

Design and Technology (Food Technology)

General Certificate of Secondary Education

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

Mark Scheme for June 2011

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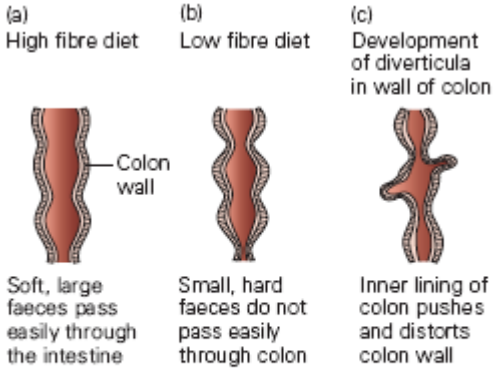
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Question			Expected Answers	Mark	Rationale
1	(a)	(i)	State the name of one raising agent in bread <ul style="list-style-type: none"> • Yeast • Bicarbonate of soda 	[1]	1 x 1 mark One mark for correct answer Do not accept: self raising flour/carbon dioxide
		(ii)	Ingredients to increase the fibre in bread: <ul style="list-style-type: none"> • Whole meal flour/wholewheat flour (do not accept 'brown') • Named suitable vegetables • Named suitable fruits • Dried fruits • Addition of bran/oats/wholegrain/ • Nuts/seeds 	[2]	2 x 1 mark Do not credit the same answer twice
	(b)		Functions of: <ul style="list-style-type: none"> • Strong plain flour – provides gluten/protein/bulk/texture/structure • Oil/fat – improves the flavour/reduces staling/keeps it fresh/extends shelf life/adds moisture/improves colour/holds or binds ingredients/texture • Salt – adds flavour/improves the dough/strengthens gluten/controls the action of yeast/improves taste 	[3]	3 x 1 mark Do not credit the same answer twice
	(c)		Two advantages of continuous flow production. <ul style="list-style-type: none"> • Only need a few staff-reduces wages • People are not involved therefore less risk of contamination • Less chance of human error • Inexpensive to run/increased profit/cheaper to run than other methods • Equipment used all of the time/non stop 24/7/more efficient • More products can be made in a limited amount of time/quickly manufactured/fast process • Can use less skilled staff for repetitive jobs/less training needed • All products are exactly the same appearance/consistent quality • Raw materials purchased in bulk-reduces cost • Meets high demand for bread • Cheapest method for producing bread 	[2]	2x 1mark Do not accept just quicker/cheaper/faster unless qualified

Question	Expected Answers	Mark	Rationale
(d)	<p>Fortification is: addition of vitamins and minerals to enhance/improve the nutritional value of a food product/to enhance/improve the nutritional content of food products</p> <p>Examples of fortification: Iron – bread Vitamin B/Folic Acid – breakfast cereals Calcium – flour Fibre – 50/50 bread Vitamin C – children’s drinks Protein – power drinks/shakes Vitamins A/D – margarine</p>	[2]	<p>2 x 1 marks for detailed answer e.g. <u>For 2 marks :</u> The nutritional content of a food is enhanced for example iron is added to bread.</p> <p><u>For 1 mark</u> Adding nutrients to improve nutritional value.</p> <p>Any specific examples listed must be connected to the correct food</p> <p>Do not accept Omega 3 – eggs as this is not fortification</p>
(e)	<p>Name two products that could be made with left over bread. Allow any two from the following list or any suitable named product</p> <ul style="list-style-type: none"> • Meat loaf • Summer pudding • Apple charlotte/Brown Betty/treacle tart • Rissoles/meat balls/burgers • Bread and butter pudding • Croutons • Bread crumbs/for coating/toppings • Stuffing • Cheese on toast/toasties/French toast 	[2]	<p>2 x 1 mark Do not accept : sandwiches/toast</p>
Total		[12]	

Question			Expected Answers	Mark	Rationale
2	(a)	(i)	<p>Target group for breakfast cereal: Any suitable named target group eg</p> <ul style="list-style-type: none"> • Children • Teenagers • Families <p>Reason:</p> <ul style="list-style-type: none"> • Sugar coated/sweet product • Gives energy • Cartoon on the package/packaging appeals • Will appeal to families as it is both wheat (healthier choice) and sugar (children) 	[2]	2 x 1 mark
		(ii)	<p>Target group who cannot eat cereal;</p> <ul style="list-style-type: none"> • Coeliacs/gluten free diets/wheat allergy/intolerance • Diabetics 	[1]	1 x 1 mark Do not accept reference to 'hyper'
	(b)		<p>Increase in consumption of cereal bars :</p> <ul style="list-style-type: none"> • No time for breakfast/quick and easy to eat • Eating on the go/hand held snack • Individually wrapped/easy to store/measured portion size • Can be eaten at any time/lunchboxes/snacks • Perceived as being a healthy product/better than sweets/chocolate • Good source of fibre/energy/carbohydrate/nutrition • Advertised/promoted more • No preparation time • Trend for more snack eating • Large variety available • Cereal bars can be fortified • Made from favourite cereals 	[2]	2 x 1 mark Do not accept 'cheaper than cereals' Do not accept easier/quicker/faster/convenient unless qualified

Question	Expected Answers	Mark	Rationale
(c)	<p>Breakfast is an important meal because:</p> <ul style="list-style-type: none"> • Breaks the 'fast' from overnight/not eaten for 12 hours/first meal/ Blood sugar levels are low in the morning • Provides energy for the morning/slow release of energy/You will feel full until lunchtime • If you do not eat breakfast you will crave sweet snacks/leads to obesity • Improves ability to think/brainpower • Rehydrates the body • Increase metabolic rate and so is good for those trying to loose weight • Breakfast foods provide nutrients/protein/fibre/calcium etc 	[3]	<p>3 x 1 mark for three points Or 1 x 1 mark and 1 x 2 mark for a fuller explanation Do not allow 'keeps you going' unless fully qualified and supported</p>

Question	Expected Answers	Mark	Rationale
(d)	<p>Explain how fibre aids the digestive system</p> <ul style="list-style-type: none"> • The body cannot digest fibre – it forms the bulk to help bowel movement • It absorbs water – keeps the faeces soft/prevents constipation • Soft faeces easily pass through the digestive system – helps the flow in the digestive system • Small hard faeces do not pass easily through the colon – causing ruptures in the intestine • The inner lining of the colon is pushed and distorted – causing diverticular disease • It prevents various bowel disorders/bowel cancer/appendicitis /piles <div style="text-align: center;">  <p>(a) High fibre diet (b) Low fibre diet (c) Development of diverticula in wall of colon</p> <p>Soft, large faeces pass easily through the intestine Small, hard faeces do not pass easily through the colon Inner lining of colon pushes and distorts colon wall</p> </div> <p>Figure 2.13 Diagram to show food waste passing through the digestive system</p>	[4]	<p>4 x 1 mark for clear explanation 2 x 2 marks for fuller explanations</p> <p>Marks can be awarded for any combination of points and explanations</p> <p>Candidates may support their answers by using relevant labelled diagrams.</p> <p>Allow one mark for ‘prevents constipation’ ‘helps bowel movement’</p>
Total		[12]	

Question			Expected Answers	Mark	Rationale
3	(a)	(i)	Protein in: <ul style="list-style-type: none"> • Beef • Peas • Potatoes 	[1]	1 x 1 mark Potatoes have 2g per 100g
		(ii)	Function of protein <ul style="list-style-type: none"> • Body building/growth/muscles • Cell repair/maintenance • Energy • Enzyme and hormone formation • Transportation of minerals (iron) 	[2]	2 x 1 mark Credit 'growth' and 'repair' if they are on the same line
		(iii)	Function of iron <ul style="list-style-type: none"> • Formation of red blood cells/haemoglobin /blood cells • Carries oxygen around the body • Prevents anaemia/tiredness 	[1]	1 x 1 mark Do not credit/'healthy blood'/'helps blood' /'blood flow'
	(b)		Why is it important not to refreeze after thawing. <ul style="list-style-type: none"> • Micro organisms/Bacteria are only dormant in frozen foods – so will grow when thawed • Micro organisms/bacteria grow very quickly in thawed foods – because cells are damaged • Food may have reached danger zone 8-63°C-bacteria grow quickly/thrive • It will not be safe to eat – It may cause food poisoning when it is thawed for a 2nd time • Increased number of micro organisms when the food is thawed second time – which grow very quickly • Leads to growth of pathogenic bacteria – which causes food poisoning • Bacteria have time to multiply – spores or toxins could develop 	[2]	2 x 1 mark 1 mark for a basic answer. 2 marks for a full explanation For 2 marks Bacteria will have grown in the thawed food and so wont be killed if it's re-frozen and could cause food poisoning For 1 mark allow Prevents food poisoning

Question	Expected Answers	Mark	Rationale
(c*)	<p>Discussion points to include:</p> <ul style="list-style-type: none"> • Nutritional value of vitamins and minerals retained • Can have good quality appearance/colour/flavour/texture • Saves preparation time/clearing up time • Available in single portions/suitable for people living on their own eg elderly/students • No skill required/easy to prepare and cook/cooking instructions included/easy to follow instructions • Consistent quality • Little equipment needed to prepare and cook • Can be cheaper than making their own/buying separate ingredients • Suitable for people with busy lifestyles • Could save energy in the home/microwave able • Wide variety of products available • No wastage/portioned sized/prevents over eating • Cook from frozen/microwave able • Long storage time/helps meal planning and shopping • Handy in emergencies • Gives opportunity to try out different and new meals/multi-cultural products • Some people do not like cooking • Some are fortified • Special diet alternatives ie low fat/vegetarian/allergies • Luxury/low budget ranges to suit different pockets • Special offer meal deals • Gives opportunity to eat foods out of season 	[6]	<p>6 x 6 marks A* Question <u>Level 1 (0-2 marks)</u> Basic discussion, showing limited understanding of the benefits of frozen ready meals .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>If answers are presented as a simple list of bullet points award L 1 as maximum mark <u>Level 2 (3-4 marks)</u> Adequate discussion, showing some understanding of the benefits of frozen ready meals. 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><u>Level 3 (5-6 marks)</u> Thorough discussion, showing detailed understanding of the benefits of frozen ready meals. 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>Do not accept cheaper/quicker/faster/easier etc unless qualified Terms to look for: convenience/portion size/consistent quality</p>
	Total	[12]	

Question			Expected Answers	Mark	Rationale
4	(a)	(i)	<p>State three functions of eggs in food preparation.</p> <ul style="list-style-type: none"> • Coagulation/Thickening/Setting • Emulsification • Aerating/raising agent/foam formation – holds air • Binding/combining • Garnish • Coating/example-breadcrumbs sticking to fish/enrobing • Glazing • Enriching • Colour/flavour • Adding nutritional value 	[3]	<p>3 x 1 mark</p> <p>Accept a description of a function eg whites can be whisked for meringue</p>
	(b)	(i)	<p>State one other high risk food Accept any suitable food</p> <ul style="list-style-type: none"> • Cooked meats • Cream/cream products • Fish/prawns • Meats/Pate/Poultry • Prepared salads • Cooked rice (not raw!) • Gravy • Homemade mayonnaise • Chilled foods/desserts 	[1]	<p>1 x 1 mark for high risk food</p> <p>Do NOT accept eggs</p>
		(ii)	<p>Explain what is meant by high risk</p> <ul style="list-style-type: none"> • A food that is high in protein and moisture – it will spoil in a short amount of time • A food that encourages/supports bacterial growth-in a short amount of time • A moist high protein food that is likely to give you food poisoning – it has not been stored/prepared/cooked/properly eg Salmonella • A high protein food easily infected with microorganisms– left in the danger zone(5°C to 63°C) for too long 	[2]	<p>1 x 2 marks for full explanation or 2 x 1 mark for two points Do not accept 'causes food poisoning' unless qualified. eg 'products that are not cooked thoroughly t may cause food poisoning'</p>

Question	Expected Answers	Mark	Rationale
(c)	<p>Discuss why a family may choose to buy organic products Discussion may include:</p> <ul style="list-style-type: none"> • Objection to chemical fertilisers/pesticides • Do not want any GM foods • Concern about animal welfare • Objection to factory farmed foods • Do not like the way animals are being treated/are being fed • Do not want antibiotics etc given to animals • Selective breeding has been used to increase yields • Happier that animals are allowed to forage/have continuous daytime access to vegetation • Organic foods taste better • Respect for the environment/soil structure and wildlife. • Organic foods avoid health risks associated with a combination of chemicals uses in pesticides and herbicides: • No legal standards for any animal except chickens • Media esp Jamie Oliver has had an influence particularly on children • Recent studies show salmonella lower in free range eggs • Like to buy local food/foods in season/grow their own • There is a wider range available 	[6]	<p>6 x 6 marks This is an A * Question <u>Level 1 (0-2 marks)</u> Basic discussion, showing limited understanding of why a family may choose to buy organic products. 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>If answers are presented as a simple list of bullet points award L 1 as maximum mark <u>Level 2 (3-4 marks)</u> Adequate discussion, showing some understanding of why a family may choose to buy organic products . 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><u>Level 3 (5-6 marks)</u> Thorough discussion, showing detailed understanding of why a family may choose to buy organic products the moral issues, costs implications and the alternatives. 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>Technical terms – genetically modified/pesticides/fertilisers/herbisides/anitibiotics This is NOT carbon footprint/fair trade</p>
Total		[12]	

Question	Expected Answers	Mark	Rationale
5 (a)	<p>Four marks for clearly describing how they have met the specification</p> <p><u>Main Course product</u></p> <p>Be part of a low budget range Examples:</p> <ul style="list-style-type: none"> • Cheaper cuts of meat • Pulses to bulk/veg/potatoes/rice/pasta etc • TVP/Quorn as it is cheaper than meat • Substitutes for expensive ingredients eg yoghurt not cream • Local foods/less transport costs <p>Contribute to ‘5 a day’</p> <ul style="list-style-type: none"> • Include named fruit or vegetable <p>Appeal to a wide age range</p> <ul style="list-style-type: none"> • Exciting flavour/combination of ingredients justified to appeal • Named target groups/ages justified • Attractive finish (described)/named shape/colour combinations • Portion sizes/number of serving ie 4 portions for a family <p>Be suitable to reheat in a microwave</p> <ul style="list-style-type: none"> • Have a suitable combination of ingredients/named product that can be put straight into a microwave • Packaging material suitable to be microwaved • Ready cooked therefore only need reheating 	[4]	<p>4 x 1 marks for showing how it meets that specification Must be a main course product Served hot must function as a whole product</p> <p>Candidates must show how they have met the specification.</p> <p>Examiners must not make assumptions.</p> <p>Do not credit the same ingredient twice</p> <p>Watch for components that cannot be reheated in a microwave – eg Pastry/Yorkshire pudding/salads</p>
(b)	<p>Reasons why the manufacturer has included ‘5 a day’ in the specification</p> <ul style="list-style-type: none"> • Include in a healthy option range/Current trends in food sales • Good selling point in advertisements/promotions • Meet Healthy Eating Government Guidelines/Eatwell plate • Encourages people to eat more healthily/help reduce obesity • Widen market potential/responding to demand • Appeal to weight reducing diets/ • Improves the nutritional content of the product • Increases the reputation of the manufacturer/increases profit 	[2]	<p>2 x 1 mark Do not credit ‘5 a day’ ‘healthy’ unless justified</p>

Question	Expected Answers	Mark	Rationale
(c)	<p>Two ways that a family can reduce energy consumption when cooking</p> <ul style="list-style-type: none"> • Only partly fill the kettle/use boiling water for cooking/use veg water for gravy • Never put the oven on for only one food product/use top oven • Use a tiered steamer/steamer with several vegetables in it • Use a pressure cooker • Turn the heat down under pans/use correct size pan for ring • Put a lid on pans/correct size pan • Stir fry • Cut food small so that it cooks faster • Use hand skills ie grating/chopping/Avoid using electrical equipment • Try to make 'one pan/pot' recipes – slow cooker • Cook double amounts at one go • Cook the same meal for all the family 	[2]	<p>2 x 1 mark</p> <p>Do not accept 'grilling' 'Cooking lots at once' (vague)</p>
(d)	<p>Explain why sensory analysis is used in the development and manufacture of a food product.</p> <ul style="list-style-type: none"> • Evaluation/comparison of existing products – to assess market potential • Meeting the specification – to meet target groups needs • To allow product development to take place – to produce a quality product • Identifying weaknesses and areas that needs improvement – to allow modifications for a successful product • Allows manufacturer to select one product for development – to try a small scale run. • After changes to the production process of ingredients used – to make sure product is successful • Quality assurance – makes sure that each batch is the same • Checks standards of quality throughout production – to maintain quality/avoid wastage of ingredients. • Allows the manufacturer to develop a 'new product' – to try combinations of ingredients 		<p>2 x 2 marks for full explanations 4 x 1 mark for clear points</p> <p>Do not accept: Food hygiene/safety/equipment</p>

Question	Expected Answers	Mark	Rationale
	<ul style="list-style-type: none">To assess the market potential – to see if it will sell/make profitTo improve specific qualities ie flavour/appearance/texture – to make it more appealing	[4]	
	Total	[12]	
	Paper Total	[60]	

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

14 – 19 Qualifications (General)

Telephone: 01223 553998

Facsimile: 01223 552627

Email: general.qualifications@ocr.org.uk

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OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553

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