

GCSE

Home Economics (Food and Nutrition)

GCSE J431

Principles of Food and Nutrition B003

Mark Scheme for June 2010

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Question number	Answer	Marks		Rationale				
Question 1	uestion 1							
(a)	How much water are we advised to drink per day? One mark for correct answer.							
	2-4 litres At least 2 litres							
	8-12 glasses 3-5 pints.	[1x1]	[1]					
(b) (i)	Give THREE functions of water in the body.							
	One mark for each correct answer, THREE required.							
	For concentration/performance/brain function Decrease fatigue/ more energy Decreased risk of migraines/headaches							
	Decreased risk of kidney problems Light urine/wee/faeces Normal blood pressure/less risk of high blood pressure Decreases likelihood of constipation/helps bowel movements							
	Maintain cell function/healthy skin Regulate temperature Maintain hydration/to stay hydrated							
	Aids digestion Body fluids (ie) blood, saliva, joints Chemical reactions							
	Mucous membranes healthy Absorbs nutrients	[3x1]	[3]					

Question number	Answer	Answer Marks		Rationale
(ii)	Give THREE occasions when we need to drink more water. One mark for each correct answer, THREE required. Heat/high temperatures/humidity Exercise/any specific sport or activity/sweating/perspiring When alcohol is consumed When caffeine/tea/coffee are consumed			
	When carbonated drinks are consumed For an increased fibre intake Lactation/Lactating mothers Pregnancy When ill/specific illness Raised temperature Vomiting Diarrhoea. When dehydrated	[3x1]	[3]	
(iii)	Name TWO foods which have a high water content. One mark for each correct answer, a maximum of TWO. Tomatoes Cucumber Lettuce Spinach Rocket Watermelon Soup or named soup Fruit Vegetables Any sensible suggestion.			Do not accept "potatoes"
	Do not accept "drinks" or named drinks (ie) juice.	[2x1]	[2]	

Question number	Answer	Marks		Rationale
(c)	Identify THREE ways of reducing our salt intake. One mark for each correct answer, THREE required. Use less salt in cooking Eat less salty foods/foods with less salt Do not add salt at the table/do not put a salt pot out/add less salt to food at the table Consume less processed foods Cook fresh foods Stay hydrated (when cooking) Read packets – be aware of how much salt (sodium) is in food By lo-salt Don't buy salted products such as bacon, butter, tinned food in salt/buy alternatives to these such as unsalted bacon or butter/buy products in spring water rather than brine. Rinse salted/brined canned products Use herbs or spices for flavourings/seasonings.	[3x1]	[3]	Do not accept "eat less salt"
(d) (i)	What is meant by the term "fortified food"? Maximum of ONE mark. The addition of a nutrient to a food or ingredient.	[1x1]	[1]	
(ii)	Identify THREE foods which are fortified. One mark for each correct answer, maximum of THREE. Bread Flour Breakfast cereal Margarine Orange Juice	[3x1]	[3]	

Question number	Answ	ver ver	Marks
(iii)	Describe TWO reasons why food		
	One mark for each correct answer,	a maximum of FOUR.	
	To target a specific group of the po	pulation with specific nutrients	
	Vehicle for combating specific nutri a community or population	tional deficiencies prevalent in	
	Promotion of health or health bene	fits of the nutrient	
	Restore the nutrients naturally four	nd in food before processing	
	Enhancing nutritional value of the f	ood/ingredient	
	To help sell the product – only if qu	alified	
	Food is used as a carrier – specifyi population group using the followin	g examples:	
	Population or deficiency	Nutrient	
	Pregnancy	Folic acid or folate	
	Prevention of:		
	Neural tube defect Metoblastic anaemia		
	Helps brain development		
	Children	Omega-3	
	Elderly	Onlega-3	
	Brain development		
	Women/adolescents (females)	Iron	
	Prevention of anaemia		
	White bread flour – to restore		
	natural levels		

			
Prevention of:	Thiamin		
Metabolism problems			
Nervous disorders			
Beriberi			
There is an increased need in			
pregnancy, lactation, cancer and			
strenuous exercise			
White bread flour – to restore			
natural levels			
White bread flour – to restore	Calcium		
natural levels			
Vitamin A deficiency is one of the	Vitamin A		
top three major health problems			
worldwide			
Prevention of general blindness			
and night blindness			
Makes more commonly			
consumed margarine like butter			
Prevention of:	Vitamin D		
Rickets			
Osteomalacia			
Soft bones			
Makes more commonly			
consumed margarine like butter			
Helps fat metabolism	Vitamin E		
Reduction in the risk of	, na =		
developing cancer and heart			
disease			
Makes more commonly			
consumed margarine like butter			
Helps fat metabolism	Vitamin K		
Reduction in the risk of			
developing cancer and heart			
disease			
Makes more commonly			
consumed margarine like butter			

Question number	Answe	er	Ma	rks	Rationale
	Prevention of: Anaemia Oily skin Cracks and inflammation of the mouth	Riboflavin (Vitamin B ₂) Vitamin B ₆			
	Prevention of: Pellagra Dermatitis Diarrhoea Dementia	Niacin (nicotinic acid)			
	Scurvy Added to replace what is lost in processing	Vitamin C			
	Goutier Iodine deficiency	lodine			
	Do no accept "To make healthier	."	[2x2]	[4]	
	Question 1 total		[20]		

Question	Answer	Marks		Rationale
number				
Question :	State ONE way in which the spaghetti bolognese recipe could be adapted to reduce fat. One mark for each correct answer Use a lean beef mince Use turkey mince Low fat cheese Omit/don't use cheese Use a strong cheese but use less Use Quorn/tofu/soya/meat alternative Use beans/pulses/lentils.	[1x1]	[1]	
(ii)	State ONE way the spaghetti bolognese recipe could be adapted to increase fibre (NSP)? One mark for one correct answer, ONE required. Add beans or lentils Use wholemeal flour Use wholemeal spaghetti Do not peel the carrot Include more vegetables - such as peppers or peas Use bran as a thickener.	[1x1]	[1]	
(iii)	Give ONE reasons why fibre (NSP) is needed in the body. One mark for each correct answer Maintains the digestive system/helps prevent constipation/helps bowel movement/keeps intestines healthy Cancer preventing Increases the feeling of satiety/less hungry Reduces cholesterol	[1x1]	[1]	Do not accept "to keep you healthy" Accept "helps go to the toilet"

	stion nber	Answer	Marks		Rationale
(b)	(i)	State how the spaghetti bolognese recipe could be adapted to make it suitable for vegetarians. One mark for the correct answer, ONE required. Use Quorn/tofu/soya mince/meat alternative instead of minced beef Use lentils, pulses, beans and or peas instead of minced beef Use vegetables instead of minced beef	[1x1]	[1]	
	(ii)	Explain why the spaghetti bolognese recipe is not suitable for coeliacs. One mark for – cannot eat the flour/spaghetti Second mark – mention of gluten.	[2x1]	[2]	"gluten" on own would be 1 mark only unless qualified
(c)	(i)	Give one function of each of the following ingredients in the sponge cake mixture. One mark for each correct answer for each ingredient, THREE required in total. Margarine – colour/ flavour/ keeps the cake moist/ helps the mixture to trap air. Eggs – binding/ traps air/ helps to set cake once risen during baking. Flour – bulking agent/ forms structure/ raising agent (do not accept provides fibre or NSP).	[3x1]	[3]	Do not accept anything regarding nutrient information for any function
	(ii)	Explain the qualities of a successfully cooked sponge cake. This question is marked according to the quality of response. High level response 4-6 marks Structured sentence Detailed explanation with clear reasoning Technical terminology used correctly.			Maximum of 3 marks if just a list of qualities and no explanation

uestion umber	Ans	swer	Ма	rks	Rationale
	Mid Level response 3-4 marks Basic information, some in a bul There may be some attempt at r not always correct Low level response 0-2 marks Bullet point answers Limited suggestions No reasoning/explanation as to	let point format easoning/explanation, although			
	Qualities of a sponge mixture	Explanation of qualities			
	Even/well risen	Raising agents Incorporation of air			
	Even colour/appropriate browning/golden brown	Cooked for an appropriate amount of time and at the correct temperature			
	Evenly cooked, not sticky in the middle	Cooked at the right temperature for long enough			
	Good flavour	Correct mixture and ingredients			
	Light texture/not dense/heavy or soft/not crumbly/not dry/moist	Correct ingredients and recipe			
	Springy/not stodgy	Well risen from incorporation of air	[6]	[6]	
	Question 2 total		[15]		

Question number	Answer	Ма	rks	Rationale
Question 3				
(a)	On the thermometer below identify the temperature at which the following occurs:			
	0-5°C; refrigerator temperature (already labelled).			
	One mark for each correct label, THREE required.			
	72°C Bacteria destroyed			
	- 18°C Freezer temperature			
	05-60°C Danger zone for bacterial growth.	[3x1]	[3]	
(b)	Identify TWO bacteria that cause food poisoning. One mark for each correct answer, TWO required.			Accept incorrect spelling providing it is clear what the candidate means
	Escherichia coli (E-coli)			
	Salmonella			
	Clostridium perfringes/clostridium/ botulinium Staphylococcus			
	Campylobacter			
	Listeria			
	Bacillus cereus	[2x1]	[2]	

Question number		Answer	Ma	rks	Rationale
c) (i)	example of food prese	al preservation methods with an erved by this method. ect answer and one mark for each			Accept "freezing" with a suitable product Accept responses that are correct but not listed (ie) pickling/bottling
	Commercial preservation method. EG. (TWO required)	Food preserved by this method. EG. (TWO required)			
	Canning	Any tinned product such as fruit, beans, chilli, sauces, any sensible suggestion			
	Accelerated Freeze Drying	Frozen meats, fish, any sensible suggestion			
	Controlled atmosphere packaging	Fruit, any sensible suggestion			
	Vacuum packaging	Bacon, ground coffee, any sensible suggestion			
	Cook-chill	Ready meals, any sensible suggestion			
	Modified atmosphere packaging (MAP)	Ready-meals, meat, fish, crisps, any sensible suggestion			
	Irradiation	Herbs, strawberries, salads, any sensible suggestion			
	Cryogenic freezing	Frozen vegetables, any sensible suggestion			
	Jamming	Suitable jam			
	Salting	Fish			
	Drying	Herbs, milk, soup - any sensible suggestion	[2x2]	[4]	

Question	Answer	Marks	Rationale
number			
(ii)	Explain good hygiene practice in the kitchen.		Detailed explanation with clear reasoning.
	This question is marked according to the quality of response.		Maximum of 3 marks if no explanation just practices
	High level response 4-6 marks		'
	Structured sentence		Candidates are expected to provide a range
	Clear reasoning/explanation		of good hygiene practises (ie) not all related
	Joseph Parisman		to personal hygiene or equipment. If a
	Mid Level response 3-4 marks		candidate provides all their good hygiene
	Basic information, some in a bullet point format		practises for one area such as personal
	Good attempt at reasoning/explanation, although not always		hygiene only, they can only achieve a
	correct		maximum of 2 marks.
	Correct		maximum of 2 marks.
	Low level response 0-2 marks		
	Bullet point answers		
	Limited suggests (ie) keep things clean		
	No reasoning/explanation as to why		
	,		
	Subject specific material (examples):		
	Stack fridge correctly, such as, raw meat on bottom shelf		
	Store foods according to their correct storage instructions		
	Correct temperature for storage		
	Only re-heat foods once		
	Use different cooking utensils for different food groups/ Use		
	correct coloured boards		
	Clean equipment and surfaces (with an anti-bacteria spray)		
	Use within the best before and use by dates		
	Clear up spilt goods		
	Wash fresh produce		
	Cook foods according to cooking instructions		
	Wash hands		
	Tie hair back		
	Take off jewellery		

Question number	Answer	Marks		Rationale
	Remove nail varnish Cook in clean clothes/wear an apron Pets/pests out of kitchen/off surfaces Rubbish bins away from preparation and storage areas/kept clean and tidy Clean and clear floors Take extra care with food preparation when ill Cover food Stock rotation to ensure freshness Avoid coughing/sneezing over food Handle food as little as possible Cover cuts with waterproof dressing Avoid cross-contamination. Question 3 total	[6] [15]	[6]	

Question number	Answer	Ма	rks	Rationale					
Question 4	Question 4								
	Name FOUR pieces of information that could be found on a food label. One mark for each correct answer, maximum of FOUR. Ingredients Nutritional information – fat, energy, calories, kilojoules, protein, carbohydrate, sugar, salt (maximum of TWO) Guideline daily amounts Cooking instructions Storage instructions Allergy information Health warnings and symbols (ie) suitable for vegetarians, GI Serving suggestions/instructions/pictures Suggested portion size Manufacturer's address Complaints procedure Country of origin/where made Weight Price Claims (ie) low fat Environmental symbols (ie) recyclable Other symbols (ie) organic, farm assured								
	Best before/use by/sell by date Name of the product	[4x1]	[4]						

Question number		Answer	Marks	Rationale
(b)	influence consumer f	of marketing and advertising could ood choices. d according to the quality of response.		High level – must address marketing and advertising as well as influences on food choices
	High level response 7 Structured sentences, Specific terms used ap Well presented and bal Few if any errors in spe	no bullet points propriately		Med level – must address all aspects (adverting, marketing and influence) but may not be balanced. Maximum of 3 marks for a list of points and no reasoning
	Attempt at explanation	nces, some listing/bullet points		
	Low level response 0 Bullet point answers Repetition Limited facts Errors in spelling, punc	-2 marks etuation and grammar may be intrusive		
	Subject specific information that may be covered by the candidate:			
	Point	Explanation/reasoning		
	Price of the product	Can they afford it Budgeting Special of introductory offers		

Question number		Answer	Marks	Rationale
	Nutritional information Colour, packaging	will increase purchases Is the products making any claims and therefore appealing to a target audience (ie) weight loss Could attract certain groups		
	Colour, packaging	(ie) children like cartoon characters/ targeted marketing/standing out in aisle or shelf		
	All information	For comparison of one product to another for many reasons including price, nutritional information and ingredients		
	Celebrity endorsement	Makes the product more appealing		
	Continuous exposure to the item (ie) advertising campaign	Recognition and increased likeliness to try and or buy		
	Offers	More likely to purchase the item		
	Taste sessions	People can try the products therefore know whether they like them/it or not and then have an increased likelihood of purchasing		

Question number	Answer		Ма	rks	Rationale
	Advertising in general	Makes people aware of products that they may not normally purchase – shopping by habit flyers, posters, leaflets, TV, store announcements			
	Samples	Displays at end of aisle which are eye catching			
	Product association Free gifts of Disney characters, Dr Who [8]		[8]	[8]	
(c)	Give THREE uses of food additives in food. One mark for each correct answer.				
	Examples Emulsifier – stop water and oil separating To thicken To preserve To add colour/make look more appealing To add flavour/taste better/less bland Add nutritional value to a product/heath role/nutrients for a target group of the population To stabilise As a raising agent To improve texture		[3x1]		
	Question 4 total			[3]	

Question	Answer	Marks	Rationale
	<u> </u> 		
Question sumber	Describe the major dietary health issues facing people today. Explain the current dietary guidelines. This question is marked according to the quality of response. In order to achieve a high level response both areas must be addressed in detail. A candidate only answering one part of the question remains in the medium level response and can access up to 8 marks only. Must be answered well with clear descriptions or explanations. If candidates only list answers they remain in the lower level response. Bullet point responses can achieve up to the mid to low level response only. A high level response 12-15 marks	Marks	Allergies and intolerances or anorexia if well explained can be credited
	The candidates present a well-balanced answer covering both areas. The two areas are linked together and cover a large range or topic areas. A whole range of specialist terms are used with precision. The candidate can demonstrate the accurate use of spelling, punctuation and grammar. The response will be well presented and in structured sentences throughout. A mid to high level response 9-12 The format will be predominately-structured sentences, covering both areas. Specialist terms will be used accurately. The candidate will offer some linkage of the questions. Some spelling, punctuation and grammar errors.		

Question number	Answer	Mar	ks	Rationale
	A mid to low level response 5-8 marks The answer will be presented in a mixture of bullet points/list and structured sentences. The candidate will have covered one area in detail and made a limited attempt to cover the other area. Or the candidate will have made a limited attempt at both with little or no linkage between the questions. Overall, the candidates will demonstrate some knowledge of current guidelines and general terms will be used. Some spelling, punctuation and grammar errors. A low level response 0-4 marks The candidate presents a one sided answer, looking at either the major health issues or the dietary guidelines. The candidate presents the information in a bullet pointed or listed format throughout the answer. Basic information is offered to support statements although facts may not always fully relate to the question(s) being asked. Errors in spelling, punctuation and grammar. Subject specific material that the candidate may cover: Major health issues Overweight/obesity			
	Diabetes Coronary heart disease Cancer High blood pressure Osteoporosis			
	Cardiovascular disease			

Question number	Aı	nswer	Marks	Rationale
	Dietary Guidelines			
	Guidelines	Explanation		
	Balanced diet/ incorporation of eatwell plate	The food plate is designed to maximise nutritional intake and reduce the risk of developing health problems. Further more specific		
		explanations of the food plate.		
	Reduce salt	Reduce the risk of high blood pressure and coronary heart problems Strain on kidneys		
	Increase starchy foods	Regulate blood sugar Most of your energy Vitamins and minerals Increasing fibre intake		
	Reduce fat (saturated)	Reduced incidence of health problems such as obesity. Lower energy intake Reference to types of fats. Eat less processed foods. 35% total energy intake only. 70g women, 95g men, 67.8g children		

Question number	Ar	nswer	Marks	Rationale
	Healthy weight	Only consume the amount you require, cess is stored as fat and causes obesity. Strain of body, excess energy. Confidence. Energy balance. Boost immune system.		
		Reduced risk of some diseases.		
	Increase fibre	Better bowel health. Reduced risk of digestive tract cancers such as bowel cancer.		
	Increase fluid/water intake	Good for skin condition. Don't become dehydrated. Dehydration leads to a decrease in concentration, kidney problems.		
	Increase fruit and vegetable intake/eat at least 5 portions of fruit & vegetables per day	Guard against cancer risk, antioxidants and photochemicals. Good variety of vitamins, minerals, trace elements and fibre.		

Question number	А	nswer	Mar	ks	Rationale
	Be active	Cardiovascular health. Decreased risk of being overweight/ obese. Decreased risk of other health problems. More self esteem Recommended to do physical activity for at least 30mins several times a week			
	Eat breakfast/eat regularly	Satiety, less likely to high fat and sugar snacks, concentration. Foods to prepare for the days activities Variety of nutrients.			
	Increase fish intake	Omega 3 fatty acids – health of the heart 2 portions a week 1 portion of oily fish a week A good range of minerals and vitamins Protein			
	Decrease sugar intake	11% of energy intake Energy dense food/empty calories Regulates blood sugar Tooth decay			
	Reduce alcohol intake Moderate alcohol intake	Empty calories Increase weight/obesity			
	Question 5 Total		[15]		

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