

# **GCSE**

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

General Certificate of Secondary Education

Unit A524: Technical Aspects of Designing and Making

# Mark Scheme for June 2012

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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#### 1. Annotations

Annotation	Meaning
1100	Benefit of doubt
X	Caret sign to show omission
<b>II</b>	Level 1
TEL .	Level 2
	Level 3
REP	Repeat
<u> </u>	Noted but no credit given
<b>✓</b>	Tick

# 2. Subject-specific Marking Instructions

# Marking crossed out and duplicated answers

OCR currently provides examiners with 'rules' for marking crossed out answers (which may be partially or wholly correct) and duplicated answers. Duplicated answers refer to two (or more) alternative responses to the same question, or responses to more optional questions than required within the paper rubric.

The rules are as follows:

#### Crossed out answers

- where a candidate crosses out an answer and provides an alternative response the crossed out response is not marked and gains no marks
- where a candidate crosses out an answer to a whole question, but makes no second attempt and the inclusion of the answer would not cause a rubric infringement, the assessor should attempt to mark the crossed out response and award marks appropriately.

### **Duplicated answers**

- normally all responses are marked and the highest mark given
- where alternate answers are provided to a multiple choice question, no mark should be awarded (for example: following a request to tick one box, the candidate ticks two or more boxes)
- where the candidate provides contradictory responses, no mark should be awarded (for example: the candidate writes a statement such as 'water freezes at 0oC this means it is a liquid at -10oC'). The candidate, here, does not seem to understand the context of the 'question'
- where the candidate has adopted a 'scattergun' approach by providing multiple answers to a single response question, no mark should be awarded.

Question	Answer	Marks	Guidance
1 (a)	One x 1 mark for each correct answer. 4 x 1 marks Four required Accept any correct response  Oven  Meat/vegetable/fish/fruit eg baked apple Cakes/ Biscuits/Pies/Pastry /Bread Casseroles/Meals/Ready meals.  Microwave Meal/Ready meals/Fish or Meat product Jacket potatoes/ vegetable Sauces/Soups/Eggs/Milk/hot drinks Stewed Fruits/baked apple/jams Cakes/cookies/meringues. Rice/Pasta/Popcorn/Pizza/Porridge	4	Oven examples include: Jacket potatoes/oven chips/ lasagne Microwave examples: Baked beans/lasagne/sausages Steamer: carrots/broccoli Frying Pan: prawn stir fry  Do not allow repeats
	<ul> <li>Steamer</li> <li>Vegetables</li> <li>Fish</li> <li>Puddings( sweet or savoury)</li> <li>Dumplings.</li> </ul> Frying Pan <ul> <li>Meat/bacon/burgers/chops/ fish/fish cakes/chicken</li> <li>Vegetable eg onions/Stir fried vegetables</li> <li>Omelettes/Pancakes/eggs</li> <li>Fried rice/crumpets/poppadoms.</li> <li>Bananas/fruit/tarte tatin</li> </ul>		

Q	uestion	Answer	Marks	Guidance
1	(b)	<ul> <li>One mark for each correct answer. 2 x 1 marks</li> <li>Correct coloured /red chopping boards/different chopping boards/wash board between use</li> <li>Use a different/clean knife every time/colour coded knives</li> <li>Use different/clean cloths every time</li> <li>Store raw foods below cooked foods in the refrigerator/bottom of refrigerator</li> <li>Wash hands before /after handling raw meat/wear gloves</li> <li>Never allow raw and cooked foods to touch each other/ store meat separate from other foods</li> <li>Clean work surfaces/equipment after /before handling raw meat.</li> </ul>	2	Answers must cover cross-contamination, not other contamination eg do not accept .covering meat'
1	(c)	<ul> <li>One mark for each correct answer. 2 x 1 marks</li> <li>Slow/Long slow cooking/simmer/slow cooker</li> <li>Moist cooking/casserole/stew</li> <li>Mincing/cutting the meat into smaller pieces</li> <li>Mechanical /meat hammer/pounding/using a meat hammer/scoring</li> <li>Marinating</li> <li>Pressure cooking</li> <li>Hanging the meat/ageing meat</li> <li>Commercial tenderising seasonings</li> <li>Sous vide</li> </ul>	2	Allow a suitable named method eg stewing.  Do not accept 'boiling'

Question	Answer	Marks	Guidance
1 (d)	<ul> <li>Four marks 2 x 1 mark for basic fact         2 x 2 marks for fuller explanations         <ul> <li>The type of food that is being cooked – tough meat v rump steak/ High risk need high temperatures</li> <li>The facilities that are available – students have limited facilities</li> <li>Equipment available – lack of correct equipment eg students/affordability/space</li> <li>Time available – busy working families</li> <li>Sensory qualities – taste texture, appearance/foods taste better cooked in a particular way</li> <li>Skill of the cook – simple v complex methods.</li> <li>Physical difficulties – elderly limited manipulative skills.</li> <li>TV Chefs-may have seen on TV/publicity</li> <li>Energy conservation- use of steamer or several vegetables/reducing carbon footprint/one pot meals</li> <li>Health- preserving vitamins/reducing fat</li> <li>Financial- low energy use /microwave instead of oven/quick methods</li> </ul> </li> <li>Family TrendsFriends- may have traditional/cultural methods</li> </ul>	4	The question is about the choice of cooking method not the choice of food.  Do not allow:  'Allergies'  'Personal Choice '– repeating the question!  'Religion '  'Vegetarian'
	Total	12	

C	uesti	on	Answer	Marks	Guidance
2	(a)	(i)	Two marks 2 x 1 mark  Pasta  Potatoes/yams/sweet potatoes  Rice  Breakfast cereals  Bread/flat breads eg wrap/tortilla/naan/chapatti  Bananas/plantain  Named cereal eg oats/couscous/noodles/nuts/bulghar/polenta/semolina/pearl barley/buck wheat/quinoa  Pulse vegetables/named pulse vegetable	2	Not 'Energy' bars because they are high in sugar
2	(a)	(ii)	<ul> <li>Two marks 2 x 1 mark</li> <li>One mark for a simple statement. Two marks for detailed explanation</li> <li>Take longer to digest than sugars/broken down slowly/slow release energy</li> <li>Provides energy for a long period of time</li> <li>Provide a full feeling/adds bulk to our diet.</li> <li>It has a low glycaemic index</li> <li>Long chains of glucose molecules/polysaccharides</li> </ul>	2	This is a high level question Do not allow 'energy giving' as this is in the question

C	luesti	on	Answer	Marks	Guidance
2	(b)		<ul> <li>Two marks. 2 x 1 mark</li> <li>One mark for a simple statement. Two marks for detailed description</li> <li>The relationship between energy input and energy used by the body</li> <li>This can depend on:         <ul> <li>Amount of energy we need varies with age/gender/and amount of activity</li> <li>If food consumed equals the energy used =weight stays the same</li> <li>Food consumed greater than energy consumed =weight gain</li> <li>Food consumed less than energy used= weight loss.</li> <li>BMR varies between individuals</li> </ul> </li> </ul>	2	Examples: the right amount of energy that our body needs (1mark) the right amount of energy that our body needs coming in to replace the energy that has been used (2marks)  Look out for the balance scales being drawn
2	(c)	(i)	<ul> <li>Two marks 2 x 1 mark</li> <li>Helps regulate the body temperature/sweat evaporates and cools the body</li> <li>Major component of body fluids / needed by all body processes/digestion / used in urine / sweat</li> <li>Helps the kidneys flush out harmful excess/toxins / poisons/elimination of waste / prevents constipation</li> <li>Prevents dehydration keepsbody hydrated/quenches thirst/replaces water/prevents headaches</li> <li>Lubricates joints and eyes</li> <li>Transports nutrients</li> <li>Provides minerals/fluoride</li> <li>Concentration/brain function</li> </ul>	2	Example of scattergun approach 'good source of minerals and vitamins' – not acceptable

C	uesti	ion	Answer		Guidance
2	(c)	(ii)	<ul> <li>One mark for each point. 2 x 1 mark</li> <li>Water fountains</li> <li>Water at meals times/break</li> <li>Allowing/encouraging water bottles in lessons</li> <li>TV/Media advertising/campaigns/sponsorship/posters</li> <li>Adding flavours/flavoured water</li> <li>Giving out free water bottles</li> <li>Celebrity endorsements on water drinking/eye catching labels</li> <li>Educating in lessons/parents - the benefits of water</li> </ul>	2	
2	(d)		Two marks 2 x 1 mark  CHD/Heart Disease/Heart condition  Diabetes  High blood pressure  Coeliac  Allergy to food or specific food named ( eg nuts)  Food intolerance/Lactose intolerance.  Pregnancy  Obesity/overweight/ fat  Anaemic  Cancer  Diverticula/Constipation  Suffering from or recovering from a long term illness  Rickets	2	Credit the health problem not any further explanation Do not accept: Anorexia Bulimia Heart problem Allergy ( this could be an allergy to other than food)
			Total	12	

Question	Answer	Marks	Guidance
3 (a)	One mark for each correct answer. 4 x 1 mark Four required  Sweet fizzy drink  Fruit juice / Fruit or vegetable smoothie.  Unsweetened/diet fizzy drink  Low calorie squash (diluted)  Milk/milk shake  Water  Yoghurt drink  Coffee or tea without sugar  Beef burger  Chicken/quorn/soya burger/100% beef/lean beef/ Vegetable burger  Cooked ham  Lower in fat beef burger  Adding named vegetables or fruit  Wholemeal cob/bread  Grilled burger/dry fried/oven  Cheese slice  Change to salad/or named vegetable or fruit  Use a lowered fat version.  Salted French fries  Unsalted French fries/lo salt/less salt/lightly salted/no salt fries /leave skins on potatoes  Large chunky chips  Low fat oven chips  Change to salad or named vegetable or fruit  Wedges  Baked potatoes/ new /boiled/steamed/rice/pasta	4	Look for meeting healthy eating guidelines  Do not accept: Don't cook in fat Remove cheese Oven chips – must be low fat! No sugar  Watch for repeated answers

Question	Answer		Guidance	
(b)	<ul> <li>Two marks. 2 x 1 mark</li> <li>One mark for a simple statement. Two marks for detailed description</li> <li>Current dietary trends – meeting healthy eating targets/linked to problems of increased obesity</li> <li>Social issues – low income or luxury product</li> <li>Environmental – locally grown ingredients/recycled materials/use of pesticides</li> <li>Ethical – GM foods/Organic foods/irradiation/free range</li> <li>Animal welfare – killing animals/factory or intensive farming/selective breeding</li> <li>Fair trade ingredients – fair wages etc</li> <li>Sustainability – carbon footprint of imported foods</li> <li>Safety of food products – packaging, labelling requirements.</li> <li>Suitable for vegetarians/religious beliefs/cultural groups-using halal meat</li> <li>Use of chemical additives- effect on children</li> </ul>	2	Examples: 'Does not affect the environment(' 1mark) 'Use organic ingredients so that it does not affect the environment '( 2 marks)	

Q	uestion	Answer	Marks	Guidan	ce
				Content	Levels of response
3	(c)	Description could include any of the following points  Ensures food is safe to eat  • Temperature control checks/Microbiological checks carried out-hot holding 63°C/Frigerator 0-5°C/Freezer -18°C  Reduces possible sources of contamination  • Cleaning and disinfecting checks/How can cross contamination be avoided from raw to cooked foods — Safe storage of foods in fridges/separate fridge's for raw and cooked foods.  Monitors working conditions  • Personal hygiene of staff — Personal training/uniforms/food hygiene certificate  • Working conditions of staff.  Enforces the law  • They can close down premises  • Issues notices to improve  • Recommend actions/Can seize and detain food/carryout tests  • Serve an improvement notice/take to court/Large fine can be imposed and imprisonment	6	<ul> <li>Environmental Health officers:</li> <li>Provide food safety advice</li> <li>Inspect food premises – the frequency of inspections depends on a risk rating given to a business (the higher the risk to food safety, the more often an enforcement officer will visit)</li> <li>Enforce legislation that relates to food</li> <li>Environmental Health Officers have the power to:</li> <li>Enter and inspect food premises</li> <li>Investigate outbreaks of food poisoning</li> <li>Remove suspect food and have it destroyed if it is considered unsafe to eat</li> <li>Serve improvement and prohibition notices</li> <li>Take food businesses to court for breaking food safety laws</li> </ul>	Candidates may use examples from different points. Look out for repetition.  When marking 'Levels of response' questions if answers are presented as a list then award Level 1 max and a specific mark 1 or 2 dependent on quality of list.  Do not apply ticks or annotations except Level 1, 2 or 3. For zero mark script as 'seen'. Mark these by reading all the answer and decide on an appropriate level then a specific mark.  Level 1 (1-2 marks)  Basic description showing limited understanding of the role of the environmental health officer. 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.  Level 2 (3-4 marks)  Adequate description, showing some understanding of the role of the environmental health officer There will be some use of specialist terms, although these may not

Question	Answer	Marks		Guidance
			Content	Levels of response
	<ul> <li>Serve an emergency prohibition order if there is a serious risk to health</li> <li>Law – Food safety act.</li> <li>Offers help and advice</li> <li>Staff training/stock rotation/</li> <li>Help with risk assessments/staff training.</li> <li>Inspects food outlets</li> <li>Make sure they meet with current legislation – Pest control/waste disposal/cross contamination</li> <li>Usually every 9 months to a year.</li> <li>Checks records</li> <li>HACCP to see if system is in place eg time and temperature logs.</li> <li>Staff training</li> <li>So that the staff re trained to work safely with food – Food Hygiene certificate.</li> <li>Investigate complaints/food poisoning</li> <li>Can be from a customer or an employee.</li> <li>May lead to notice being served.</li> </ul>		Content	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  Level 3 (5-6 marks)  Thorough description, showing detailed understanding of the role of the environmental health officer. 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.  0=no response worthy of credit
		1		

Q	Question		Answer	Marks	Guidance
4	(a)	(i)	<ul> <li>One mark for each correct answer. 1 x 1 mark</li> <li>Orange and mango fruit smoothie.</li> </ul>	1	There is only one answer to this (check if the answer is a number) Do not accept 'Fruity Juicy'
		(ii)	One mark for each correct answer. 1 x 1 mark  Orange drink.	1	'Do not accept: fair trade/concentrate'
4	(b)		One mark for each correct answer. 2 x 1 mark Two required  Formation of connective/body tissue  Helps heal wounds/cuts to heal  Aids calcium absorption  For blood vessel formation  Helps absorb iron/prevents anaemia  Prevents scurvy / healthy gums  Protects against infection/aids immune system/prevents respiratory infections / healthy immune system  Healthy skin  Destroys free radicals  Production of hormones in adrenal glands  Reduces damage caused by toxic chemicals / pollutants	2	Do not accept:  'blood formation' 'skin' /'for skin' /'good for skin'/'protect skin' ' prevents colds'

Question	Answer	Marks	Guidance
4 (c)	<ul> <li>One mark for each correct answer. 2 x 1 mark</li> <li>One mark for name of test</li> <li>One mark for reason</li> <li>Ranking test – to put drinks in order/to select the best one eg sweetness</li> <li>Rating – to show how much the testers like ot dislike the flavour of the drinks (or one aspect of the drinks)</li> <li>Star profile – used to describe appearance/taste/texture of the drinks</li> <li>Triangle test /'A' not 'A' – testers pick out the odd one out, or the two that are the same</li> <li>Hedonic Rating- give opinion from 'like' to 'dislike'</li> <li>Preference/acceptance tests- finds out the opinions</li> <li>Paired Preference – given two samples and choose favourite</li> <li>Paired comparison-to compare specific qualities</li> <li>Profile Tests- to find a detailed descriptive evaluation Eg Star Profile</li> <li>Blind testing – so they are not influenced by the appearance of the product</li> </ul>	2	Do not accept: 'Taste testing' or 'Tally Chart' Accept 'star diagram'  Candidates who have not correctly named a sensory test may gain a mark for any of the following reasons:  • Meeting specification points  • Modifying /adapting the drinks  • Finding favourite flavour fro consumer  • Finding out what appeals to consumer  • To taste other manufacturer's drinks

Question		n Answer	Marks	Guidance			
				Content	Levels of response		
4	(d)	Explanation could include any of the following points  Vitamin C is water soluble  Do not soak in water/wash in running water.  Easily oxidised by air and enzymes  Prepare just before cooking/Prevent loss by action of enzymes and oxidation  Use a sharp knife for preparation/Reduces the damage to the cells eg cabbage  Oxidation occurs when fruit and vegetables are cut and the cells are damaged eg browning of apples/potatoes.  Storage – Vitamin C is unstable in light  Store in a cool dry place  Handle carefully/bruising will reduce Vit C.	6	Serve and eat immediately Do not use bicarbonate of soda Keep skins on Peel thinly/use sharp knife Use raw vegetables Store in a dark, cool place Steaming reduces Vit C loss Use cooking liquid for gravy Cook quickly Plunge into boiling water Tear rather than cut greens/cabbage Use vegetables as fresh as possible Minimum amount of water Stir fry	When marking 'Levels of response' questions if answers are presented as a list then award Level 1 max and a specific mark 1 or 2 dependent on quality of list. For zero mark script as 'seen' Do not apply ticks or annotations except Level 1, 2 or 3. Mark these by reading all the answer and decide on an appropriate level then a specific mark.  Level 1 (1-2 marks)  Basic explanation, showing limited understanding of the problems of retaining vitamin C when preparing and cooking fruits and vegetables 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.		

Question	Answer	Marks	Guidance				
Question	Vit C easily destroyed by heat  Cook in a minimum of water/less water for Vit C to dissolve into/use cooking water as stock for	Marks	Content	Levels of response  Level 2 (3-4 marks)  Adequate explanation, showing some understanding of the problems of retaining vitamin C			
	<ul> <li>gravy/soups/stews</li> <li>Plunge into boiling water/immediately destroys the enzymes and reduces Vit C loss/Reduces cooking time/More Vit C is lost at warm temperatures</li> <li>Chop or shred finely/reduces actual cooking time eg Cabbage/potatoes</li> <li>Cook for a minimum length of time/Less likely to lose so much Vit C/Vegetables still firm when cooked.</li> <li>Stir fying cooks quickly with no loss of water</li> </ul>			when preparing and cooking fruits and vegetables. 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.  Level 3 (5-6 marks) Thorough explanation, showing detailed understanding of the problems of retaining vitamin C			
				when preparing and cooking fruits and vegetables. 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.  0=no response worth of credit			
	Total	12		•			

Question	Answer	Marks	Guidance
5 (a)	Four x 1 mark for clearly showing how they have met the specification 4 x 1 marks  Appeal to named target group  • Reference to age group/occasion/situation to support this  Creative new design The design must be different. Look for: • Original shape of cake/cakes • Combination of ingredients/flavours of sponge/filling/decoration • Interesting original decoration eg piping/components.  Be tasty • Original named flavours eg named fruit • Variation in textures to give mouth feel eg chopped nuts.  Colourful (Candidate needs to state/show the colour) • Use of specific named ingredients • Use of components eg named sweets/named fruits • Piping/icing techniques/decorations/sides covered/layered different colours.		The combination must create a realistic celebration cake product.  Target group: This must be clearly shown as it is a specification point. This may be part of the design or separately labelled do not accept 'everyone'  Do not use the same ingredient for more than one specification point

Q	uesti	on	Answer	Marks	Guidance
5	(b)	(i)	<ul> <li>One mark for each correct answer. 2 x 1 mark Two required</li> <li>An original/unique/individual/different product is made</li> <li>High quality product</li> <li>Can be specific to any occasion</li> <li>Can be a very personal product/customer's choice/specification/requirement.</li> <li>Can easily be adapted/variations easily made</li> </ul>	2	
5	(b)	(ii)	One mark for each correct answer. 2 x 1 mark Two required  Skilled staff required/training required  Can take a long time to make/manufacture  Can be expensive buy ingredients as not in bulk.  Staff wages may be high  Limited to the type of equipment available.  Limited numbers of products made	2	Do not accept opposites Do not accept: 'expensive' / 'costs more' unless qualified

Question	Answer	Marks	Guidance
5 (c)	<ul> <li>One mark for each correct answer. 4 x 1 mark</li> <li>Four required Points will be specific to their cake</li> <li>Checking quality of ingredients/components on arrival/check date marks</li> <li>Correct storage conditions for ingredients</li> <li>Accurate weighing of ingredients—to give correct consistency of mixture</li> <li>Time and speed of mixing — to have even texture</li> <li>Portion size into cake tins — equal shaped/weight cakes</li> <li>Temperature control—even cooking</li> <li>Time control — ensure even cooking and consistency in finish/cooked properly</li> <li>Colour sensor</li> <li>Cooling time — prevent a soggy finish</li> <li>Metal detector of foreign bodies</li> <li>Weight of finish cake/size</li> <li>Accuracy and finish of decoration.</li> <li>Visual check on appearance</li> <li>Sampling for flavour/sensory qualities/specific sensory qualities</li> </ul>	4	Question refers to quality control checks in the production of a cake not health and safety checks  Eg: work conditions /'maintenance of equipment'/ Safety of equipment' /packaging / personal hygiene  Candidates may give quality checks related to the craft production of a cake.  Example: Whisk to a creamy consistency Spread evenly in cake tins Cook until golden brown
	Total	12	
	Paper Total	60	

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