GCSE

Home Economics (Food and Nutrition)

General Certificate of Secondary Education

Unit **B003:** Principles of Food and Nutrition

Mark Scheme for June 2013

Annotations

Annotation	Meaning
	Unclear
	Benefit of doubt
	Caret sign to show omission
	Level 1
	Level 2
	Level 3
	Level 4
	Not answered question
	Repeat
	Noted but no credit given
	Tick

Question			Answer	Marks	Guidance
1	(a)		**THREE required** • Endosperm • Bran • Germ.	3	
	(b)		**TWO required** • Barley • Buckwheat • Corn/maize • Millet • Oats • Quinoa • Rice • Rye • Spelt • Bulgar wheat	2	**DO NOT ACCEPT WHEAT ON OWN**
	(c)		**THREE required** • Protein • Carbohydrate/starch • B group vitamins (or named B group vitamin Maximum of 2 marks) • Fat • Iron • Vitamin E • Potassium • Magnesium • Zinc • Selenium • Trace elements/copper/chromium/manganese, molybdenum/iodine • Fibre.	3	Candidates are not awarded a mark for "vitamins" or "minerals" on their own. Accept fibre even though it is not technically correct. Accept Vitamin B

Question			Answer	Marks	Guidance
(d)	(i)		**ONE required** • White (bread).	1	
	(ii)		**ONE required** • 34.	1	
	(iii)		**ONE required** • 20.	1	
	(iv)		**ONE required** • Flat/unleavened.	1	
(e)			**ONE required** • Thiamin/B1 • Niacin/B3 • Iron • Calcium.	1	**DO NOT ACCEPT VITAMIN B ON OWN**
(f)			**TWO required** • Can choose ingredients going into the bread/cater for allergies • Think its healthier/more nutritious/less additives/preservatives/know what is in it • Can control the nutritional content (ie) less salt • Costs less than bought bread/cheaper • More convenient • Enjoy cooking • Have a bread maker • Like having fresh bread whenever you want it • Prefer the taste of homemade bread/tastes better	2	**Fresher, convenient and healthier must be qualified**

Question			Answer	Marks	Content	Guidance
						Levels of response
2	**(a)**		Things the candidate may consider: • A carbohydrate source – for energy and or concentration. Wholegrain varieties would contain more fibre • A suitable drink (milk, water, tea, coffee, juice not from concentrate) – for hydration and concentration • A protein source – for satiety as well as for growth and repair • Not sugary based foods – not good for teeth, concentration and overall health. Not meeting dietary health guidelines • Low salt versions – linked to healthy eating guidelines • Cooking method (ie) grilled bacon instead of fried. • Some piece of fruit or vegetable as part of 5 a day • Yogurt/milk for calcium as bones still growing	6	Fully balanced may include a piece of fruit or veg, a drink, a protein source and a carbohydrate source.	The candidates must have a **balanced** packed lunch. This question in marked according to the quality of response. **0 = no response worthy of credit** **Level 3 (5–6 marks)** The candidate will provide good suggestions for the packed lunch which will be **fully balanced** and justify why each is important. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. **Level 2 (3–4 marks)** The candidate will provide some suggestions for the packed lunch **mostly balanced** but may lack specific detail of examples. There will be some attempt at justification of the items suggested. There will be some use of specialist terms although these may not be used appropriately. The information will be presented for the most part in a structured format. **Level 1 (1–2 marks)** The candidate may give limited or confused suggestions for a suitable packed lunch. Answers may be in the form of a list with little or no description. There will be little or no use of specialist terms. Candidates can only achieve the medium level of response if they only provide suggestions they do not provide any reasoning/justifications.

Question			Answer	Marks	Guidance
	(b)		**THREE deficiency diseases required** <table><tr><td>**Nutrient**</td><td>**Deficiency disease**</td></tr><tr><td>**Calcium**</td><td>**Osteoporosis**</td></tr><tr><td>**Iron**</td><td>Anaemia</td></tr><tr><td>**Vitamin C**</td><td>Scurvy</td></tr><tr><td>**Iodine**</td><td>Goitre</td></tr></table>	3	
	(c)	(i)	**FOUR reasons required** • Do not want to eat the flesh of a dead animal bird or fish (as they feel it is cruel) • Environmental reasons • It is more sustainable • Ethical reasons • They consider a vegetarian diet to be healthier that a meat eating diet/less fat • They have religious reasons not to eat meat, poultry or fish • They do not like the taste/texture of meat, poultry or fish • They feel that a vegetarian diet is cheaper • Family tradition/what is eaten at home • Less exposure to hormones and antibiotics in the food chain.	4	**DO NOT ACCEPT DO NOT LIKE MEAT ON OWN**
		(ii)	**TWO required** • Does not **eat** any animal food products/only eats plant foods • Does not **use** animal products.	2	Examples will be accepted (eg) doesn't eat any animal products or use leather (2)

Question			Answer	Marks	Guidance
3	**(a)**		**THREE methods required** • Conduction • Convection • Radiation.	3	If candidates do not state the name but give an appropriate example with description the marks can be awarded (ie) radiation – grilling of meat.
	(b)		**TWO required** • Add oats • Add Raisins/dried fruit (maximum of one) • Suitable named fruit e.g. strawberry/raspberry/blueberry • Use wholemeal flour/wholewheat/granary/wholegrain flour • Add nuts or named nut (maximum of one) • Add seeds or named seed (maximum of one) • Add bran.	2	This list is not exhaustive, professional judgement should be used. Do not accept use brown flour
	(c)		**TWO reasons required** • To reduce the risk of high blood pressure • To reduce the risk of heart disease/stroke/heart attack/heart failure • As part of a balanced diet • Too much places strain on your kidneys • Excess salt can lead to dehydration.	2	Marks can be awarded for candidates who state why salt is bad (ie) a high intake of salt increases the risk of high blood pressure.
	(d)		**THREE changes required** • Harden/sets/change in texture/become crisp. • Colour change/darken/dextrinisation • Rise (slight)/get bigger/spread/expand • Sugar caramelises • Fat melts/chocolate melts • Flavour • Aroma/smell	3	
	(e)		**THREE required** • Sieving • Whisking • Beating • Creaming • Folding AND rolling • Rubbing in.	3	

Question			Answer	Marks	Guidance
	(f)		**TWO required** • Increase the shelf life • To slow down the growth of microorganisms/inhibit bacterial growth • Slow down natural spoilage of the biscuits/changes in colour, texture or flavour.	2	Do not accept improves flavour, appearance or texture.

Question	Answer	Marks	Guidance	
			Content	**Levels of response**

4	**Causes of food poisoning:**
	• Microorganisms – usually bacteria but sometimes viruses.
	• Food may not have been cooked properly
	  - Raw eggs
	  - Undercooked products (ie) meats
	• Food may not have been stored properly
	  - Cross contamination (ie) raw and cooked meats
	• The microorganisms are allowed to multiply at a high rate and produce toxins/poisons/waste products.
	  - (These cause the symptoms of food poisoning)
	• A lack of knowledge and understanding about how to store, cook and prepare foods in the home and or in industry.
	• Intensive farming methods could lead to disease spreading easily in perishable foods such as poultry or seafood.
	• Dirty water
	• Pests/animals
	• Poor food hygiene from people handling food
	• Dust/soil
	• Soft cheeses – linked to pregnancy.
		15		**This question is marked according to quality of response**
				
				0 = no response worthy of credit
				
				Level 4 (13–15 marks)
				The candidate gives a comprehensive description of the potential causes of food poisoning and gives a comprehensive explanation of how to reduce the risk of food poisoning, examples will be detailed and relevant. The information will be presented in a clear and organised way. A whole range of specialist terms are used with precision. The candidate can demonstrate the accurate use of spelling, punctuation and grammar.
				
				Level 3 (9–12 marks)
				The candidate gives a detailed description of the potential causes of food poisoning, The candidate will explain how to reduce the risk of food poisoning, examples given will be relevant. Information will be offered to support the answer but in general terms with little detail. The information will be offered in a structured format. The candidate can use a range of specialist terms with facility. There may be occasional errors in spelling, punctuation and grammar.

Question			Answer	Marks	Guidance	
					Content	**Levels of response**
			Specific examples the candidates may use:			**Level 2 (5–8 marks)** The candidate gives a description of the likely causes of food poisoning. The candidate may give some valid comments on how to reduce the risk of food poisoning, some examples will be given. Some information will be relevant although may lack specific detail. The candidate uses some specialist terms although these may not always be used appropriately. There may be errors in spelling, punctuation and grammar. **Level 1 (1–4 marks)** The candidate makes general comments about the causes of food poisoning which may be list like. May give one or two suggestions as to how to reduce the risk of food poisoning, limited examples may be given. Facts may not always relate to the contents. Answers may be ambiguous or disorganised. There will be little or no use of specialist terms. Errors of grammar, punctuation and spellings may be intrusive.

Bacteria	Food found in	How it might enter the food
Salmonella	Raw eggs, poultry, meat, dairy foods, mayonnaise, salad dressings, bean sprouts and coconut	Contamination from raw foods. Dirty water Pests People
Staphylococcus aureus	Cooked meat and meat products, poultry, eggs, cream, salads, dairy products, some dried foods	People Raw (untreated) milk from infected cows or goats
Bacillus cereus	Cooked rice, herbs, spices, milk and dairy products, meats, starchy foods, soups, custards, vegetables	Dust Soil
Escherichia coli (E.coli)	Cooked foods, water, milk, cheese, seafoods, salads, meat dishes and products	Human sewage Dirty water Raw meat
Clostridium perfringes	Meat and meat products, poultry, gravy, stews	Sewage Soil and dust Animals Insects Raw meat

Question			Answer	Marks	Guidance	
					Content	**Levels of response**

Bacteria	Food found in	How it might enter the food
Listeria monocytogenes	Coleslaw, unpasteurised soft cheeses, cook-chill ready meals, pate	Sewage Dirty water Soil
Campylobacter	Poultry, milk and milk products	Wild birds Animals Pests Water Sewage

Question	Answer		Marks	Guidance	
				Content	**Levels of response**
	Point	**Explanation**		**Focus of question must be in the home**	**Mix and match points and explanations**
	Store food in the correct place	Reduces the chance of cross contamination/microorganism growth (temperature/moisture...)			
	Store food at the correct temperature	Microorganisms require specific temperatures to grow, therefore, keeping them out of this zone slows bacteria growth.			
	Store food for the correct time	Storing food for longer than recommended increases the likelihood of microorganisms being present and growing in the food.			
	Store food in a suitable container	Take foods out of tins as this increases food spoilage. Keep food covered to avoid cross contamination.			
	Defrost products thoroughly	Food will then be cooked to the correct temperature throughout. This ensures microorganisms in the middle of the food are also killed.			
	Wear clean clothes when handling food	Reduces the chance of contamination from clothing (ie) dirt or pet hair.			

Question				Answer		Marks	Guidance	
							Content	**Levels of response**
				Wash hands thoroughly and regularly, especially after using the toilet, handling rubbish or handling raw or different food products	Reduces the chance of contamination from these sources.			
				Use clean equipment/ clean the equipment thoroughly	Reduces the chance of cross contamination if the equipment was used for a different food item (ie) raw and cooked meats.			
				Do not allow raw food to come into contact with cooked food	Reduce the chance of cross contamination			
				Do not cough, sneeze over food or touch your nose/face when handling food	This would spread bacteria/viruses present leading to an increased risk of food poisoning.			
				Do not let animals or pests contaminate it	Keep pets away from the food and food preparation area. They contain diseases and bacteria which would infect the food. Their hairs may also infect the food.			
				Cook food to the correct temperature	Ensures microorganisms are killed to stop their growth.			

Question			Answer		Marks	Guidance	
						Content	**Levels of response**
			Cook food for the correct amount of time	Cooked right the way through, no cold spots. Ensures all parts of the food have been heated to at least above the danger zone for microorganism growth.			
			Cool leftover food quickly	Minimises time in which the food is in the danger zone, therefore reduces the chance of contamination and microorganism growth.			
			Reheat food only once	As the food has been cooked and cooled previously there has been a greater chance for microorganisms to growth.			
			Tie hair back/do not wear jewellery/false nails	Ensures that these or bacteria from them do not fall into the food and contaminate.			

Question	Answer	Marks	Guidance
5 **(a)**	**THREE descriptions are required Two marks for each description:** **Comparisons** (1)– is one product/ingredient healthier than another (ie) does it have less fat than a similar product (1) **To make healthy choices e.g less fat/salt** (1) – food labels contain a wealth of nutritional information, enabling the consumer to choose a product suitable for their lifestyle (1) **To know how to store a food** (1) – so that the consumer can store to the food correctly (1) **To know how to cook a food** (1) – so the consumer can cook the food correctly (1) **Allergy information/suitable for specific groups (eg) vegetarians** (1) – if the consumer has an allergy they need to know whether or not the product contains this item and therefore, whether or not they can eat it (1) **To make a complaint** (1) – if the product is not up to standard then the consumer can contact the producer (1) **Religious or cultural reasons** (1) – if there are certain beliefs of values then the consumer needs to know about these (1) **Concerns about the environment or animal welfare** (1) – if the consumer wants to know if the product can be recycled then the packaging will tell them this/ free range (1) **Serving suggestions/recipes** (1) – ideas for how to use the product or what else to serve it with (1). **Where comes from (1**) fair-trade/food miles/health scares(1) **Use by/best before date (1)** avoid food wastage/rotate foods/safe to eat (1) **Name of food(1)** so know what buying (1) **Weight/quantity (1)** portion control (1)	6	First mark for a simple statement (ie) make comparisons, 2nd mark for a further description (ie) choose lower fat products. Accept "sell-by date" as this has only recently been changed.

Question			Answer	Marks	Guidance
	(b)		**THREE required** • Colourful packaging/bold/lots of colours/bold text/child friendly wording • Cartoons/specific characters/celebrities/role models • Rhymes/tunes • (Free) toys • Products placed at child eye height • Adverts on the television (between children programmes) • Puzzles/competitions on the packaging/tokens • Internet banners/pop ups • Wobblers • People dressed up (as characters).	3	Do not accept free samples.
	(c)	(i)	**ONE required** Does not contain nuts/nut free/suitable for people allergic to nuts.	1	
		(ii)	**ONE required** Suitable for vegetarians/a vegetarian food.	1	Do not accept suitable for a vegan or vegetarian on its own

Question			Answer	Marks	Guidance
		(iii)	**ONE required** Does not contain gluten/suitable for coeliacs/suitable for those who cannot eat gluten.	1	Do not accept any reference to wheat.
	(d)		**TWO required** • Soya/soy milk • Nut milks (eg) almond/coconut • Rice milk • Hemp milk • Oat Milk.	2	Do not accept goats milk or brand names.
	(e)		**TWO required** • Eating enough fruit/vegetables/antioxidants/green tea • Eating enough fibre • Not eating too much fat • Not eating too much salt • Not eating too much sugar • Not consuming a lot of red meat • Not consuming a lot of processed foods/smoked foods • Not consuming refined carbohydrates • Being a healthy weight/Not being overweight/obese • Not over consuming alcohol • Balanced diet • Not Smoking • Not doing enough exercise • Sun/radiation exposure. .	2	**Only accept Eatwell plate/following dietary guidelines if qualified**.

Question			Answer	Marks	Guidance
	(f)		**TWO Guidelines and TWO explanations required**	4	

Guidelines	Explanation
Balanced diet/ incorporation of the Eatwellplate	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 (ie) eat a greater amount of carbohydrates that fat is also acceptable
Variety of foods	Get a variety of nutrients Nutrient values vary seasonally Can't get the required nutrients from a limited number of foods only
Reduce salt	Reduce the risk of high blood pressure and coronary heart problems
Reduce sugar	Regulate blood sugar Contains a high amount of energy Dental carries and tooth health
Reduce fat	Reduced incidence of health problems such as obesity Lower energy intake Reference to types of fats
Reduce energy/Kcal/kJ	Only consume the amount you require, excess is stored as fat and causes obesity
Reduce red meat consumption	Link to an increased risk of heart health problems Contains a greater amount of fat Some red meat is important for iron and other nutrient intake Increased soy intake has been proven to improve health – consume instead of red meat
Increase fibre	Better bowel health Reduced risk of digestive tract cancers such as bowel cancer

Question			Answer		Marks	Guidance
			Eat breakfast	Aids concentration/stops snacking/breaks fast		
			Increase fluid/water intake/1.5-2 litres per day	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 Good variety of nutrients Increase fibre Provides vitamins/minerals/water		
			Increase calcium intake	Development of strong bones and teeth (children)		
			Increase iron intake	Often low and important for females		
			For pregnant women, increase folic acid	Decreased risk of neural tube defect, normal brain development		
			Exercise for 30-60mins per day/be more active	Cardiovascular health Decreased risk of being overweight/obese Decreased risk of other health problems More self esteem		
			Enjoy food	Eating should be enjoyed and not seen as a chore Less likelihood of developing physiological based problems relating to food and likely to eat a healthier diet		
			Be a healthy weight/ fat percentage	Reduced risk of health problems such as diabetes		
			Candidates can make reference to specific groups of people and their needs	Such as adolescents need an increased energy intake due to growth.		
			Eat more fish/oily fish	Omega 3/helps prevent cancer/lower fat		

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