

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 2016

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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
	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	A	1	
2	B	1	
3	B	1	
4	C	1	
5	A	1	
6	<ul style="list-style-type: none"> • Microwave • Microwave safe. • Suitable for microwaving 	1	
7	<ul style="list-style-type: none"> • Bubble and squeak • Cheese and potato pie • Cottage pie • Croquettes • Fish pie • Fish cakes • Gluten free cakes / lemon drizzle / lemon and orange cake • Gnocchi • Pastry • Potato cakes • Potato pancakes • Potato waffles • Potato scones • Rissoles • Samosa • Scones • Shepherd's pie • Soup • Vegetarian Kofta 	1	<p>1 mark</p> <p>Accept any suitable named product</p> <p>Do not just accept pie on its own</p> <p>Do not accept potato served as an accompaniment e.g. sausage and mash</p>
8	<ul style="list-style-type: none"> • Ensure the survival of traditional English varieties • Fresher • Less food miles / air miles / not travelled so far • May be cheaper than imported foods • May have a better flavour / taste / texture • Reduce carbon footprint / CO2 emissions / greenhouse gases / pollution 	1	<p>1mark</p> <p>Do not accept reduces transport costs, better for the environment</p> <p>Do not accept cheap / cheaper unless it is qualified</p>

Question	Answer	Marks	Guidance
	<ul style="list-style-type: none"> • Support local farmers / economy/ companies / product is local 		
9	<ul style="list-style-type: none"> • Allergic reaction / allergy • Asthma • Difficulty in breathing • Headaches • Hyperactivity • Link to cancer • Nausea • Skin rashes • Tightness of face / neck / chest • Want them to eat natural foods / can mask poor quality ingredients 	1	1 mark Do not credit hyper on its own Do not accept health problems Do not accept reference to healthier
10	<ul style="list-style-type: none"> • Biodegradable / compostable • Can be made from recycled material • Recyclable • Renewable / sustainable • Trees can be replanted 	1	1 mark Do not accept environmentally friendly / eco friendly
11	<ul style="list-style-type: none"> • False 	1	U
12	<ul style="list-style-type: none"> • True 	1	
13	<ul style="list-style-type: none"> • False 	1	
14	<ul style="list-style-type: none"> • True 	1	
15	<ul style="list-style-type: none"> • True 	1	
16	(a)* <ul style="list-style-type: none"> • Balance meals -based on the Eatwell Plate / Eatwell Guide– added health benefits, weight loss. Link to Government guidelines / recommendations • Breakfast – high in calories - lack of fresh fruit / slow release energy foods / low GI foods to sustain through morning at school / regulate blood sugar levels / breakfast is considered the most important meal of the day. • High red meat consumption -(red meat in lasagne) higher in fat • Lack of variety in foods • Lack of water intake – could be tired / poor skin / dehydration - lack of concentration (Eatwell guide 6-8) 	6	6 marks Accept reference to either the Eatwell Plate or Eatwell Guide. Do not award level 3 unless clear reference to government recommendations If candidates list in bullet form or just give swaps of food – maximum marks – 2 Do not accept reference to exercise. Level 3 (5–6 marks) Thorough discussion, showing a clear understanding of how and why Mary's diet should be changed, detailed reference

Question	Answer	Marks	Guidance
	<p>glasses)</p> <ul style="list-style-type: none"> • Make own food from fresh, try and get help to plan meals • No fish, - lacks omega-3, low fat, protein food • Not enough calcium - have smoothies as a drink / milk based. • Not enough fibre - reference to the function of fibre in the diet. Makes suitable changes / includes more fruit and vegetables / preferably raw / use of whole cereal products e.g. whole wheat bread / pasta. • Not enough fruit and vegetables - at least / 5 a day / substitute snacking foods such as cake / chocolate for fruit and vegetables / will increase fibre as well as vitamin content of diet / fruit and vegetables do not contain fat. • Not enough iron - intake needs increasing because of being a girl / periods, therefore good source of vitamin C needed to help absorb iron. • Reduce the number of ready meals bought and consumed – usually high in fat, sugar, salt and energy; low in fibre, vitamins and minerals • Too much energy/calories/Kcal/kJ - reference made to how to adapt recipes / shopping for lower calories / fat / sugar alternatives. Ref to the Eatwell plate / Eatwell Guide as a model to base eating patterns on. • Too much fat – especially saturated fat - reference made to how to adapt recipes / shopping for lower fat alternatives. Ref to the Eatwell plate / Eatwell Guide as a model to base eating patterns on / smallest portion of the Eatwell plate • Too much salt/sodium caused by eating processed food - make own food, avoid processed foods, use alternatives to salt to season foods • Too much sugar - suggesting alternative foods for energy snacks e.g. fruit / raw vegetables and alternatives for fizzy drinks e.g. water / milk 		<p>made to the government recommendations. 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 an understanding of how and why Mary's diet should be changed, some reference made to the government recommendations. 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 and why Mary's diet should be changed, limited reference made to the government recommendations. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised or 'list like'. Errors of grammar, punctuation and spelling may be intrusive.</p> <p>0=no response worthy of credit</p>

Question	Answer	Marks	Guidance
16 (b)	<p>Reduce the fat</p> <ul style="list-style-type: none"> • Add more vegetables • Drain off excess fat • Reduce the amount of beef / bacon / meat • Reduce the amount of cheese • Reduce the amount of oil / use thin layer of cooking spray • Remove the fat from the bacon • Remove the meat / bacon • Remove the oil from the recipe / dry fry • Remove the parmesan cheese • Swap the beef for Quorn or minced turkey or chicken / use TVP (textured vegetable protein) • Use a reduced fat / lean minced beef • Use of pulse vegetables instead of meat • Use reduced fat cheese <p>Increase the fibre content</p> <ul style="list-style-type: none"> • Addition extra vegetables • Addition of any two named vegetables • Use fresh tomatoes • Use Quorn / TVP • Use whole wheat spaghetti 	4	<p>4 x 1 mark</p> <p>Do not accept the same answer for both parts - particularly with add extra vegetables</p> <p>Do not accept low fat parmesan / cheese</p> <p>If adds two named suitable vegetables award 2 marks</p>
16 (c)	<ul style="list-style-type: none"> • Can be used as fertiliser - as biodegradable / decomposes/ puts nutrients back into the soil / improves soil quality / cheap way of producing own compost / cheaper than having to buy compost • Recycling- so that peelings are reused • Saves food going to landfill sites - these will eventually be full / less CO2 emissions / methane gas 	2	<p>2 x 1 mark</p> <p>Accept either two separate points or one explained point</p> <p>Explanations can mix and match.</p> <p>Do not accept better for the environment.</p>
16 (d)	<ul style="list-style-type: none"> • Can cook tougher / cheaper cuts of meat successfully / tender meat • Reduces fuel costs • Reduces the amount of energy used • Retention of B vitamins 	2	<p>2 x 1 mark</p> <p>Candidates may make general points or write specifically about a piece of equipment.</p> <p>Do not credit the same point for the two pieces of equipment e.g.</p> <p>Using a pressure cooker reduces the cost of fuel</p> <p>Using a slow cooker reduces the cost of fuel</p>

Question		Answer	Marks	Guidance
		<p>Pressure Cooker</p> <ul style="list-style-type: none"> • Foods which normally take a long time to cook e.g. stews casseroles cooked in less time than in the oven / saves time / cooks quickly • Whole meal can be cooked in one pan <p>Slow cooker</p> <ul style="list-style-type: none"> • Allows meals to be cooked when you have been out all day. • Convenient 		
16	(e)	<ul style="list-style-type: none"> • Animal welfare is monitored • Farmers preserve wildlife habitats • Food or drink has met high production standards • Foods produced safely • Fully traceable back to independently inspected farms in the UK • Hygiene in production • Mark of quality • Reliable source • UK source 	1	1 mark Accept any reference to food / water / shelter / space under animal welfare.
16	(f)	<ul style="list-style-type: none"> • Use by date • Use by 	1	1 mark
16	(g)	<ul style="list-style-type: none"> • Final cost of the food product – consumers make choices based on price / foods cost more / more used higher cost of the food / affects profits / use less energy and the price will be less to the customer/may mean more sales. • Carbon footprint / eco footprint – linked to consumer choice / reputation of manufacturer. • CO2 emissions - global warming / which can damage the environment / reference to ozone layer / pollution / climate change • Food miles – transport / CO2 production • Using non renewable energy – will eventually run out / need to consider alternatives. 	4	4 x1 mark 2 marks for statements 2 marks for explanations
17	(a)	<ul style="list-style-type: none"> • Cooked meat above the raw meat • Tomatoes in the salad drawer 	3	3 x1 mark Do not accept raw meat in the salad drawer and tomatoes

Question		Answer		Marks	Guidance
		<ul style="list-style-type: none"> Raw meat on the bottom shelf 			on the top shelf
17	(b)	Preservation Method	Food preserved by this method	4	4 x1 mark Do not accept the same food product more than once. Accept any correct answer for example Do not accept different types of the same product e.g. fruit as an answer for one product and a named fruit for another product
		Bottling	<ul style="list-style-type: none"> Fruit Sauces Vegetables 		
		Canning	<ul style="list-style-type: none"> Casseroles Fish Fruit Meat Name of canned food e.g. macaroni cheese Sauces Soups Vegetables 		
		Curing	<ul style="list-style-type: none"> Fish Meat 		
		Drying	<ul style="list-style-type: none"> Any named dried fruit Any named dried herb Any named dried vegetable Coffee Egg Fish Grains Meat Milk powder Pot noodles / snack pot Soups 		
Freezing	<ul style="list-style-type: none"> Bread Cakes Fish Fruits Icecream Meat Named ready meal 				

Question	Answer	Marks	Guidance
	<ul style="list-style-type: none"> • Pies • Vegetables 		
Jam making / marmalade	<ul style="list-style-type: none"> • Any named fruit which is suitable for jam making / marmalade 		
Modified atmospheric (MAP) / controlled atmospheric (CAP)	<ul style="list-style-type: none"> • Fruits and vegetables • Fish • Meat • Fresh pasta 		
Pasteurisation	<ul style="list-style-type: none"> • Cream • Milk • Fruit juice 		
Pickling	<ul style="list-style-type: none"> • Chutney • Eggs • Fish • Nuts • Vegetables 		
Salting	<ul style="list-style-type: none"> • Fish • Meat • Lemons • Vegetables 		
Smoking	<ul style="list-style-type: none"> • Fish • Meat 		
Sterilisation	<ul style="list-style-type: none"> • Any named canned product • Fruit juice • Milk 		
UHT - Ultra heat treatment	<ul style="list-style-type: none"> • Cream • Fruit juices • Milk • Prepared sauces • Soups 		
Vacuum packing	<ul style="list-style-type: none"> • Fish • Meat • Chestnuts 		

Question	Answer	Marks	Guidance
17 (c)*	<ul style="list-style-type: none"> • Avoid cross contamination - clear explanation reference transferring of bacteria from raw to cooked foods / direct / indirect cross contamination / use of different coloured chopping boards for different foods • Check dates on perishable foods before preparing them. • Clean work surfaces / equipment before and after food preparation / use of sanitiser • Defrost frozen - to ensure that they are properly cooked / foods before preparation unless it says they can be cooked from frozen • High standard of personal hygiene - personal hygiene rules are followed ref – washing hands / removal jewellery etc • Leave perishable food in fridge till ready to use - reference to the slowing down of bacteria in fridge • Use colour coded equipment • Wash fruits and vegetables before using 	6	<p>6 marks</p> <p>If candidates list in bullet form – maximum marks – 2 Level 3 (5–6 marks)</p> <p>Thorough discussion, showing a clear understanding of the advice you would give to consumers about preparing food hygienically in the home. 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)</p> <p>Adequate discussion, showing an understanding of the advice you would give to consumers about preparing food hygienically in the home. 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)</p> <p>Basic discussion, if candidates only write in point form a maximum of 2 marks should be awarded, showing some understanding of the advice you would give to consumers about preparing food hygienically in the home. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised or 'list like'. Errors of grammar, punctuation and spelling may be intrusive.</p> <p>0=no response worthy of credit</p>
17 (d)	<ul style="list-style-type: none"> • Enforce food safety laws • Ensure food is safe / fit to eat • Give a hygiene rating • Instigate prosecutions if necessary / close down • Offer advice and support • Provide training for food handlers / give talks • Reduce sources of contamination / monitor working conditions and hygiene / inspect work places • Remove any suspect food 	2	<p>2 x 1 mark</p> <p>Accept answers which are related to food only</p>

Question		Answer	Marks	Guidance
		<ul style="list-style-type: none"> Trace cause of food poisoning outbreak/follow up complaints Trace sources of contamination / food poisoning 		
18	(a)	<ul style="list-style-type: none"> Amount of food we eat balances - with the amount of energy we use If the amount of food consumed is greater than the energy used - then weight increases If the amount of food consumed is less than the energy used - then weight is lost 	2	2x1 mark
18	(b)	Starch <ul style="list-style-type: none"> Energy Feeling of fullness Slow release energy 	1	1 mark
18	(c)	Savoury product - <ul style="list-style-type: none"> Candidate indicates no additional sugar is in the recipe (unless required e.g. in a sweet and sour sauce) Candidates list main ingredients Seen in the name of the dish. Contain a complex carbohydrates - <ul style="list-style-type: none"> Flours, Named cereals Named fruits and vegetables Oats, Seeds e.g. sunflower Starchy foods e.g. rice, pasta, cous cous, noodles, vegetables which are starchy e.g. peas, beans, lentils, breakfast cereals, cassava, potatoes Whole grain rice / pasta. Contains proteins <ul style="list-style-type: none"> Beans Cheese Eggs Fish Lentils 	6	6x1 mark If not designed an 'eat on the go' product - no marks Labelled foods should be clearly linked to the specification point e.g. Wholemeal bread – complex carbohydrate 1 mark for how it is savoury 1 mark for complex carbohydrate food 2 x 1 mark for protein foods 1 mark for how it is attractive 1 mark for quality of annotation / or explaining how it is suitable to eat on the go

Question		Answer	Marks	Guidance
		<ul style="list-style-type: none"> • Meat • Milk • Nuts • Peas • Quorn • Seeds • Soya / TVP <p>To be attractive</p> <ul style="list-style-type: none"> • Colour • Glazes • Shape • Use of decoration • Way the ingredients are arranged 		
18	(d)	<ul style="list-style-type: none"> • 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 • Eating a range of foods - contain a variety of nutrients • The amount of food will depend on different factors - age, occupation, health and should be adapted to meet these needs • Using the 8 tips for healthy eating -base diet on starch foods, eat lots of fruit and vegetables, eat more fish / oily fish, cut down on saturated fat and sugar, reduce salt / less than 6g per day, get active, drink plenty of water, don't skip breakfast 	4	<p>4 x 1 mark 2 x1 mark for a statements 2 x 1 mark well explained point</p> <p>Credit a clear explanation of not having a balanced diet with an appropriate example.</p>
18	(e)	<ul style="list-style-type: none"> • Alcohol • Diabetes • Eating a diet high in dairy products / red meat • Eating a diet high in fat • Eating a diet high in saturated fat • Family history • High blood pressure / too much salt / sodium 	2	<p>2 x 1 mark</p> <p>Do not just credit fat / saturated fat - needs to show that they understand it is a diet high in these</p>

Question		Answer	Marks	Guidance
		<ul style="list-style-type: none"> • Lack of exercise • Obesity / being overweight • Raised levels of cholesterol / high cholesterol • Smoking • Stress 		
19	(a)	<ul style="list-style-type: none"> • 2 • more than 2 • at least two portions 	1	1 mark
19	(b)	i	1	1 mark
19	(b)	ii	1	1 mark
19	(c)	<p>Vitamin A / retinol / beta carotene</p> <ul style="list-style-type: none"> • Healthy skin • Healthy eyes • Healthy immune system • Improves night vision • Lining of the nose • Maintains skin • Produces pigments in retina of the eyes <p>Vitamin D</p> <ul style="list-style-type: none"> • Absorption of calcium / phosphorus • Prevention of rickets / osteomalacia / brittle bones / osteoporosis • Strong bones • Strong teeth <p>Vitamin E / tocopherol</p> <ul style="list-style-type: none"> • Antioxidant • Healthy skin, eyes • Helps cell walls remain healthy • Strengthens immune system • Thought to reduce the risk of cancer and CHD <p>Vitamin K</p> <ul style="list-style-type: none"> • Helps the blood to clot 	4	4 x 1 mark Credit function if relates to a fat soluble vitamin even if the vitamin is incorrect.

Question		Answer	Marks	Guidance
19	(d)	<ul style="list-style-type: none"> • Body cannot make them • Controls inflammations • Essential to regulating body processes • Helps make hormones, • Helps prevent eczema • Helps prevent heart disease and strokes, • Helps prevent rheumatoid arthritis • Helps to protect the heart • May help memory / concentration • Provides essential fatty acids • Regulates genetic functions, • Supports healthy development of baby in pregnancy / breast feeding • Thins blood 	1	1 mark
19	(e)	i	1	1 mark
19	(e)	ii	2	2 x1 mark 1 mark for statement 1 mark for explanation
19	(f)	<ul style="list-style-type: none"> • Can adapt production line for other products • Faster than other methods of production • High volumes of products quickly produced • Highly automated / unskilled labour / not specialised • Ingredients bought in bulk / ingredients cost less • Large number produced • Low costs after initial set up. • Orders met quickly and efficiently • Wages costs reduced 	2	2 x 1 mark Do not accept faster, cheaper quicker on their own
19	(g)	<ul style="list-style-type: none"> • All identical / look the same • Amount of coating / thickness of coating / even coating • Colour 	2	2 x 1 mark

Question	Answer	Marks	Guidance
	<ul style="list-style-type: none">• Metal detection• Microbiological testing• Moisture• Shape / not broken• Size• Thickness of fish• Texture of coating• Weight		

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