



# Home Economics (Food and Nutrition)

General Certificate of Secondary Education

Unit B003: Principles of Food and Nutrition

## 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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B003/01

#### Annotations

Annotation	Meaning
2	Unclear
	Benefit of doubt
λ	Caret sign to show omission
	Not answered question
	No example
	Repeat
<b>•••</b>	S
	Noted but no credit given
✓	Tick
<u>V6</u>	Vague

#### 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.

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G	Questi	on	Answer	Marks	Guidance
1	(a)		Fruit and Vegetables	1	Do not accept "Fruit" or "Vegetables" on its own Do not accept any named fruit or vegetable.
1	(b)		<ul> <li>Iron</li> <li>Zinc</li> <li>Vitamin A (liver)</li> <li>Vitamin B</li> <li>Vitamin D</li> <li>B-group vitamins or named B vitamins: <ul> <li>Vitamin B<sub>1</sub> (Thiamin)</li> <li>Vitamin B<sub>2</sub> (Riboflavin)</li> <li>Vitamin B<sub>3</sub> (Naicin)</li> <li>Vitamin B<sub>5</sub> (Pantotenic Acid)</li> <li>Vitamin B<sub>6</sub> (Pyridoxine)</li> <li>Vitamin B<sub>9</sub> (Folate)</li> <li>Vitamin B<sub>12</sub> (Cobalamin).</li> </ul> </li> </ul>	2x1 2	
1	(c)	(i)	<ul> <li>To reduce fat/energy content</li> <li>To kill bacteria/micro-organisms/make safe to eat</li> <li>To improve the flavour/taste of the meat</li> <li>To make more appealing/visually acceptable</li> <li>To make some nutrients more accessible to the body.</li> <li>Improve or change texture</li> </ul>	2x1 2	Do not accept to make tender. Do not accept one word answers
1	(c)	(iii)	<ul> <li>Protein denatures/40-65°C</li> <li>Meat structure tightens and the meat becomes firmer/shrinks in size</li> <li>Fat melts and penetrates the lean tissue/becomes juicy</li> <li>The fat on top/ becomes brown and crisp/improving flavour and appearance</li> <li>Colour changes/pink to brown/white due to chemical</li> </ul>	2x2 4	Do not accept any answers relating to becoming tender.

C	Question	Answer	Marks	Guidance
		<ul> <li>reactions/changes</li> <li>Improved palatability or texture/easier to chew</li> <li>Flavour is improved as extractives are squeezed from the meat</li> </ul>		
1	(d)	The meat comes from farms/ food companies that meet required standards of food safety/hygiene/animal welfare (UK)	1x1 1	Do not accept "from UK farms" on its own.
1	(e)	<ul> <li>Trim off excess/visible fat</li> <li>Grill/barbeque rather than fry/roast</li> <li>Drain excess fat after/during cooking</li> <li>Cut down on portion size/eat less meat</li> <li>Roast meat on meat racks to allow the fat to drain</li> <li>Do not use the fat for gravies or sauces</li> <li>Dry fry/stir fry the meat</li> <li>Use low calorie fat spray</li> <li>Remove the skin (from chicken)</li> </ul>	2x1 2	Do not accept choose /buy lean meat
1	(f)	<ul> <li>Prepare raw and cooked meat separately to prevent cross contamination</li> <li>Use different utensils/knives for raw and cooked</li> <li>Use coloured boards/red board for meat</li> <li>Do not use after the use by date/check sell by dates</li> <li>Do not leave meat out in the open/cover the meat</li> <li>Make sure the meat is cooked thoroughly</li> <li>Only re-heat once</li> <li>Defrost thoroughly</li> <li>Correct oven temperatures</li> <li>Correct cooking time</li> <li>Use thermometers</li> <li>Add extra cooking time for stuffed meat (ie) chicken</li> <li>Personal hygiene rules (ie) – Wash hands/tie hair</li> </ul>	2x2 4	Maximum of TWO marks for personal hygiene rules. Thoroughly – at least 70°C.

#### Mark Scheme

Question	Answer	Marks	Guidance
	<ul> <li>back/wear a clean apron</li> <li>Disinfect surfaces/clean/wash/wipe</li> <li>Keep meat in the danger zone for a short time only/use as soon as possible once out of fridge</li> </ul>		
	Total	20	

G	luesti	on	Answer	Marks	Guidance
2	(a)	(i)	<ul> <li>Carrots</li> <li>Milk</li> <li>Liver pate</li> <li>Spinach.</li> </ul>	3x1 3	
2	(a)	(ii)	<ul> <li>Helps the body grow/develop/without it children not grow properly</li> <li>Lining the throat/digestive system/lungs moist a free from infection</li> <li>Keeps the skin healthy</li> <li>Helps eyesight/visual purple/night blindness/he us see in dim light</li> <li>It is an antioxidant so acts as a free radical/sto reduces cell damage</li> </ul>	and 2 elps	
2	(b)		<ul> <li>Vitamin E/Tocopherol</li> <li>Vitamin D/Cholecalciferol</li> <li>Vitamin K.</li> </ul>	1x1 1	
2	(C)	<ul> <li>(c) (i) • Not stored in the body/water soluble vitamin</li> <li>• Aids absorption of iron/prevents anaemia</li> <li>• Prevents scurvy/bleeding gums</li> <li>• Prevents tiredness/weakness</li> <li>• Wound healing</li> </ul>		1x1 1	
2	(c)	(ii)	<ul> <li>Steamed</li> <li>Cooked for a shorter amount of time</li> <li>Cooked in less water</li> <li>Microwave</li> <li>Not prepared until needed</li> <li>Cut into larger chunks/peel thickly</li> <li>Use the water they have been cooked in to ma sauce or gravy/casserole/stew</li> </ul>	4x1 4 ke a	

Q	uesti	on		Answer	Marks	Guidance
			•	Cook with the lid on		
			• • • •	Cook quickly Do not soak Serve immediately Leave skins on if possible Eat or leave raw Tear up leafy vegetables		
2	(d)	(i)	•	Osteoporosis/osteomalacia/rickets	1x1 1	
2	(d)	(ii)	• • • •	Milk Cheese Bread Yogurt Nuts or named nuts (Maximum 1) Seeds Green leaves/rocket/spinach Lentils	3x1 3	Do not accept "dairy" product Candidates that state "cheese sandwich" are awarded 2 marks.

Q	uestion	Answer	Marks	Guidar	nce
				Content	Levels of response
Q 3	uestion	Nutrient requirements of teenagers:         For bones         • Calcium         • Phosporus         • Magnesium         • Vitamin D.         For muscles         • Protein         • Iron         • Zinc.         Synthesis of extra blood cells to supple oxygen	Marks 15		-
		<ul> <li>Iron</li> <li>Folate</li> <li>Vitamin B<sub>12</sub></li> <li>Copper.</li> <li>General nutrition</li> <li>Well balanced and filling meals</li> </ul>			response and can access up to 8 marks only. Must be answered well, with clear descriptions and/or explanations.
		<ul> <li>Provision of energy</li> <li>Provision of protein for growth</li> <li>Vitamin C</li> <li>Vitamin A</li> <li>B Vitamins</li> <li>Balanced diet.</li> </ul>			answers in a list, they remain in the lower level response. Bullet point answers can only achieve up to the medium level response only.

Question	Answer	Marks	(	Guidance
			Content	Levels of response
	<ul> <li>Regular meals/always eat breakfast</li> <li>Girls – Iron and Vitamin C</li> <li>Well balanced diet/limiting fatty, sugary and salty foods</li> <li>Lots of fruit and vegetables</li> <li>Avoid drinking too many carbonated (fizzy) drinks</li> <li>Drink up to 2 litres of water a day</li> <li>Unprocessed foods</li> <li>Wholegrain/slow energy releasing foods</li> <li>Total fat – 35% of food energy</li> </ul>		Content	A high level of response 13-15 The candidate can describe in detail the nutritional requirements of teenagers and provide a comprehensive explanation of how these needs could be met. Answers will be both detailed and accurate. The candidates must provide coverage for both parts of the question. The information will be presented in a clear and organised way. A whole range of specialist terms are used with precision. There will be few errors
	<ul> <li>Saturated fats – 11% Polyunsaturated fats – 6.5% Total carbohydrate – 50% Fibre – 18g per day</li> <li>How the school could meet these requirements in the provision of food and drink:</li> <li>Provision of snacks - At break times provide snacks that are unprocessed/contain complex carbohydrates such as fruit, vegetables, nuts – sustainable energy for school/concentration</li> <li>Vending machines - Take out unhealthy/energy dense/high fat, energy, sugar, salt snacks in</li> </ul>			in spelling, punctuation and grammar. A good/satisfactory response 9-12 The candidate can demonstrate some understanding by describing some of the nutritional requirements of teenager. The candidate will also explain how some of these requirements could be met with the provision of food and drink. The candidates must provide coverage for both parts of the question. Information will be offered to support the answer but in general terms with little detail. The

Question	Answer	Marks	Guidance
			Content Levels of response
	<ul> <li>vending machines/have no or limited access to these foods</li> <li>Education programme – so that students can make informed judgements and choices/teach food &amp; nutrition/ PHSE/PE/science</li> </ul>		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.
	Cheap or subsidised prices -		A limited response 5-8
	<ul> <li>encouraging students to eat the healthy(ier) food(s). No boundaries for students coming from poorer backgrounds</li> <li>Posters to encourage students to have schools meals</li> <li>Monitor packed lunches – Blanket approach so everyone is encouraged to eat healthily</li> <li>Get parents involved – Schemes are often more successful with backing from parents</li> <li>Employ a nutritionist to design</li> </ul>		The candidate makes some limited descriptions of the nutritional requirements of teenagers and/or makes an attempt to explain how some of these needs could be met. 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.
	the school meals – ensures that		A low level of response 0-4
	<ul> <li>Provide milk/water/juice instead of fizzy drinks – better choice of drinks for the students – less empty calories/more filling</li> <li>Limit choices of unhealthy foods (ie) you can have chips with your meal or a pudding rather than both</li> <li>monitors students intake but allows them to have something 'unhealthy' too.</li> </ul>		The candidate makes vague comments about the nutritional needs of teenagers and may give one or two suggestions as to how these requirements could be met by the provision of food and drink at the school. Facts may not always relate to the contents. Answers may be ambiguous or disorganised. There will be little or no use of specialist terms.

Question	Answer	Marks	Guidance
			Content Levels of response
	Examples such as chips once a week		Errors of grammar, punctuation and spellings may be intrusive.
	<ul> <li>Special offers on healthy foods         <ul> <li>could be cheaper prices or other offers</li> </ul> </li> <li>Breakfast Clubs – Getting children to start the day eating a nutritious breakfast, helps concentration and energy levels</li> <li>Links with national/regional/international campaigns – Such as Jamie Oliver/ Local Health Authorities or Healthy schools– greater enthusiasm and encouragement</li> <li>Follow set nutritional guidelines – set by national/international agencies/eatwell plate/balanced meals</li> </ul>		If a candidate does not describe or explain, but makes a list/series of points they can achieve a maximum of 8 marks.
	Total	15	

Q	uestion		Answer	Marks	Guidance	
4	(a)	Pastry Suet crust Short crust Filo Choux Flaky	ProductSteamed/boiled puddingsTarts/flans/quiche/mince piesSamosas/parcelsEclairs/profiterolesSausage rolls/Eccles/Jampuffs	4x1 4	The answers provided for products are examples only Do not credit the same product twice	
4	(b)			4x1 4		

Q	uestic	on	Answer	Marks	Guidance
4	(c)		To pre cook the pastry (before adding a filling)/to prevent sogginess of the pastry/pastry should not be uncooked	1x1 1	
4	(d)		<ul> <li>The fat melts (is absorbed by the starch in the flour)</li> <li>Air is trapped between the layers of dough ~(this expand and pushes the dough up)</li> <li>Water in the dough turns to steam (also pushing up the dough)</li> <li>Gluten and the starch set (pastry becomes crispy and flaky)</li> </ul>	3x1 3	
4	(e)		<ul> <li>Golden colour/caramel colour/even colour</li> <li>Well risen/layers (of flakes)</li> <li>Crisp texture/crunchy texture</li> <li>Good flavour</li> </ul>	3x1 3	Do not accept "rises" or "has risen" must be qualified.
			Total	15	

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Q	uestion	Answer		Marks	Guidance		
5	i (a)	Answers many include:		8 4x2	<b>One</b> mark for dietary advice-four required <b>One</b> mark for explanation-four required		
		Eat a diet low in sugar.	Diabetes in made worse with constant increases in sugar intake. Sugar causes fluctuations in blood sugar – linked to hyper- or hypoglycaemia.				
		When baking use less sugar in recipes (ie) cakes and biscuits. Replace sugar with naturally sweet foods (ie) fruit.	Less sugar means the products are healthier and reduces their intake of sugar – less sugar means more controlled blood sugar levels.				
		Large proportion of carbohydrate/starchy foods. Consume/choose wholemeal products.	Slow break down of glucose, meaning that the body has time to deal with the increase blood sugar/glucose, helping to manage the condition.				
		Regular small meals.	Avoids peaks and troughs in blood sugar – more stable blood sugar, better control of the condition.				

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Question		Answer	Marks	Guidance
Question	Avoid missing meals. Avoid going long periods without food. Decrease fat intake. Lean meat/poultry/beans/pu lses/ alternatives. Low fat diary products. Limit the amount of oil and fat when cooking/preparing and eating foods.	Answer Avoids dips in blood sugar which could cause the person to become hypoglycaemic. Long term this causes damage (ie) diminishing eyesight or damage to internal organs. Diabetics are at greater risk from developing heart disease so they need to control their intake of fat. Diabetics are also more likely to put on weight due to fluctuations in blood sugar (peaks and troughs in hunger too) and inappropriate eating, therefore, decreasing fat intake will also help with weight control. A reduced fat intake/weight/less likelihood of heart disease also contributes to a lower blood pressure.	Marks	Guidance

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Question	Answer		Marks	Guidance
	Decrease/avoid sugary drinks/limit alcohol	These foods add energy and little other nutrients. Reductions in consumption of these allow for control over blood sugar levels and over all better control of the condition.		
	Avoid being overweight/obese. Try and lose weight if you are overweight/obese. Exercise	Being overweight/obese carries higher risks of other complications such as heart disease, cancers and blood pressure, adding to an already increased risk. Overweight and obese people have a lower insulin level/tolerance and therefore, control glucose/insulin secretion differently.		

Question		Answer	Marks	Guidance
	Reduce salt intake. Choose low salt options. Limit salt added to foods. Limit naturally salty foods such as bacon/ham/yeast extract/salted fish. Consume everything in moderation. Consume a balanced diet.	Salt intake can lead to an increased risk of hypertension and increased blood pressure. Diabetics already have an increased risk of this and do not want any extra complications. Consuming a balanced diet will help to control and manage their diabetes. As there is currently no cure for diabetes, prevention and consuming a balanced diet is thought to be the best way forward.		
	Special diets are not needed- follow the healthy eating guidelines. Special products are not needed. Should consume a balanced diet. Make sure they get regular check ups at the doctors.	These can be expensive and can contain a lot of fat instead of the sugar. A balanced diet will be better in the long term for controlling the diabetes/blood sugar. Keep an eye on their blood sugar levels and other problems such as eye sight problems/feet conditions associated with diabetes.		

## Mark Scheme

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Question		Answer	Marks	Guidance
	Increase fruit and vegetable intake/have a high fibre diet	Fruit and vegetables provide antioxidants to help prevent heart disease. Part of a balanced diet. Satiety/less energy dense.		
	Ensure that they consume at least 1.2ltrs/6-8 glasses of water.	Part of a balanced diet. Helps with satiety.		
	Take care when choosing fruits (ie) dried fruits and from concentrate.	They contain a lot of natural sugar so have to been consumed in moderation.		
	Limited use of honey.	Honey contains a lot of sugars so should be consumed in moderation only.		
	Buy fruit in fruit juice rather than syrup.	Syrup contains predominately sugar, therefore, will enter the blood stream quickly.		
	Read food labels to make sure they know what the food contains Be aware of other	Sugar can be hidden in foods and labelled as other things (not clearly sugar/sucrose) and		
	names for sugar (ie) glucose, fructose. Be aware of hidden sugars.	they should limit their intake of sugar.		
	Consume a low glyceamic diet/food.	Minimises fluctuations in blood sugar levels.		

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Question	Answer		Guidance
5 (b)	<ul> <li>Being overweight/obese</li> <li>Genetics/family history/certain ethnicities/hereditary</li> <li>Lack of exercise/sedentary lifestyle</li> <li>Aging/age</li> <li>High blood pressure</li> <li>High cholesterol</li> <li>Pregnancy (during which gestational diabetes can occur)</li> <li>Eating too much fat/simple carbohydrates.</li> </ul>	3x1 3	Do not accept "lifestyle" own its own needs quantifying.
5 (C)	<ul> <li>Price/offers</li> <li>Familiarity of a product</li> <li>Reputation of product/ supermarket/brand/recommendation</li> <li>Availability of the product/use by/sell by date</li> <li>Lifestyle (i.e) time factors</li> <li>Special diets (ie) Lactose intolerance</li> <li>Advertising</li> <li>Occasions or traditions (ie) Christmas</li> <li>Personal taste</li> <li>Religion</li> <li>Culture/ethnicity</li> <li>Organic</li> <li>Fairtrade</li> <li>Personal skill levels</li> <li>Facilities</li> <li>Nutritional information</li> <li>Environmental issues/food miles</li> <li>Animal welfare</li> <li>Portion size/weight</li> <li>Packaging</li> </ul>	4x1 4	

C	Question		Answer		Marks	Guidance
	<ul> <li>Season/time of year</li> <li>Food quality /appearance/ how it looks</li> </ul>					
				Total	15	

Mark Scheme

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