information – lists ingredients that may cause allergic reactions • Best before date - and which foods these are found on / can be eaten after these dates but quality and safety can be compromised. • Cooking instructions by law if the food needs to be cooked - so that consumer has the information required. • Defrosting information / do not refreeze information - so that food can be stored safely / prevent food poisoning • Storage conditions - required by law - to prevent food spoilage • Use by date - found on high risk foods / also need to be stored in the fridge / should not be eaten after that date 	2	<p>2 x 1 mark</p> <p>1 mark for statement, 1 mark for explanation</p> <p>Do not accept 'safe to eat' as this is just repeating the question</p>

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