

Design and Technology (Food Technology)

General Certificate of Secondary Education

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

Mark Scheme for January 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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Annotations

Annotation	Meaning
	Unclear
	Caret sign to show omission
N/A	Highlight
	Level 1
	Level 2
	Level 3
	Repeat
	Noted but no credit given
	Tick

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 0°C this means it is a liquid at -10°C'). 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.

Section A

Question		Answer	Marks	Guidance
1		A	1	E
2		A	1	Between the farm where it was produced and home
3		B	1	Sold so the grower and producer are paid a fair price
4		D	1	July
5		B	1	Broken down totally by bacteria
6		<ul style="list-style-type: none"> • Mobius symbol • Recycle • Recycling • Suitable for recycling 	1	1 mark
7		<ul style="list-style-type: none"> • Blood cholesterol levels • Cancer • Clog/block arteries • Diabetes • Heart disease • High blood pressure • Narrowing of the arteries • Obesity/overweight/gaining weight • Strokes 	1	1 mark Do not accept heart attack / heart problems
8		<ul style="list-style-type: none"> • Bacillus cereus • Campylobacter • Clostridium (botulinum) • Clostridium (perfringens) • E.coli • Listeria • Pathogenic /pathogens • Salmonella • Staphylococcus (aureus) 	1	1 mark Do not accept harmful bacteria

Question	Answer	Marks	Guidance
9	<ul style="list-style-type: none"> • Allergic reactions • Asthma • Digestive disease • Eczema / rashes • Linked to hyperactivity • Neurological conditions • Pancreatic cancer • Side / harmful effects / long term effects 	1	1 mark Do not accept hyper
10	<ul style="list-style-type: none"> • Damage to the eyes • Heart disease. • Kidney damage/ failure • Lower blood pressure • Speeds up loss of calcium • Strokes 	1	1 mark
11	True	1	1 mark
12	True	1	1 mark
13	False	1	1 mark
14	True	1	1 mark
15	True	1	1 mark

Section B

Question			Answer	Marks	Guidance
16	(a)	(i)	<ul style="list-style-type: none"> Shows how the dish is attractive – garnish / decorating / use of colour / shape Have shown clearly two ingredients have been used from the list – look for 2 named / drawn foods State it is a sweet or savoury dish. 	3	3 x 1 mark Give credit for reheating the ingredients into a roast dinner / dinner on a plate eg sausage and mash Cooked turkey, sausages, carrots, sprouts, potatoes, tomatoes, butternut squash, double cream, cream cheese, crème fraiche, cheddar cheese, oranges, bananas, sponge cake.
	(a)	(ii)	<ul style="list-style-type: none"> Shows clearly one additional ingredient used in the dish 	1	1 mark Does not need to be shown in the diagram. Must not be an ingredient from the list

Question			Answer	Marks	Guidance	
					Content	Levels of response
	(b)		<ul style="list-style-type: none"> Careful planning of menus – only buying what is needed and sticking to the list / having a weekly menu plan/shopping lists. Check fridge / freezer / cupboards before shopping- to prevent over purchasing. Checking use by dates on foods and using oldest first / understanding the different types of date marks Composting – vegetable, fruit waste etc. Using a composter. Correct storage of foods which do not require temperature control – eg stay fresh longer bags, use of air tight containers, cloth bags for potatoes. 	6	Do not credit reference to packaging the question asks about food waste	Level 1 (0-2 marks) Basic explanation, if candidates only write in point form a maximum of 2 marks should be awarded, showing some understanding of how households could prevent the waste. There will be little or no use of specialist terms. Answers may be ambiguous or disorganized. Errors of grammar, punctuation and spelling Level 2 (3-4 marks) Adequate explanation, showing an understanding of how households could prevent the waste. There will be some use of specialist terms, although these may not always be used

Question			Answer	Marks	Guidance	
					Content	Levels of response
			<ul style="list-style-type: none"> • Don't be tempted by offers - unless can use them / they can be frozen • Freezing foods – gives examples • Gives examples of how leftover food can be reused (other than examples of foods in 16 a) • Portion control – measuring the amounts of food needed for meals – so that you do not cook more than is needed / may give relevant example • Reading of storage instructions - freezing foods if possible / to give them extra shelf life • Storing food correctly at the correct temperatures – gives examples of correct storage temperatures • Use of microwave to refresh foods eg cakes / bread 			<p>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 explanation, showing a clear understanding of how households could prevent the waste. 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
	(c)	<ul style="list-style-type: none"> • Classed as a high risk food • Contains protein / moist • Has a short shelf life/perishable food • Plan when to eat / to know when to use by / cook • Required by law • So consumers know how long it is safe to eat / gives consumers advice on when to eat / injure health/food poisoning 	2	2 x 1 mark Do not accept going off

Question		Answer	Marks	Guidance
	(d)	<ul style="list-style-type: none"> Fridge / chilled storage - 0 - 8°C at the bottom of the fridge wrapped / covered /sealed Freezer - stored at -18°C wrapped / sealed should be dated removal of air 	2	2 x 1 mark Accept either in fridge or freezer = 2 marks or fridge or freezer with explanation For fridges accept any temperature between 0 - 8°C
	(e)	<ul style="list-style-type: none"> Easy to manage stock control / restock To know when to remove it from the shelf To monitor stock 	1	1 mark Do not accept reference to consumer
17	(a)	<ul style="list-style-type: none"> Barn Battery Caged Enriched or modified cages Free range Furnished Organic Yarding 	2	2x1 mark Credit a clear description of a method.
	(b)	<ul style="list-style-type: none"> Battery / free range - Animal welfare / cruelty issues – consumers feel if chickens are kept in cages it is cruel / have the right to be free to roam / therefore prefer free range / outdoor reared products / flavour Cost – battery / barn eggs/ chickens are cheaper to produce / cheaper in price for the consumer Organic / without the use of chemicals – better taste / quality / not sure of the effects of chemicals on health 	2	2 x 1 mark Candidates show understanding of which they will or will not buy with an explanation

Question		Answer	Marks	Guidance
	(c) (i)	<ul style="list-style-type: none"> Altering / modifying /changing the genes / DNA within the food Changing the genetic characteristics 	1	1 mark
	(ii)	<ul style="list-style-type: none"> Can make production costs cheaper / cost efficient Extend the growing season Food can grow in adverse conditions eg drought, frost etc. Giving it improved characteristics / foods do not deteriorate as quickly / eg tomatoes that last longer Grows more quickly Improving the nutritional profile / give a relevant example eg blackcurrants with higher vitamin C content / Vitamin A 'added to 3rd world foods to prevent blindness'./ golden rice Making products resistant to disease / gives relevant example eg corn, maize, soya, rice More able to feed a rapidly increasing population - 6 billion doubling in the next 50 years./any ref to prevention of starvation/solving world hunger Quality of food improved / taste / colour / texture / appearance Quantity / Increasing food quantity production Resistant to insects Resistant/ tolerance to herbicides / pesticides 	2	2 x1 mark

Question	Answer	Marks	Guidance
(iii)	<ul style="list-style-type: none"> • Concerns about effect on health / not known / long term effects / allergies / harmful • Consumers do not understand what GM is / not a natural process / ethical • Crossbreeding leading to 'superweeds' / mutations • Effect on the environment / pollen from plants can be moved around / can affect other crops in the food chain • Not always clear on labelling / not shown if less than 1% / no labelling of animals fed on GM feed • Reduced effectiveness of pesticides • Welfare of animals/ unintended harm to other organisms eg butterflies 	2	2x1 mark
(d)	<ul style="list-style-type: none"> • Deforestation / rain forests are being cut down / preserve rain forests • Droughts • Floods • Less miles / less food miles / carbon footprint • Preserve the local way of life / farming communities • Reduced transport costs • Weather = changes in weather patterns 	2	2 x 1 mark
(e)	<ul style="list-style-type: none"> • Dairy free diet – allergic reaction • Diabetes - as protein contained in soya milk does not affect kidney function and good for weight maintenance. • Lactose intolerant – does not contain milk sugar / lactose found in milk / allergic / not a dairy product • Low cholesterol - less saturated fat • Low fat diet / weight loss / weight watchers / slimming - less saturated fat / less fat than whole milk / semi skimmed • Vegans – don't eat animal protein / good source of protein / HBV protein • Vegetarians – linked to animal welfare issues 	2	2 x1 mark Candidates must show a clear understanding between the diet and reason

Question	Answer	Marks	Guidance
(f)	<ul style="list-style-type: none"> • Calcium – strong bones and teeth /heart regulation/blood clotting/nerve and muscle function/prevents stunted growth/prevents rickets/prevents osteoporosis • Carbohydrate / sugar - energy • Fat – energy / protect organs • Fibre – prevents constipation / named digestive disorder / cancer / helps with the digestive system / healthy bowels • Iron – prevents anaemia / needed to make haemoglobin / linked to transporting oxygen round the body • Magnesium – prevents muscle spasms, anxiety • Potassium – hypertension, link to strokes • Protein – growth / repair / energy /contains all essential amino acids • Sodium – control the amount of water in the body / control nerves and muscles/to help the body use energy • Vitamin A – reference to healthy eyes /helps the body to grow and develop/acts as an antioxidant • Vitamin D – strong bones / teeth / absorption calcium • Vitamins B – release of energy from foods 	2	2 x1 mark 1 mark for nutrient 1 mark for the function

Question		Answer	Marks	Guidance
18	(a)	<ul style="list-style-type: none"> • Better flavour / juicy / sweet / intense flavour / taste • Local / UK farmers / grown in UK • More information on how it has been grown • More weight • Product description • Reduces CO2 emissions / reduces carbon foot print • Reduces the food miles • Wants small tomatoes / cherry 	2	2x1 marks
	(b)	<ul style="list-style-type: none"> • Cheaper / reference to cost • Longer shelf life / reference to the date stamp • Prefer the taste • Smaller amount • Wants larger tomatoes 	1	1 mark Do not accept repeated answers from 18a
	(c)	<ul style="list-style-type: none"> • Blood vessel formation • Formation of connective tissue / all body tissue • Healthy skin • Help wounds / cuts to heal • Helps absorption of calcium • Helps to absorb iron / prevents anaemia • Immune system / prevents respiratory infections eg colds / healthy immune system • Prevents scurvy / healthy gums • Production of hormones in adrenal glands • Reduce damage caused by toxic chemicals / pollutants 	3	3 x 1 mark

Question		Answer	Marks	Guidance
	(d) (i)	<ul style="list-style-type: none"> • Red tractor 	1	1 mark
	(ii)	<ul style="list-style-type: none"> • From UK farms • Guarantees the food comes from farms and companies that have high standards of food safety / hygiene / standards • High standard of animal welfare • High standards of environmental protection / responsible use of pesticides • Mark of quality • Product traceability • Supports the production of foods in the UK / this country 	2	2x1 mark
	(e)	<ul style="list-style-type: none"> • Biodegradable / degradable plastic • Compostable trays / plastic • Ensure all packaging can be recycled • Put a recycling symbol on • Use cardboard tray • Use less packaging • Use packaging from a sustainable source / managed forests / renewable • Use packaging made from recycled materials • Use paper bags • Use potato starch clear packaging / plastic from plants 	2	2x1 mark

Question		Answer			Marks	Guidance
	(f)	Ingredients in Sauce	Ingredient changed / modified to	Reason	4	4 x 1 mark Do not accept low fat butter or cream cheese Do not accept the same reason
		Tomato puree	<ul style="list-style-type: none"> Tomatoes 	<ul style="list-style-type: none"> Increase fibre content Reduce the salt content Improved vitamin content /Vitamin C 		
		Tomatoes / onion	<ul style="list-style-type: none"> Increase the proportion / amount 	<ul style="list-style-type: none"> Increase fibre content Contributes to 5 a day Increase vitamin C 		
		Full fat cream cheese	<ul style="list-style-type: none"> Reduced fat / light cheese Reduce the amount of cheese / lower the proportion 	<ul style="list-style-type: none"> Reduce fat content Reduce saturated fat Reduces calories Reduce cholesterol 		
		Streaky Bacon	<ul style="list-style-type: none"> Lean Bacon Remove fat Add vegetables Reduce amount 	<ul style="list-style-type: none"> Reduce the fat content Less saturated fat 		
		Butter	<ul style="list-style-type: none"> Vegetable oil / accept any named oil 	<ul style="list-style-type: none"> Reduce saturated fat Reduce cholesterol 		
			<ul style="list-style-type: none"> Margarine / spread low fat spread Reduce amount 	<ul style="list-style-type: none"> Reduces fat Reduce calories Reduced saturated fat Reduced cholesterol 		
			<ul style="list-style-type: none"> Reduced salt butter/slightly salted/unsalted 	<ul style="list-style-type: none"> Reduces salt content 		

Question			Answer			Marks	Guidance
			Salt <ul style="list-style-type: none"> • Remove / don't use • Accept alternative named herb / spice • Lo salt / salt substitute • Reduce amount 	<ul style="list-style-type: none"> • Reduce sodium content • Reduce salt content • Reduce sodium 		If reduce salt – reason must be reduce sodium	
		Glucose syrup /sugar <ul style="list-style-type: none"> • Named different flavour • Remove / reduce 	<ul style="list-style-type: none"> • Reduce sugar • Less calories 				

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