

# **Home Economics (Food and Nutrition)**

General Certificate of Secondary Education

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

## **Mark Scheme for January 2013**

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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.

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**Subject-specific Marking Instructions****Marking crossed out and duplicated answers**

OCR currently provides examiners with 'rules' for marking crossed out 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

***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 0oC this means it is a liquid at -10oC'). 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.

Question			Answer	Marks	Guidance
1	(a)	(i)	<b>ONE required</b> • 9.	1	
		(ii)	<b>ONE required</b> • 10%.	1	
		(iii)	<b>ONE required</b> • Supermarket.	1	
	(b)		<b>THREE factors and THREE explanations required</b> eg <ul style="list-style-type: none"> <li>• <b>Price</b> (1) – Certain stores are considered cheaper than others. They may have more loss leaders (1). Special offers (1)</li> <li>• <b>Range/variety/brand</b> (1) – larger stores have a better range/more brands, they may be the only place you can get an ingredient (1). Suitable pack sizes (1).</li> <li>• <b>Personal/family preference/habit</b> (1) – you have always shopped there. Maybe it saves time as you know where everything is (1).</li> <li>• <b>Availability/convenience/time</b>– if there isn't a supermarket local to you then you would have to buy elsewhere (1). Do you have the time to grow your own.</li> <li>• <b>Travel/transport/parking</b> (1) – can you travel somewhere that sells the fruit and vegetables you want (1)</li> <li>• <b>Knowledge</b> (1) – do you have the knowledge to grow your own (1). Pesticide free (1).</li> <li>• <b>Space</b> (1) – do you have the room to grow your own (1)</li> <li>• <b>Reputation of a store/place</b> (1) – people may shop somewhere as it has good ethics (ie) sells only locally grown foods (1), quality of products (1).</li> <li>• <b>Taste</b> (1) – People think farms/home grow are better (no fertilisers/pesticides) (1)</li> <li>• <b>Lifestyle</b> (1) – Some people can only shop when local stores/markets are closed so have to go to larger hypermarkets due to longer opening hours (1)</li> <li>• <b>Loyalty cards</b> (1) – entice people to continue to shop at big chains (1)</li> <li>• <b>Packaging</b> (1) – people prefer to go somewhere with little or no packaging on products (1)</li> <li>• <b>Buy locally</b> (1) – Support local businesses/lower carbon footprint (1).</li> <li>• <b>Hygiene standards</b> (1) – star ratings/clean (1)</li> </ul>	6	If candidates only provide a list of single words (ie) Price, preference ... they can achieve a maximum of 3 marks.  Reasons may be mixed and matched as long as they make sense.

Question	Answer	Marks	Guidance
(c)	<p><b>FOUR required</b></p> <ul style="list-style-type: none"> <li>• Reduce or subsidise the price</li> <li>• Make it one option in a school meal/break time</li> <li>• Get the teenagers involved/ask what they would like</li> <li>• Posters/leaflets/flyers to encourage the eating of fruit and vegetables</li> <li>• Give it away free/tasting sessions/samples</li> <li>• School to get involved in a scheme such as that introduced by Jamie Oliver/Healthy eating initiative scheme</li> <li>• Provide raw and cooked options – lots of choice/variety/less sweet foods offered</li> <li>• Reward scheme/prizes for healthy eating</li> <li>• Appealing presentation/product placement</li> <li>• In school advertising – TV screens/ loud speaker system</li> </ul>	4	<p>Do not accept “hiding it in foods”</p> <p>Do not accept “celebrity endorsement”</p> <p>Do not accept “teaching in HE lessons”</p> <p>Emphasis is the canteen</p>
(d)	<p><b>TWO methods required</b></p> <ul style="list-style-type: none"> <li>• Freezing</li> <li>• Canned/tinned</li> <li>• Jam/chutney making/pickling</li> <li>• Drying</li> <li>• Bottling</li> <li>• Temperature/acid/sugar/salt</li> <li>• Accelerated freeze drying</li> <li>• Controlled-atmosphere packing</li> <li>• Vacuum packing</li> <li>• Modified Atmosphere Packing (MAP)</li> <li>• Radiation</li> <li>• Cryogenic freezing</li> </ul>	2	

Question		Answer	Marks	Guidance
	(e)	<b>THREE signs required</b> <ul style="list-style-type: none"> <li>• Mould</li> <li>• Off smell</li> <li>• Change in colour/turns brown/black</li> <li>• Change in flavour/taste</li> <li>• Loss of moisture/leak juice/shrinking in size/wilting/gone soft/change in texture</li> <li>• Bruising of the skin.</li> </ul>	3	Do not accept one word answers (i.e.) "texture" has to be qualified
	(f)	<b>TWO required</b> <ul style="list-style-type: none"> <li>• Believed to be of a better nutritional quality</li> <li>• Added/provides nutritional benefits</li> <li>• Contains a specific ingredient (eg) antioxidants</li> <li>• Specific roles (eg) cholesterol lowering/example of a product (i.e.) Benecol</li> </ul>	2	

Question			Answer	Marks	Guidance
2	(a)	(i)	<p><b>THREE reasons required</b></p> <ul style="list-style-type: none"> <li>• To maintain weight/not being overweight</li> <li>• To reduce the risk of disease or named disease (ie) coronary heart disease (maximum of one)</li> <li>• To get the correct nutrients/name one nutrient</li> <li>• To get the correct amount of nutrients</li> <li>• To reduce the risk of a disease/deficiency/protein for growth (Maximum of one).</li> </ul>	3	Do not accept “to be healthy” unless qualified. Do not accept “help the body function correctly”
		(ii)	<p><b>THREE reasons required</b></p> <ul style="list-style-type: none"> <li>• Lack of knowledge</li> <li>• Lack of skill (eg) when cooking</li> <li>• Allergies or intolerances (eg) lactose intolerance or celiac</li> <li>• They do not cook/shop for themselves/rely on take-always or fast foods</li> <li>• Medical problems (eg) problems chewing/diabetes</li> <li>• Personal preference for certain foods/vegetarian/vegan/religion/weight loss diet</li> <li>• Cost/money issues</li> <li>• Lack of time</li> <li>• Habit/family ways</li> </ul>	3	Do not accept “diet” on its own.

Question		Answer	Marks	Guidance	
	(b)	<p><b>TWO sources required</b></p> <ul style="list-style-type: none"> <li>• Quorn</li> <li>• Textured vegetable protein (TVP)</li> <li>• Soya or soya products</li> <li>• Tofu</li> <li>• Tempeh</li> <li>• Lentils</li> <li>• Beans</li> <li>• Peas</li> <li>• Nuts or named nuts and MAXIMUM of one</li> <li>• Seeds or named seed and MAXIMUM of one</li> <li>• Cereals – rice, wheat millet, oats, quinoa named and maximum of one</li> <li>• Eggs</li> <li>• Cheese</li> <li>• Milk</li> <li>• Protein shakes (i.e.) whey or soya isolate</li> </ul>	2	Accept 'pulses' only once	
	(c)	(i)	<p><b>ONE required</b></p> <ul style="list-style-type: none"> <li>• 18g to 30g.</li> </ul>	1	Accept any value within this range as long as it is quantified with grams or 'g'.

Question	Answer	Marks	Guidance
(ii)	<p><b>TWO foods are required</b></p> <ul style="list-style-type: none"> <li>• Wholegrain cereal or named cereal (i.e.) shredded wheat, bran flakes, weetabix, muesli, porridge oats</li> <li>• Wholemeal (brown) pasta</li> <li>• Wholegrain (brown) rice</li> <li>• Wholemeal/granary/seeded/multi-grain/oat breads/rye bread</li> <li>• Fruits or named fruit</li> <li>• Dried fruits or named dried fruit</li> <li>• Vegetables or named vegetable/green leafy vegetables</li> <li>• Nuts or named nuts</li> <li>• Seeds</li> <li>• Beans</li> <li>• Pulses</li> <li>• Lentils</li> </ul>	2	<p>This list is not extensive, professional judgement must be used.</p> <p>Only one mark for each bullet point (ie) wholemeal and granary bread would score one mark only.</p> <p>Do not accept “brown bread”</p> <p>Do not accept “wheat cereal”</p>
(d)	<p><b>FOUR examples required</b></p> <ul style="list-style-type: none"> <li>• Shop at local farms/market</li> <li>• Use ‘value’ products/buy cheaper products</li> <li>• Buy cheaper cuts of meat</li> <li>• Cook things in the oven at the same time/use a microwave/steamer</li> <li>• Plan what you are going to eat/budget/make a list/only buy/cook what you need</li> <li>• Buy in bulk/things with a longer shelf life</li> <li>• Cook in bulk – cook for 2 days at the same time</li> <li>• Buy tinned or frozen fruit/vegetables</li> <li>• One pot meals</li> <li>• Buy things on special offer</li> <li>• Use coupons</li> <li>• Use alternative cheaper sources to bulk out meals (ie) beans/lentils/vegetables/pasta</li> <li>• Use things that are in season</li> <li>• Use leftovers for the next meal(s)</li> <li>• Shop around/compare prices</li> <li>• Use your own produce/grow your own</li> <li>• Cook at home rather than eat out/don’t buy convenience foods/make from scratch</li> </ul>	4	

Question	Answer	Marks	Guidance
3 (a)	<p><b>FOUR ways required</b></p> <ul style="list-style-type: none"> <li>• On TV</li> <li>• On the radio</li> <li>• Magazine/newspaper adverts</li> <li>• Internet/computer</li> <li>• Posters/Leaflets/billboards</li> <li>• Word of mouth/customer reviews</li> <li>• Celebrity endorsement</li> <li>• People dressing up in store</li> <li>• Taste testing/trials in store</li> <li>• Price reductions/offers in store/vouchers</li> <li>• Product placement (ie) end of aisle</li> <li>• Wobblers</li> <li>• In store announcements.</li> </ul>	4	<p>This is not an exhaustive list therefore, professional judgement must be used.</p> <p>Do not accept links to packaging</p>
(b)	<p><b>FOUR reasons required</b></p> <p><b>Reason for change</b></p> <p>More large supermarkets have opened therefore driving out the smaller and specialist shops (ie) butchers, bakers/Less able to shop locally/competition between supermarkets.</p> <p>People shop in large/all-in-one shops rather than in smaller specialist shops.</p> <p>More people own cars/ so they can travel to out of town supermarkets.</p> <p>Larger stores can offer cheaper prices as they buy in bulk which is attractive for all consumers/economic climate</p> <p>People have less time/ so demand increased for 'all-under-one-roof shopping'/ People tend to do a weekly shop rather than more frequent shops</p> <p>People are working longer hours – women are working as well as men/aging population. Shops are open later/longer hours. Therefore, there is less time to shop/ On line shopping is very popular. Home delivery available.</p>	8	<p>This is not an exhaustive list therefore, professional judgement must be used.</p> <p>If the candidate only provides a list of points they can achieve a maximum of 4 marks.</p> <p>Mix and match responses</p>

Question	Answer	Marks	Guidance
	<p>People lead busy lives therefore, there is an increasing need to have things instantly and fast/ready made meals/use of microwaves.</p> <p>There are greater opportunities for travel and experiencing foods from other countries and cultures which creates demand. Greater availability of foreign foods.</p> <p>We now live in a multi cultural society/ therefore, the supermarkets are providing foods to suit the ethnic backgrounds of their local residence.</p> <p>Changing technology/transport - is also a reason why we are able to have strawberries all year – packaging, air freight.</p> <p>There has been a gradual decline in the number of people feeling confident to cook from fresh ingredients/ More convenience products are available/ Lack of knowledge to cook of choice foods.</p> <p>There are more cookery programmes/books so they influence meaning more people want to try new foods/recipes. Celebrity endorsement.</p> <p>More programmes about ethical and cultural issues also /More aware of animal welfare and the environment/organic.</p> <p>Greater awareness of government advice/nutrition (i.e.) choice of foods.</p>		
(c)	<p>(i)</p>  <p>Suitable for freezing/to freeze/freezable</p>	1	<p>Do not accept “must be frozen”</p> <p>Do not accept “frozen/freezer”</p>
	<p>(ii)</p>  <p>Recycling/suitable for recycling</p>	1	

Question		Answer	Marks	Guidance
	(d)	<ul style="list-style-type: none"><li>• To be able to get a refund</li><li>• Return/contact the shop/manufacture</li><li>• Change the product</li><li>• Get money back</li></ul>	1	Do not accept "Money off" or "laws" or "complain"

Question		Answer	Marks	Content	Guidance
					Levels of response
4		<p><b>Things to avoid:</b></p> <ul style="list-style-type: none"> <li>• <b>Do not eat liver &amp; liver products</b> – this contains large amounts of vitamin A which will affect the baby's development</li> <li>• <b>Avoid soft cheeses (including blue/pate/unpasteurised milk)</b> – contain a bacteria called listeria which can cause illness in the mother and may harm the unborn baby</li> <li>• <b>Avoid raw and lightly cooked meats/cured meat/fish</b> – make sure meat is cooked thoroughly to ensure that all microorganisms are killed and you reduce the risk of food poisoning. Mother and baby are vulnerable</li> <li>• <b>Avoid raw or partially cooked eggs or egg products</b> – may contain salmonella which could cause illness in the mother and harm to the unborn baby</li> <li>• <b>Avoid certain types of fish including shark, swordfish, tuna and marlin</b> – These may contain high levels of mercury which can affect the development of the unborn baby's brain and nervous system</li> <li>• <b>Do not eat alcohol, caffeine, and nicotine</b> – These foods may prevent calcium being absorbed</li> <li>• <b>Excessive alcohol and caffeine intake</b> may cause the baby to be born underweight</li> <li>• <b>Carbonated (fizzy drinks)</b> should be avoided – they may prevent proper bone mineralisation.</li> </ul>	15		<p><b>0 = no response worthy of credit</b></p> <p><b>Level 4 (13–15 marks)</b> The candidate can demonstrate a good understanding of why certain foods should be avoided during pregnancy and offers a comprehensive explanation of the dietary needs of a pregnant woman. 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.</p> <p><b>Level 3 (9–12 marks)</b> The candidate can demonstrate some understanding of why some foods should be avoided during pregnancy needs and of a pregnant woman. 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.</p>

Question			Answer	Marks	Content	Guidance
						Levels of response
			<p><b>Nutritional needs during pregnancy:</b></p> <ul style="list-style-type: none"> <li>• <b>Need to have a balanced diet</b> - maintenance of the mothers body weight and the growing foetus</li> <li>• <b>Not too much fat/energy</b> – don't want to gain much weight</li> <li>• <b>Keep to the recommended salt intake levels</b> – you do not want to increase the risk of developing high blood pressure, this would also increase the risk for the baby</li> <li>• <b>Calcium</b> – the baby's skeletal development occurs needing a supply of calcium. The baby gets their calcium supply from the mothers blood supply, meaning the mother has to have a good supply. Not enough means weakened bones (osteoporosis or osteomalacia). Ensure the mother is consuming 700mg</li> <li>• <b>Vitamin D</b> – needed to help absorb the calcium. The mother needs to ensure a good supply of sunlight to enable the body to make vitamin D under the skin. Increase from 10ug to 20ug</li> <li>• <i>Some pregnant women may need to take calcium and or vitamin D supplements – if they do not consume enough or other medical conditions</i></li> <li>• <b>Consume enough iron</b> – the mother's blood volume increases by 50% to cope with the pregnancy. In the last 3 months the baby needs to build a store of iron to last a few months as milk only contains a little iron. 14.8mg</li> </ul>			<p><b>Level 2 (5–8 marks)</b> The candidate makes some valid comments about which foods should be avoided during pregnancy and/or makes an attempt to explain some of the dietary needs of a pregnant woman. 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.</p> <p><b>Level 1 (1–4 marks)</b> The candidate makes vague comments about what food should be avoided during pregnancy and may give one or two facts about a pregnant woman's diet. 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.</p>

Question			Answer	Marks	Guidance	
					Content	Levels of response
			<ul style="list-style-type: none"> <li>• <b>Increased intake of vitamin C</b> – to help absorb the iron. Increase vitamin C from 40mg to 50mg</li> <li>• <b>Increased intake of folic acid</b> (Vitamin B<sub>9</sub>) –Reduces the risk of the baby developing defects in the spine (spina bifida). Women planning a pregnancy are encouraged to consume folic acid from pre-conception until the 12<sup>th</sup> week of pregnancy. Supplements may be taken to consume a sufficient quantity. Women are also encouraged to eat plenty of food containing folate (naturally occurring folic acid). Increase from 200ug to 300ug</li> <li>• <b>Increased intake of vitamin B<sub>1</sub></b> (Thiamin) – increase from 0.8mg to 0.9mg for the babies development</li> <li>• <b>Increase vitamin A intake</b> – 600ug to 700ug for the babies development</li> <li>• <b>Increase intake of vitamin B<sub>2</sub></b> (Riboflavin) – increase from 1.1mg to 1.4mg for the babies development</li> <li>• <b>Increased intake of fibre</b> – hormones produced during pregnancy have a relaxing effect on the muscle of the intestine. Meaning constipation is more likely</li> <li>• <b>Increased intake of protein</b> – to enable the mother to produce enough milk and help her body recover from child birth. Increase protein intake from 45g to 51g</li> </ul>			

Question			Answer	Marks	Guidance	
					Content	Levels of response
			<ul style="list-style-type: none"> <li>• <b>Increased intake of energy</b> – Needed for laying down of extra fat stores, baby's development and extra energy loss. Increase energy intake from 1940kcal to 2140kcal.</li> </ul>			

Question			Answer	Marks	Guidance
5	(a)		<p><b>FOUR reasons required</b></p> <ul style="list-style-type: none"> <li>• To make it easier to eat/chew/swallow/tenderise/texture</li> <li>• To change/improve the flavour/taste</li> <li>• To make the food safe to eat/destroy harmful bacteria/prevent food poisoning</li> <li>• To make it easier to digest</li> <li>• To make the product (ie) cake</li> <li>• To make it more appetising/appealing</li> <li>• To give a variety of foods</li> <li>• To give warmth (hot food in cold weather)</li> <li>• To give/improve/change colour.</li> </ul>	4	<p>Do not accept one word answers "flavour"</p> <p>Do not accept "increase shelf-life"</p> <p>Do not accept "appearance or change appearance"</p>
	(b)		<p><b>THREE methods required</b></p> <ul style="list-style-type: none"> <li>• Poaching</li> <li>• Boiling</li> <li>• Scrambling</li> <li>• Baked/in the oven</li> <li>• Fried</li> <li>• Coddled</li> <li>• In the microwave</li> </ul>	3	
	(c)		<p><b>FOUR Explanations Required</b> <b>TWO marks for each explanation</b></p> <ul style="list-style-type: none"> <li>• <b>Breaded Chicken</b> – To coat/cover the chicken to protect it/stick breadcrumbs to chicken. When the food is cooked the egg protein coagulates and seals to protect the chicken inside.</li> </ul>	8	1 mark for a simple statement (ie) Coat or trap air. 2 <sup>nd</sup> mark for the explanation

Question	Answer	Marks	Guidance
	<ul style="list-style-type: none"> <li>• <b>Meringue – To trap air.</b> Egg protein stretches and stiffens as it is whisked, as it does it traps lots of air bubbled. This adds lightness/volume/light &amp; fluffy to the meringue. The egg whites and sugar trap air to form stiff foam. Helps set when heated.</li> <li>• <b>Mayonnaise – To prevent oil and water separating (emulsifier).</b> Lecithin in the egg yolk holds the oil and water together and stops them separating. The oil and vinegar (water) are prevented separating by the egg yolk.</li> <li>• <b>A sausage roll – Too glaze/give colour or shine.</b> The protein forms a (golden) brown colour with the starch or sugar in products when it's brushed on the product and heated, making it more attractive.</li> </ul>		

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