

Version 1



**General Certificate of Secondary Education  
June 2012**

**Home Economics: Food and Nutrition 45851**

**(Specification 4585)**

**Unit 1: Home Economics: Food and Nutrition  
(Written Paper)**

**Final**

***Mark Scheme***

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Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for standardisation each examiner analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

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**Question 1**

Question	Part	Sub Part	Marking Guidance	Mark	Comments
1	a		Wholemeal	1	
1	b		White flour is fortified with calcium/calcium is added	1	
1	c		Vitamin D	1	
1	d		Anaemia	1	
1	e		Haem iron is better absorbed than non-haem iron Vitamin C aids absorption Tea and coffee contain polyphenols which interfere with absorption Phytic acid in spinach affects absorption Credit two answers	2	
1	f		Candidates may choose any of the three breads. There are no marks for choosing bread Credit the discussion of the chosen bread in relation to the needs of teenagers e.g. Fibre to prevent constipation. Iron for vitality/ to prevent anaemia Calcium for teenagers bones and teeth/ blood clotting/ muscle contraction Protein because of teenagers growth spurt/ maintenance/repair/not energy Credit four valid points	4	Maximum of 1 mark per nutrient. They must state a valid function of the nutrient to gain the mark.
1	g		Dried fruit/fruit cake Plain chocolate Beef / corned beef/liver pate etc cereal bar Nuts Bean salad / not just beans	3	Not meat or vegetables unless specific. Foods given must be in a form suitable for a packed lunch.

**Question 2**

Question	Part	Sub Part	Marking Guidance	Mark	Comments
2	a		Flour	1	
2	b		Roux All-in-one	2	
2	c		It contains gluten and some people are allergic to this People with coeliac disease can not eat wheat products	1	Need to specify wheat flour. Not just flour.
2	d		Use wholemeal <b>macaroni</b> Remove <b>salt</b> Use polyunsaturated margarine instead of <b>butter</b> /low fat margarine Use wholemeal <b>flour</b> Use skimmed or semi-skimmed <b>milk</b> Use low fat/half fat <b>cheese</b> / use cheese with a strong flavour and lower the amount used <b>Credit three responses</b>	3	Not just margarine.
2	e		<b>Gelatinisation</b> As sauce is heated The starch grains soften And absorb water This causes them to swell Until they break making the mixture thicken Usually takes place at a temperature of 85°C	5	Process description needed but not definition of gelatinisation.

**Question 3**

Question	Part	Sub Part	Marking Guidance	Mark	Comments
3	a		Ascorbic Acid / C Thiamine /B1 Niacin /B2 Riboflavin Folic acid/Folate <b>Accept either the name or the number</b>	2	
3	b		A D	2	
3	c		Vitamin C /B1 are destroyed by heat Vitamin C is destroyed on exposure to oxygen therefore once it is cut before cooking there will be losses Vitamin C /B are water soluble so will leach into water on cooking  <b>1 mark only for each method of destruction but must be linked to a specific vitamin.</b>	2	Comments need to be linked to a particular vitamin.

3	d	<table border="1"> <thead> <tr> <th>Vitamin</th> <th>Functions</th> <th>Sources</th> </tr> </thead> <tbody> <tr> <td>B2</td> <td>Promotes healthy skin and mouth Releases energy to body cells</td> <td>Liver and kidney Breakfast cereals Yeast extract Cheese Eggs Milk Wholemeal bread</td> </tr> <tr> <td>Folic acid</td> <td>Helps prevent neural tube defects/spina bifida in pregnancy Needed for the formation of red blood cells</td> <td>Green vegetables (broccoli, spinach cabbage etc) Bread Potatoes Yeast extract Nuts and seeds Breakfast cereals</td> </tr> <tr> <td>C</td> <td>Formation of connective tissue/bone and tooth enamel Helps absorb iron into blood Healing of wounds/fractures Anti-oxidant/help prevent CHD/cancer Prevents scurvy</td> <td>Green vegetables Potatoes Citrus fruits Blackcurrants Peppers etc Tomatoes</td> </tr> </tbody> </table>	Vitamin	Functions	Sources	B2	Promotes healthy skin and mouth Releases energy to body cells	Liver and kidney Breakfast cereals Yeast extract Cheese Eggs Milk Wholemeal bread	Folic acid	Helps prevent neural tube defects/spina bifida in pregnancy Needed for the formation of red blood cells	Green vegetables (broccoli, spinach cabbage etc) Bread Potatoes Yeast extract Nuts and seeds Breakfast cereals	C	Formation of connective tissue/bone and tooth enamel Helps absorb iron into blood Healing of wounds/fractures Anti-oxidant/help prevent CHD/cancer Prevents scurvy	Green vegetables Potatoes Citrus fruits Blackcurrants Peppers etc Tomatoes	9	<p>Credit one example of a breakfast cereal.</p> <p>Credit one green vegetable only.</p> <p>Credit one example only of citrus fruits and green vegetables.</p>
		Vitamin	Functions	Sources												
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<p><b>Credit 3 marks for each vitamin</b>  <b>Candidates must give at least one correct function of the vitamin and one correct source to get 3 marks.</b></p>																

**Question 4**

Question	Part	Sub Part	Marking Guidance	Mark	Comments
4	a		Moulds Yeast Bacteria <b>OR</b> 3 named bacteria	3	If candidates have named 3 bacteria give 3 marks <b>BUT</b> if they have given bacteria as a response and then named a bacteria only 1 mark. If spelling is incorrect but word is recognisable then credit it.
4	b		Warmth Moisture Food Time Air Neutral pH <b>Credit 3 responses</b>	3	
4	c		100 -18 5-63 (accept within this range but not outside it!) 72 Should include 37°C in the range.	4	
4	d		<b>Storage</b> Follow storage instructions on label Chilled foods in refrigerator below 5° C – slows down bacterial growth Use fridge thermometer – to ensure fridge is kept at a safe temperature Cooked foods stored above raw foods – prevents cross contamination Cover foods in the refrigerator – prevents cross contamination Check foods frequently for signs of decay and that they are within use by dates – bacterial growth can lead to food poisoning Keep refrigerators clean – to prevent microbial growth Do not overload fridge – air needs to circulate to keep food cool Do not put warm foods in fridge –will raise temperature Store frozen foods in freezer below -18°C – prevents foods thawing out and bacterial	9	

		<p>becoming active                  Do not re-freeze food once it has defrosted – bacterial multiplication may have taken place as food warmed up                  Rotate stock / check use by dates – ensures oldest food is used first/ prevents dry foods becoming rancid or infested by beetles                  Non-perishable foods in cool dry conditions.</p> <p><b><u>Preparation</u></b>                  Wash hands before cooking and after toilet – bacteria on hands can be transferred to food                  Do not cough/sneeze over food – many bacteria live in nose and throat and can be transferred onto food                  Do not lick fingers/ utensils – as above                  Wash hands after handling raw meat and poultry- salmonella and other bacteria can be transferred onto food                  Wear a clean apron – to prevent bacterial contamination from clothes onto food                  Use different chopping board for raw and cooked foods – to prevent cross contamination                  Clean surfaces/equipment                  Wash fruit and vegetables</p> <p><b>Criteria Bands</b>  <b>0 marks</b> – No work worthy of any marks  <b>1-3 marks</b> – Little understanding shown of how food poisoning can be prevented during the storing and preparation of foods. Few valid points made. Little or no explanation of points made. May only deal with one stage  <b>4-6 marks</b> – Fair understanding shown of how food poisoning can be prevented during storage and preparation. May deal with one stage better than the other. Some explanation of the points made. Fair use of terminology.  <b>7-9 marks</b> – Good understanding of how food poisoning can be prevented during storage and preparation. Good range of points given and well explained. Good use of terminology.</p>	<p>A very good discussion of one area may still get into top band but only award top marks if both storage and preparation are discussed well.</p>
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**Question 5**

Question	Part	Sub Part	Marking Guidance	Mark	Comments														
5	a		<table border="1"> <thead> <tr> <th>Additive</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Anti-oxidant Nutritional supplements.</td> <td>Prevent fats and oils becoming rancid/extends shelf life. To improve nutritional value.</td> </tr> <tr> <td>Colourings</td> <td>Add or replace colour lost in processing To change the colour/make it more appealing.</td> </tr> <tr> <td>Flavourings /sweeteners</td> <td>To add flavour To make it taste nicer/improve taste To make more varieties e.g. crisps To make new food products with unusual flavours.</td> </tr> <tr> <td>Flavour enhancers</td> <td>To give a more intense flavour</td> </tr> <tr> <td>Emulsifiers</td> <td>To mix oil and water together</td> </tr> <tr> <td>Stabilizers</td> <td>To prevent separation Thickeners To improve texture and mouth feel e.g. yoghurts.</td> </tr> </tbody> </table> <p><b>Credit 4 types of additive and 4 functions</b></p>	Additive	Function	Anti-oxidant Nutritional supplements.	Prevent fats and oils becoming rancid/extends shelf life. To improve nutritional value.	Colourings	Add or replace colour lost in processing To change the colour/make it more appealing.	Flavourings /sweeteners	To add flavour To make it taste nicer/improve taste To make more varieties e.g. crisps To make new food products with unusual flavours.	Flavour enhancers	To give a more intense flavour	Emulsifiers	To mix oil and water together	Stabilizers	To prevent separation Thickeners To improve texture and mouth feel e.g. yoghurts.	8	Must have named the additive to get credited for function.
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5	b		Approved for use in Europe.	1															

5	c	<p><b>Advantages:</b>                  Enable us to have a wide range of pre-prepared and processed foods.                  Many foods would separate and go runny without stabilizers and emulsifiers.                  Cakes and biscuits would go stale without anti-oxidants                  Foods look more appetizing with added colours                  Some additives increase the nutritional value, e.g. added vitamins to cereals and breads                  Enables consumers to store foods for longer which means we can shop for food less frequently                  Improve shelf life –increases time food is safe to eat                  Increases/improves flavour</p> <p><b>Disadvantages :</b>                  Growing concern hyperactivity in children                  Some people may be allergic to additives, e.g. monosodium glutamate                  Some concerns that some additives may be carcinogenic                  Some people concerned about the amount and mixture of additives they may get from eating different processed foods.</p> <p><b>Criteria Bands</b>  <b>0 marks</b> – No work worthy of any marks  <b>1-2 marks</b> – Little understanding shown of the advantages and disadvantages of using food additives. Few valid points made. May only mention advantages.  <b>3-4 marks</b> – Fair understanding shown of the advantages and disadvantages of food additives. May only mention advantages. Fair use of terminology.  <b>5-6 marks-</b> Good understanding of the advantages and disadvantages of using additive. Good range of points given and well explained. Good use of terminology.</p>	6	
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**Question 6**

Question	Part	Sub Part	Marking Guidance	Mark	Comments
6	a		It is graded A to G - A is more (energy) efficient It shows how many units (kWh) of electricity it uses in a year / it shows energy consumption It shows how much food it will hold It shows how noisy it is to run <b>Credit four answers</b>	4	
6	b		Larder refrigerator Fridge with a small in built ice box Fridge/ freezer Free standing or fitted into a unit <b>Credit two responses</b>	2	
6	c		Drinks dispenser Ice maker Wine rack Automatic defrost Alarm when temperature drops Digital temperature display <b>Credit two responses</b>	2	
6	d		Refrigerator must be of <b>satisfactory quality</b> and <b>free from faults</b> Refrigerator must be <b>fit for its purpose</b> Refrigerator must be <b>as described on the packaging or advertisement</b> If not consumer is <b>entitled to a refund</b> <b>Credit any two of the answers in bold, or words to that effect</b>	2	

**Question 7**

Question	Part	Sub Part	Marking Guidance	Mark	Comments
7	a		<p>Advantages:                      Seasonal fruit and vegetables                      Wider variety of produce, e.g. types of apples/pears etc.                      Produce is fresh                      Produce is local                      Good knowledge from seller                      Supports local farmers                      Good quality                      Concerns over food miles/carbon footprint                      May be organic</p> <p><b>Disadvantages:</b>                      Convenience                      Difficult to return goods                      Only once a month                      Access/parking/distance to travel                      Limited range of goods                      Expensive                      Produce may not be uniform in size/shape</p> <p><b>To get full marks candidates must have given both advantages and disadvantages.</b></p>	4	
7	b		<p><b>Hypermarket</b>                      Large range of a huge range of goods                      Good parking facilities/disabled/mother and child places                      Wide aisles                      Battery operated chairs                      Selection of shopping trollies for disabled, large shops, smaller shops, babies etc                      Good offers/multipacks                      Everything under one roof/time saving                      May have a cafeteria/ banking facilities/cash back                      May have opticians, pharmacist etc                      24 hour shopping                      May deliver                      Product range suits different budgets</p>	12	

		<p>May need transport          Too much choice          Temptation to impulse buy and spend more than planned/Pester Power          May have long queues at checkout          Time consuming</p> <p><b>Specialist shop</b>          Wide range of a few types of foods          Knowledgeable staff for advice and assistance          Good customer care          Good quality</p> <p>Fewer shops available/may have to travel to get there/parking may be difficult          May be more expensive than supermarkets          Could be time consuming          Limited opening times</p> <p><b>Internet</b>          Saves time and effort          Basket can be saved          No travel time/cost/fuel cost          Less likely to impulse buy/stick to budget          Home delivery          Can order at a time to suit yourself and choose a suitable delivery slot          Same <b>deals</b> as a supermarket</p> <p>Foods not available will be substituted by store          Need to have a credit/debit card          Need to have a computer and the ability to use it          Cannot inspect goods before purchase          More difficult to return unsuitable foods          Some customers worry about the security of using credit card on the internet          Pay a delivery charge</p> <p><b>Criteria Bands</b>  <b>0 marks</b> – No work worthy of any marks  <b>1-4 marks</b> - A limited number of points. Answer muddled and the information given was superficial. No real understanding shown of the advantages and disadvantages of the</p>		
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		<p>different shopping methods. Answer may concentrate on only one shopping method or may just give advantages. Basic communication. Poor spelling and use of grammar.</p> <p><b>5-8 marks</b> - Fairly well organised showing a fair understanding of the advantages and disadvantages of different shopping methods. Candidates may have answered part of the question well but may have omitted one method of shopping or may have concentrated on either advantages or disadvantages but not dealt well with both. Candidates spell, punctuate and use the rules of grammar with reasonable accuracy.</p> <p><b>9-12 marks</b> - Answer well organised and clearly presented. A good understanding of advantages and disadvantages of different shopping methods. Candidates spell, punctuate and use the rules of grammar well. Specialist terms used accurately.</p>		
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