



**2015 Health and Food Technology**

**Advanced Higher**

**Finalised Marking Instructions**

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## **Part One: General Marking Principles for: Health and Food Technology Advanced Higher**

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question.

- (a)** Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader/Principal Assessor.
- (b)** Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

### **GENERAL MARKING ADVICE: Health and Food Technology Advanced Higher**

The marking schemes are written to assist in determining the “minimal acceptable answer” rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates’ evidence, and apply to marking both end of unit assessments and course assessments.

Each question is marked out of 25. Markers should use the full range of marks available as indicated in the mark descriptors for an A, B and C response at the top of each question.

Candidates should be rewarded according to the quality of thought revealed in their answers. They should not be rewarded solely, or even mainly, according to the quantity of knowledge conveyed. In progression from Higher a more advanced grasp of the skills of analysis, synthesis and interpretation is required. Credit will be awarded according to the degree of success with which the candidate:

- gives an answer which is relevant to the question and is explicitly related to the terms of the question
- is able to make the various distinctions required by the question
- responds to all the elements in the question in a coherent manner
- applies knowledge and explains, analyses, discusses rather than simply stating facts
- develops the skills of analysis and evaluation through critical appraisal.

## Part Two: Marking Instructions for each Question

### SECTION A

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(a)	<p><b>4-5 marks</b> The candidate is able to clearly outline five of the main issues in the report.</p> <p><b>3 marks</b> The candidate is able to clearly outline some of the main issues in the report.</p> <p><b>1-2 marks</b> The candidate is able to outline one or two of the main issues in the report.</p> <ol style="list-style-type: none"><li>1. Even though restrictions are in place to stop children seeing food advertising they are still being exposed to such practices.</li><li>2. The restrictions are in place to stop children seeing food adverts for high fat, salt or sugar foods during programmes they may watch.</li><li>3. It is thought that children watch 70% of TV/soap operas/Saturday night entertainment shows outside the hours of what is classed as 'children's TV' programming and it is at this time that much of the food advertising is taking place.</li><li>4. Campaigners have called for a watershed of 9pm for such adverts as this will help to reduce exposure to these adverts.</li><li>5. This may not work as children are becoming increasingly competent in using technology where they can watch programmes on demand via the internet.</li><li>6. Newcastle University found that there were loopholes in the advertising restrictions.</li><li>7. Before the ban 6.1% of adverts were seen by children and afterwards this exposure has increased.</li><li>8. It has been proved that if children are being exposed to adverts promoting unhealthy food, they are then more likely to choose to eat these foods.</li><li>9. Children may adopt 'pester power' to get parents to buy the foods they have seen being advertised.</li></ol>	5	

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(a)	<p><b>(cont)</b></p> <p>10. Nine out of ten food adverts which Scottish children see promote unhealthy foods.</p> <p>11. The most common foods advertised are: soft drinks, sweetened breakfast cereals, biscuits, confectionary, snack foods, ready meals and fast food outlets.</p> <p>12. Children are educated about healthy eating yet food adverts promote unhealthy products.</p> <p>13. Children should have healthy eating habits as this will grow with them into adulthood.</p> <p>14. It is thought that food manufacturers using the loopholes to advertise junk food is a factor towards the obesity epidemic in the UK.</p> <p>15. There is significantly more money being spent on promoting unhealthy foods than there is on preventing diet related diseases.</p> <p>16. An effective method of TV advertising is the use of celebrity endorsements.</p> <p>17. If children see celebrities advertise a product they are more likely to choose to eat the product they have seen being advertised.</p> <p>18. Campaigners would like to stop celebrities promoting junk foods as they fear they are contributing to the childhood obesity rates.</p> <p>19. Many techniques are being used online to advertise high fat, sugar or salt foods to appeal to children as an increasing number have access to the internet.</p> <p>20. Parents have difficulty supervising their children's access to information on the internet.</p> <p>21. There are unclear rules as to what the restrictions are with regards to online advertising, this is why food companies are choosing to advertise this way.</p> <p>22. Children are exposed to more advertising online than they would be by watching television.</p> <p>23. To protect the health of children there have been calls for clearer advertising regulations in all media types.</p>		

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(b)	<p><b>8-10 marks</b> The candidate is able to develop a full and coherent discussion of the implications for children's health of a diet high in 'junk food'. The discussion shows good analysis and the identification of the majority of the main points with full explanation.</p> <p><b>6-7 marks</b> The candidate is able to develop a discussion of the implications for children's health of a diet high in 'junk food'. Some of the main points will be identified with explanation.</p> <p><b>1-5 marks</b> The candidate is able to identify some of the main points of the implications for children's health of a diet high in 'junk food'. The discussion is limited with no explanation.</p> <p><b>The candidate should make reference to the following points linked to children's health:</b></p> <ol style="list-style-type: none"> <li>1. Increased risk to health in adult life – eating habits are established in childhood, research has indicated a strong link between diet in childhood and diet related illness in later life.</li> <li>2. High salt levels in junk foods may increase blood pressure in later life which could lead to stroke/heart attack.</li> <li>3. High fat levels may contribute to overweight, an overweight child is very likely to become an overweight adult.</li> <li>4. If fat contributes to obesity, child less likely to participate in sport which exacerbates the problem.</li> <li>5. High saturated/trans-fat levels of many junk foods may mean high cholesterol levels which increases risk of CHD (in later life).</li> <li>6. High intake of saturated fats may contribute to cancer eg breast/bowel cancers.</li> <li>7. High saturated/trans-fat levels may result in cholesterol build-up in arteries which may lead to strokes in later life.</li> <li>8. High saturated fat intake may lead to obesity resulting in an increased risk of heart attack (in later life).</li> <li>9. High levels of sugar in these foods may contribute to tooth decay.</li> <li>10. High intake of sugars at a young age may contribute to the development of type 2 diabetes.</li> <li>11. High intake of sugars may lead to obesity.</li> </ol>	10	

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(b)	<p><b>(cont)</b></p> <p>12. Many junk foods are of low nutritional value, children who have smaller appetites require nutrient dense diets to ensure they receive all the nutrients, a variety of deficiency diseases could occur eg anaemia/osteoporosis.</p> <p>13. Diets high in junk foods tend to be low in fruit and vegetables which may mean – low intake of NSP increases risk of bowel disorders such as constipation, bowel cancer, diverticulitis etc.</p> <p>14. Diets high in junk foods tend to be low in fruit and vegetables which may mean low intake of anti-oxidant vitamins increases risk of CHD and some cancers in later life.</p> <p>15. A junk food diet can encourage a liking for fatty/sugar foods so increasing the risk of obesity.</p> <p>16. Junk foods likely to contain additives some of which may cause hyperactivity in children.</p> <p>17. May lead to mental health issues/addiction leading to high dependency on these foods resulting in obesity/CHD in later life.</p> <p>18. Some additives may cause allergic reactions in children.</p> <p>19. Reference to any specific type of junk food and the effect on health.</p>		

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(c)	<p><b>8-10 marks</b> The candidate is able to critically discuss how promotional techniques may influence children's choice of food. They demonstrate a clear understanding of the issues involved, giving a full analysis.</p> <p><b>6-7 marks</b> The candidate is able to critically discuss how promotional techniques may influence children's choice of food. They demonstrate an understanding of the issues involved, giving some analysis.</p> <p><b>1-5 marks</b> The candidate is able to critically discuss how promotional techniques may influence children's choice of food. They demonstrate a limited understanding of the issues involved, giving limited analysis.</p> <p><b>Answers should make reference to the following points linked to children's food choices:</b></p> <p><b>Persuading parents</b></p> <ol style="list-style-type: none"> <li>1. Research indicates that if the parent feels that their children are being exploited by manufacturers they will not purchase the product.</li> <li>2. Nutritional value of products highlighted to parents to encourage purchase.</li> <li>3. Food additives – parents who have an understanding of the possible effects of food additives may think twice about purchasing products high in food additives.</li> <li>4. Promote the 'natural' ingredients in the product – encourages parents to feel that they are improving their children's diet/health.</li> <li>5. Vitamins – addition of extra vitamins can persuade some parents to purchase – media link with IQ.</li> <li>6. Product image must be acceptable to parent eg sweetie cigarettes no longer acceptable.</li> <li>7. Much of the advertising takes place during 'family programming' so children and parents are seeing the adverts together.</li> </ol>	10	

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(c)	<p>(cont)</p> <p><b>Product image</b></p> <p>8. Use of characters/packaging to attract children and increase product appeal.</p> <p>9. Promotional packs – film characters, for visual appeal.</p> <p><b>Promotion/advertising</b></p> <p>10. Manufacturers sponsor events to advertise products.</p> <p>11. Use of on-pack offers for additional items/ special offers/competitions can increase sales eg buy six cans and send for teddy bear for £3.99.</p> <p>12. TV advertising is a high profile format for children.</p> <p>13. Timing of TV adverts is crucial to reach correct audience – ‘family time’.</p> <p>14. Children are encouraged through adverts to apply pressure to parents to purchase latest product/collect the set.</p> <p>15. Websites – many manufacturers have their own sites with games, downloadable quizzes etc.</p> <p>16. Promotion of free schools equipment through repeat purchases/voucher collection schemes can persuade parents to purchase particular items/schools to encourage children to persuade parents to purchase.</p> <p>17. Adverts which appeal to target group eg by use of jingles/cartoon characters/simple messages.</p> <p>18. Use of celebrities to advertise products for children.</p> <p>19. Free samples/free trial/free gifts with product.</p> <p>20. Use of social media sites to like and follow specific types of foods eg Find us on Facebook, follow us on Twitter.</p>		

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(c)	<p>(cont)</p> <p><b>Marketing</b></p> <p>21. Identify target market/customer profile.</p> <p>22. Name change/product re-vamp to increase appeal.</p> <p>23. Maintained in relation to popular characters eg 101 Dalmatians became Harry Potter.</p> <p>24. Product location – siting within supermarkets is crucial – shelf height must be within child’s vision.</p> <p>25. Reach/end of aisle promotions/beside checkouts will allow child to access product and persuade parent to purchase.</p> <p>26. Retail price crucial – parents want to feel it offers value for money.</p> <p>27. Novelty factor – must provide the child with a certain level of entertainment/enjoyment or the child will not pressure parent to re-purchase eg Kinder Surprise.</p> <p>28. Children in nursery/primary school can be encouraged to apply pressure to parents to purchase product through peer pressure/competition element.</p>		

**SECTION B**

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(a)	<p><b>8-10 marks</b> Candidates will be able to develop a full and coherent discussion of how <b>current dietary advice</b> could contribute to a reduction in coronary heart disease. The discussion shows good analysis and identification of the majority of the main points with full explanations.</p> <p><b>6-7 marks</b> The candidate will be able to develop a discussion of how <b>current dietary advice</b> could contribute to a reduction in coronary heart disease. Most of the main points will be identified with some explanations.</p> <p><b>4-5 marks</b> The candidate will be able to discuss how <b>current dietary advice</b> could contribute to a reduction in coronary heart disease. The discussion will show limited or no explanation.</p> <p><b>Answers should make reference to accurate current dietary advice linked to a reduction in coronary heart disease:</b></p> <p><b>Fruit and vegetables</b></p> <p><b>Dietary target – Average intake to double to 400 grams per day.</b></p> <p><b>Revised Dietary goal – Average intake of a variety of fruit and vegetables to reach at least 5 portions per person per day (400g per day)</b></p> <ol style="list-style-type: none"> <li>Many ways of consuming fruit and vegetables involve no or very little fat in either preparation or cooking therefore helping to reduce the incidence of coronary heart disease (CHD).</li> <li>Changing the diet to include more fruit and vegetables may change ones palate and preferences may result in a reduction in consumption of fatty, sugary foods which reduces the risk of CHD.</li> <li>Fruit and vegetables are high in non-starch polysaccharides (NSP) which are filling and so prevents snacking on high fat and sugar foods between meals – this will lessen the risk of obesity and high blood pressure (HPB), which may result in CHD.</li> </ol>	10	

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(a)	<p><b>(cont)</b></p> <ol style="list-style-type: none"> <li>4. Fruit and vegetables are low in fat or contain no fat so assist the overall reduction in fat in the diet and do not greatly increase calorie intake, reducing the risk of CHD.</li> <li>5. Some fruit and vegetables are low in sugar so are useful as they do not greatly increase calorie intake which may lead to obesity and CHD.</li> <li>6. Fruit and vegetables are good source of antioxidant vitamins and these have an important role to play in preventing CHD.</li> <li>7. Specific antioxidants eg Lycopene/Vitamin E may also be identified and their role in preventing CHD.</li> <li>8. Fruit and vegetables are high in NSP; this helps ferry cholesterol out of the body so reducing the risk of CHD.</li> </ol> <p><b>Bread</b></p> <p><b>Dietary Target – increase by 45% mainly using wholemeal and brown bread.</b></p> <ol style="list-style-type: none"> <li>9. Breads, especially those high in NSP, are filling and so reduce the need to snack on high-fat and sugary foods, reducing the possible risk of obesity, HBP leading to CHD.</li> <li>10. NSP combine with cholesterol and bile salts, so preventing the cholesterol from being absorbed, reducing the risk of CHD.</li> </ol> <p><b>Fats</b></p> <p><b>Dietary Target – Total fat to reduce to no more than 35% of total energy intake. Average intakes of saturated fats reduce to no more than 11% of total energy intake.</b></p> <p><b>Revised dietary goals</b></p> <p><b>Fats – Average intake of total fat to reduce to no more than 35% food energy. Average intake in saturated fat to reduce to no more than 11% food energy. Average intake of trans fatty acids to remain below 1% food energy</b></p> <ol style="list-style-type: none"> <li>11. Fat is a concentration source of calories which, if not used up through activities, will contribute to obesity, with a possible link to HBP, which then may lead to CHD.</li> </ol>		

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(a)	<p><b>(cont)</b></p> <p>12. A diet high in saturated fats may raise the level of cholesterol in the blood – this cholesterol is then deposited on the walls of the arteries and narrows them. This restricts the blood flow, which can lead to HBP, increasing the risk of CHD.</p> <p>13. Trans fatty acids are as harmful as saturated fats. This type of fat is found in processed foods, eg margarine and biscuits, and causes an increase in cholesterol in the blood and an increased risk of CHD.</p> <p>14. Choice of foods lower in fat, such as fat-reduced products, and choice of cookery methods could help lower the fat content of the diet so reducing the risk of CHD.</p> <p><b>Sugar</b></p> <p><b>Dietary Target – Average intake of NME sugars in adults not to increase. Average intake of NME sugars in children to reduce by half to no more than 10% total energy.</b></p> <p><b>Revised Dietary Goals – Average intake of NMES to reduce to less than 11% of food energy in children and adults</b></p> <p>15. Sugar provides calories which, if not used through activities, may contribute to obesity and this in turn may result in HBP and CHD.</p> <p>16. High intakes of sugar may result in the development of type 2 diabetes – diabetics are at more risk of CHD.</p> <p>17. Overweight children often become overweight adults which in turn increases the risk of CHD.</p> <p><b>Salt</b></p> <p><b>Dietary target/Revised dietary goals - salt – average intake to reduce to 100mmol/6g per day.</b></p> <p>18. High salt intakes are linked to HBP, with increased risk of CHD.</p>		

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(a)	<p>(cont)</p> <p><b>Total Complex Carbohydrates</b></p> <p><b>Dietary Target – increase average non sugar intake by 25%.</b></p> <p>19. Complex carbohydrates, especially those containing NSP, will provide bulk/fibre in the diet and prevent snacking on high-fat and sugary foods so reducing the risk of obesity which could result in CHD.</p> <p>20. Complex carbohydrates provide a steady supply of energy, helping blood sugar levels to remain stable and thus preventing snacking on high-fat foods so reducing the risk of obesity and CHD.</p> <p>21. Increasing the proportion of starchy carbohydrates eaten in meals will reduce the need to serve high-fat foods to make meals more filling so reducing the risk of obesity and CHD.</p> <p><b>Breakfast cereals</b></p> <p><b>Dietary target – average intake to double to 34 grams.</b></p> <p>22. Consumption of breakfast cereals reduces the need to snack on high-fat or sugar foods during the morning so reducing the risk of obesity and CHD.</p> <p>23. Some breakfast cereals are high in NSP, this helps ferry cholesterol out of the body, so reducing the risk of CHD.</p> <p><b>Fish</b></p> <p><b>Dietary Target – Intake of oily fish to double to 88 grams. Intake of white fish to be maintained at current levels.</b></p> <p><b>Revised dietary Goal – oil rich fish consumption to increase to one portion per person (140g) per week.</b></p> <p>24. Omega 3 fatty acids found in oily fish makes the blood less sticky and reduces the risk of blood clots so reducing the risk of CHD.</p> <p>25. Omega 3 fatty acids found in oily fish reduces cholesterol levels, so helping to prevent CHD.</p> <p>26. White fish is low in fat so assists the overall reduction in fat; helps prevent obesity which may lead to CHD.</p>		

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(a)	<p>(cont)</p> <p><b>Calories</b></p> <p><b>Revised Dietary Goals – a reduction in calorie intake by 120/calories per person per day</b>  <b>Average energy density of the diet to be lowered by 125kcal/100g of high fat and/or sugary products and by replacing with starchy carbohydrates (eg bread, pasta, rice and potatoes) fruits and vegetables.</b></p> <p>27. Reducing calorie intake from high fat/sugary foods will help prevent obesity/diabetes type 2/ HBP which increase the risk of CHD.</p> <p>28. Starchy carbohydrates/fruit and vegetables are high in non-starch polysaccharides (NSP) which are filling and so prevents snacking on high fat and sugar foods between meals – this will lessen the risk of obesity and high blood pressure (HBP), which may result in CHD.</p> <p>29. Fruit and vegetables are low in fat or contain no fat so assist the overall reduction in fat in the diet and do not greatly increase calorie intake, reducing the risk of CHD.</p> <p>30. Some fruit and vegetables are low in sugar so are useful as they do not greatly increase calorie intake which may lead to obesity and CHD.</p> <p><b>Red meat</b></p> <p><b>Revised Dietary Goals – Average intake of red meat and processed meat to be pegged at around 70g per person per day.</b>  <b>Average intake of the very highest consumers of red and processed meat (90g per person per day) not to increase.</b></p> <p>31. High fat/salt intakes which may be found in processed foods are linked to HPB, with increased risk of CHD.</p> <p>32. A diet high in saturated fats may raise the level of cholesterol in the blood – this cholesterol is then deposited on the walls of the arteries and narrows them. This restricts the blood flow, which can lead to HBP, increasing the risk of CHD.</p>		

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(a)	<p>(cont)</p> <p><b>Fibre</b></p> <p><b>Revised Dietary Goals – An increase in average consumption of fibre to increase to 18g per day by increasing consumption of wholegrains, pulses and vegetables.</b></p> <p>33. Eating foods containing NSP/fibre will help ferry cholesterol out of the body, so reducing the risk of CHD.</p> <p>34. Foods containing fibre will provide bulk in diet and prevent snacking on high-fat and sugary foods so reducing the risk of obesity which could result in CHD.</p>		

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(b)	<p><b>12-15 marks</b> The candidate is able to critically discuss the role of food and drink manufacturers and retailers in improving the Scotland's diet, giving full analysis.</p> <p><b>9-11 marks</b> The candidate is able to critically discuss the role of food and drink manufacturers and retailers in improving Scotland's diet, giving some analysis.</p> <p><b>1-8 marks</b> The candidate is able to critically discuss the role of food and drink manufacturers and retailers in meeting the challenge of improving Scotland's diet, giving limited analysis.</p> <p><b>Answers should make reference to the following points linked to food and drink manufacturers/retailers and their contribution to improving the Scottish diet:</b></p> <p><b>Manufacturers</b></p> <ol style="list-style-type: none"> <li>1. Companies which manufacture weaning foods should ensure that they are low in NME sugars preventing a liking for sugar in early years resulting in diet related illnesses.</li> <li>2. Nutritional training should be provided for the food manufacture and processing industries to ensure a healthier product is produced/raise awareness of diet related illnesses.</li> <li>3. New technologies in the manufacturing process should be developed to help the development of new lower fat/sugar products.</li> <li>4. More, lower fat/sugar/salt products should be developed so reducing fat/sugar/salt intake.</li> <li>5. The number of high fat/salt/sugar products should be reduced.</li> <li>6. The use of sugar substitutes could be extended eg in drinks.</li> <li>7. The use of fat replacements could be extended to reduce fat intake.</li> <li>8. Small reductions of fat, sugar and salt should be introduced in processed foods and drinks to allow consumers to get used to the changes gradually.</li> </ol>	15	

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(b)	<p>(cont)</p> <ol style="list-style-type: none"> <li>9. More processed foods could be developed which contain fruit and vegetables/complex carbohydrates/oily fish so allowing the consumer to increase their intake.</li> <li>10. Clear labelling of the nutritional content of foods and drinks could help consumers make wise choices.</li> <li>11. Manufacturers can reduce the saturated fat content of ready meals.</li> <li>12. Manufacturers have increased the range of products using quorn, tofu and soya which supply consumers with a low fat source of protein.</li> <li>13. Use of oils/fats which have a lower quantity/percentage of saturated fats and a proportionately higher amount of unsaturated fats.</li> <li>14. Use of lower fat ingredients in products and reduced fat versions such as low fat dairy products.</li> <li>15. Natural sweeteners, such as dried fruit, can be added to some baked products to increase acceptability and assist in reducing NME sugars.</li> <li>16. Manufacturers are reducing salt, by the use of spices and herbs in ready meals.</li> <li>17. Manufacturers are incorporating more wholegrain ingredients into ready meals.</li> <li>18. Manufacturers now produce a wide range of speciality bread that encourages consumers to eat more bread especially wholegrain versions.</li> <li>19. Bread has been produced with added grains and NSP. These will still appeal to children because they are white and therefore encourage consumption.</li> <li>20. Manufacturers produce part baked breads which can be baked and served hot in the home. This may encourage consumption.</li> <li>21. Oily fish, such as salmon/tuna, are made into ready meals such as pasta bakes, pate, canned in brine, spring water or in savoury sauces for snacks.</li> <li>22. Because fish is easily and quickly cooked many manufacturers include fish dishes in their microwaveable and chilled ranges. These require little additional preparation therefore making it easier for the consumer.</li> <li>23. Many manufacturers are reducing or removing the amount of trans fatty acids in their products which should help reduce the incidence of CHD.</li> </ol>		

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(b)	<p><b>(cont)</b></p> <p>24. Some food manufacturers have voluntarily agreed to reduce the amount of saturated fat in some products as part of a government scheme aimed at reducing obesity.</p> <p>25. But some health experts said the approach does not go far enough, because it is voluntary/ should also include sugar.</p> <p>26. Foods can be fortified with additional nutrients.</p> <p><b>The Retail Sector:</b></p> <p>27. Supermarkets should further develop innovative ways, including in-store initiatives, of marketing healthy products to consumers.</p> <p>28. Supermarkets should ensure that the labelling of “own brand” products sold in their stores provides easily understood information on product composition and nutritional value to enable consumers to make healthy food choices.</p> <p>29. Supermarkets should extend special offers to include more “healthier” products.</p> <p>30. Loyalty cards could be used as incentives to buy healthier products eg double club card points on fruit and vegetables.</p> <p>31. Examine the possibility of free/low cost transport to facilitate access to store for those on low incomes.</p> <p>32. In store cafés should promote healthy choices.</p> <p>33. Health promotion campaigns in stores.</p> <p>34. Some retailers near schools are not allowing school children to purchase huge bottles of fizzy drinks at lunchtimes.</p> <p>35. Improvement in presentation of fresh fish counter may encourage purchase.</p> <p>36. Free recipe cards using “healthier” ingredients may encourage their purchase.</p> <p>37. Explore the scope for access to electronic point of sale (EPOS) information/loyalty card data, for Scottish Government, to monitor and evaluate the various initiatives being undertaken to improve the Scottish diet.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
2.	<p><b>18-25 marks</b> The candidate is able to develop a full and coherent discussion of the part played by micronutrients in the diet of the elderly. The discussion shows good analysis and the identification of the majority of the main points with full explanation.</p> <p><b>15-17 marks</b> The candidate is able to develop a discussion of the part played by micronutrients in the diet of the elderly. Most of the main points will be covered with explanation.</p> <p><b>12-14 marks</b> The candidate is able to identify some of the main points with limited explanation.</p> <p><b>Answers should make reference to the following points and include reference to the elderly:</b></p> <p><b>Vitamin A</b></p> <ol style="list-style-type: none"> <li>1. Necessary for good eyesight especially night vision – important for elderly with failing eyesight/macular degeneration</li> <li>2. Has anti-oxidant properties – important for elderly who may be at risk from cancers/ disease</li> <li>3. Required to keep the mucous membranes in the throat, digestive and bronchial and excretory systems moist and free from infection</li> <li>4. Required for the maintenance and health of the skin.</li> </ol> <p><b>Vitamin B complex</b></p> <ol style="list-style-type: none"> <li>5. Allows the chemical reaction to occur which releases energy from CHO</li> <li>6. Elderly must ensure adequate supplies to obtain energy from their food otherwise they will be lethargic</li> <li>7. Important for healthy skin, tongue, digestive and nervous system</li> <li>8. All active people must ensure adequate supplies to ensure energy release from food.</li> </ol>	25	

Question	Expected Answer(s)	Max Mark	Additional Guidance
2.	<p><b>(cont)</b></p> <p><b>Folic Acid</b></p> <p>9. Essential for the formation of red blood cells and the prevention of megaloblastic anaemia</p> <p>10. Required for the release of energy from food</p> <p>11. Important for the production of the nucleic acids RNA and DNA.</p> <p><b>Vitamin B12</b></p> <p>12. Important to elderly who may or may not be vegans, to prevent pernicious anaemia</p> <p>13. Important for the production of red blood cells</p> <p>14. Important for the normal functioning of the nervous system</p> <p>15. Involved in the metabolism of protein, carbohydrates and fats.</p> <p><b>Vitamin C</b></p> <p>16. Necessary for healing wound/sores – vital for old and for preventing scurvy (poor diet/lack of fresh fruit and vegetables)</p> <p>17. Antioxidant properties beneficial to elderly at risk from cancers/disease</p> <p>18. Assists with the absorption of iron</p> <p>19. Required to make connective tissue which binds body cells together</p> <p>20. Required for the building and maintenance of skin and linings of the digestive system.</p> <p><b>Vitamin D</b></p> <p>21. Required to promote the absorption of calcium and phosphorus to build strong bones and teeth – vital for the elderly</p> <p>22. Readily available by the action of sunlight on the skin – elderly who go out less (housebound) may not take full advantage of this factor – may affect onset of osteomalacia/osteoporosis</p> <p>23. Too much vitamin D can be dangerous as it results in excess absorption of calcium in the blood, this is deposited on the lungs and kidneys and can result in death.</p> <p><b>Vitamin E</b></p> <p>24. Antioxidant properties – it protects polyunsaturated fatty acids from damage by free radicals, especially cell membranes in the body – beneficial to elderly at risk from cancers/disease.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
2.	<p>(cont)</p> <p><b>Vitamin K</b> 25. Assists in the production of coagulation factors in the blood to enable it to clot properly after an accident – vital at all stages of life.</p> <p><b>Calcium</b> 26. Required for blood clotting, very important in case of falls etc 27. Required to be present in the blood for normal excitability in nerves and muscles 28. Required for the normal action of hormones 29. Essential for the prevention of osteomalacia/ osteoporosis. 30. Required to allow bones to retain strength/assist healing.</p> <p><b>Phosphorus</b> 31. An essential component of all bones along with calcium 32. An essential component of all tissues 33. A vital metabolic compound 34. Vital in the repair of bones eg after a fall.</p> <p><b>Sodium</b> 35. Is one of the main elements of blood 36. Is one of the main elements of tissue fluid which allows nutrients to flow into body cells and waste products to flow out 37. Low intake may result in muscle cramps eg if the elderly get dehydrated 38. Essential for the transmission of nerve and muscle impulses 39. Excess can cause high blood pressure as the result of the expansion of extra cellular fluid volume – particularly dangerous in the elderly.</p> <p><b>Potassium</b> 40. Deficiency may result in mental apathy, muscular weakness 41. Potassium levels also linked with a reduction of hypertension – important in the elderly 42. Very old people whose muscles waste away may become short of potassium.</p> <p><b>Magnesium</b> 43. Needed in the body for the functioning of some enzymes 44. Necessary for the maintenance of the excitability of nerve and muscle membranes.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
2.	<p><b>(cont)</b></p> <p><b>Iron</b>  45. Required as oxygen carrying pigment ie haemoglobin in the red blood cells  46. Vital for the transportation of adequate supplies of oxygen to the tissue  47. Elderly may be susceptible to anaemia if desire to cook wanes  48. Some elderly may have poor absorption and so may become anaemic.</p> <p><b>Iodine</b>  49. Required to make thyroxine, which helps to control the rate of metabolism in elderly.</p> <p><b>Copper</b>  50. Is a component in several antioxidant enzymes so plays a role as antioxidant in protecting cells in the elderly.  51. Involved in the formation of blood cells.</p> <p><b>Selenium</b>  52. An antioxidant which plays a part preventing cell damage/cancers/heart disease in the elderly.  53. Is part of the antioxidant enzyme glutathione peroxidase which reduces peroxides before they can damage cell membranes  54. Also enhances immune response</p> <p><b>Zinc</b>  55. An antioxidant which plays a part in preventing cell damage/cancers/heart disease in the elderly.  56. Is part of the antioxidant enzyme superoxide dismutase which prevents free radicals from forming peroxides and damaging cell membranes.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
3.	<p><b>18-25 marks</b> The candidate is able to develop a full and coherent discussion of the properties of eggs in the manufacture of food products. The discussion shows good analysis and the identification of the majority of the main points with full explanation.</p> <p><b>15-17 marks</b> The candidate is able to develop a discussion of the properties of eggs in the manufacture of food products. Most of the main points will be identified with explanation.</p> <p><b>12-14 marks</b> The candidate is able to identify some of the main points with limited explanation.</p> <p><b>Answers should make reference to the following properties linked to the manufacture of food products.</b></p> <p><b>Nutritional properties</b></p> <ol style="list-style-type: none"> <li>1. Eggs increase the nutritional value of dishes for consumers.</li> <li>2. The protein in egg is of high biological value and consequently considered an important protein food – valuable when manufacturers consider the nutritive value of their products.</li> <li>3. Eggs contain valuable amounts of iron, vitamin A and calcium – valuable when manufacturers consider the nutritive value of their products.</li> <li>4. Eggs contain small amounts of riboflavin, vitamin D and thiamine – valuable when manufacturers consider the nutritive value of their products.</li> <li>5. Due to fat content in the yolk, more than two per week may raise blood cholesterol levels in some people with a specific type of familiar hyper cholesterol anaemia – may have implications to manufacturer when considering the ‘health’ of a product.</li> </ol>	25	

Question	Expected Answer(s)	Max Mark	Additional Guidance
3.	<p><b>(cont)</b></p> <p><b>Coagulation</b></p> <p>6. When heat is applied the eggs coagulate to produce a rigid structure.</p> <p>7. When eggs are heated, the protein in the white and the yolk coagulates.</p> <p>8. Egg white proteins coagulate first at about 60°C. The white becomes opaque and forms a gel.</p> <p>9. Yolk proteins coagulate at 66°C and the yolk thickens.</p> <p>10. Coagulation of protein is responsible for the thickening effect eggs have in products eg egg custard, quiche and lemon curd.</p> <p>11. Coagulation of egg custard produces a gel.</p> <p>12. The firmness of the final product of custard will depend on the proportion of ingredients eg eggs to milk.</p> <p>13. The firmness will also depend on the addition of other ingredients eg addition of sugar raises the temperature for coagulation and produces a softer texture.</p> <p>14. The rate of coagulation is increased by the addition of salt and acid – important manufacturers know this as end product may be affected.</p> <p>15. Over coagulation of eggs during cooking can have a detrimental effect on food products as the egg can become rubbery and may separate leaving a watery liquid to seep out.</p> <p>16. Binding agent – coagulation of protein enables mixtures to hold together on cooking eg rissoles.</p> <p>17. Coating – egg sets and holds breadcrumbs in place eg Scotch Eggs.</p> <p>18. Coating – eggs can be used in conjunction with breadcrumbs to coat food to protect it whilst cooking, eg fish and Scotch Eggs.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
3.	<p><b>(cont)</b></p> <p><b>Aeration</b></p> <p>19. Mechanical action during the whisking of egg white causes a partial coagulation of the protein and creates a foam. The protein molecules unfold and form a network round the air bubbles and so stabilise the foam. This property is used by manufacturers when whisking egg white for meringues and soufflés, whole eggs and/or yolks for sponge cakes.</p> <p>20. In whisked sponges the entrapped air is the primary leavening agent and air bubbles expand from the heat. Steam from water enters the air bubble and expands them further.</p> <p>21. Whisked sponges have reduced fat content/no added fat.</p> <p>22. When whisking egg whites foaming may be promoted by the addition of an acidic substance such as vinegar. This lowers the pH value – could be used by manufacturers to make the foam more stable eg in pavlova.</p> <p>23. Aeration – eggs are used in creamed mixtures to produce lightness in products.</p> <p>24. If during manufacture the egg mixture eg for whisked sponges is overbeaten – too much air is incorporated; protein is denatured too much; the protein film around bubbles or air becomes too thin and less elastic; the foam then “collapses” resulting in loss of volume.</p> <p><b>Emulsifying</b></p> <p>25. Emulsifying agent – egg yolk contains lecithin which is an emulsifying agent used in the production of mayonnaise.</p> <p><b>Sensory</b></p> <p>26. Flavour – eggs provide a rich flavour to otherwise insipid products.</p> <p>27. Colour – eggs add a rich colour to otherwise pale products.</p> <p>28. Iron sulphide is formed round egg yolks during cooking and causes black discolouration when eggs have been hard boiled. This happens most with stale eggs, but it can be reduced by placing them in cold water immediately after boiling – important eg in the production of Scotch Eggs.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
4.	<p><b>18-25 marks</b> The candidate is able to develop a full and coherent discussion of the stages involved in the product development process of a chilled ready meal. The discussion shows good analysis and the identification of the majority of the main points with full explanation.</p> <p><b>15-17 marks</b> The candidate is able to develop a discussion of the stages involved in the product development process of a chilled ready meal. Some of the main points will be identified with explanation.</p> <p><b>12-14 marks</b> The candidate is able to develop few stages involved in the product development process of a chilled ready meal. The discussion is limited with no explanation.</p> <p><b>Answers should make reference to the following points linked to product development process of a chilled ready meal:</b></p> <p><b><u>Market Research</u></b></p> <ol style="list-style-type: none"> <li>1. Development of ideas from market analysis, perhaps even trialling of chilled ready meals, looking at, for example why a particular flavour is popular, looking for something similar but new.</li> <li>2. To find out if there is a gap in the market which could be filled by this chilled ready meal eg indulgence/economy market.</li> <li>3. To find out consumers opinions regarding a suitable product.</li> <li>4. To find out about the competition, what is available and what could be adapted.</li> <li>5. It could also be used to evaluate the product gaining important public opinions on for example, its sensory qualities, cost, packaging etc.</li> </ol>	25	

Question	Expected Answer(s)	Max Mark	Additional Guidance
4.	<p>(cont)</p> <p><b><u>Concept Generation</u></b></p> <p>6. This is an important stage as it involves developing ideas for new products.</p> <p>7. Thinking stage – thinking up new ideas, perhaps even looking for a gap in the market.</p> <p>8. This stage allows the chilled ready meal to be developed from market analysis/trialling existing chilled ready meals to establish why they are popular/disassembly or analysis of existing chilled ready meals product.</p> <p>9. Brainstorming sessions by individuals or teams may take place.</p> <p>10. Manufacturers do not want to replicate something which is already on the market; they must put a new slant on it.</p> <p>11. Things such as cost, portion size, flavour, texture, shelf life and appearance will be considered at this stage.</p> <p>12. Particular target groups may also have to be considered.</p> <p>13. This is one of the initial stages and without it the development process cannot take place.</p> <p><b><u>Concept Screening</u></b></p> <p>14. Consider all ideas, keep some and discard some.</p> <p>15. This stage is important as it allows the production process to move away from initial ideas to actual development issues.</p> <p>16. Allows the manufacturer to develop a specification against which to develop ideas.</p> <p>17. Specification allows manufacturer to eliminate ideas that might be costly, difficult to process/ not meet other constraints.</p> <p>18. The cost of ingredients may have an impact on the final recipe for the chilled ready meal. The recipe may need to be altered/quality may be compromised.</p> <p>19. The best ideas are taken forward and a specification is written.</p> <p>20. Allows product ideas to be generated so that a prototype can be developed.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
4.	<p><b>(cont)</b></p> <p><b><u>Development of a prototype</u></b></p> <p>21. Food producers will research the quality and cost of every ingredient used in the chilled ready meal. This could mean travelling to other countries to access the best/most suitable quality.</p> <p>22. A prototype is an example or specimen of what the chilled ready meal will be like.</p> <p>23. This would be done in a test kitchen and the chilled ready meal is developed here and measured against the specification.</p> <p>24. The chilled ready meal will be tested for appeal, perhaps using a small experienced team to carry out a sensory evaluation, and it may be further modified, accepted or rejected.</p> <p>25. The prototype will be discussed by all interested parties – the client, design team, production team, marketing team, costing team etc.</p> <p><b><u>Product testing</u></b></p> <p>26. Many manufacturers test new products on potential consumers before moving on to large scale production, so various opinions can be obtained.</p> <p>27. Scaling up is required from initial recipe for one that is suitable for mass production for the chilled ready meal.</p> <p>28. This would allow the chilled ready meal to be further refined or eliminated as a result of consumer opinions.</p> <p>29. It allows for a range of possible solutions to be further refined with the most suitable chilled ready meal being kept.</p> <p><b><u>Packaging design</u></b></p> <p>30. This is when the packaging design team would consider the image of the chilled ready meal and the target market and start to create a design which will attract consumers and help to sell the chilled ready meal.</p> <p>31. The type of packaging will be investigated, tested and costed.</p> <p>32. Legal labels will be designed and produced.</p> <p>33. Sustainable and environmental ideas and materials for the packaging might be discussed, researched and considered.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
4.	<p>(cont)</p> <p><b><u>First production run</u></b></p> <p>34. This allows for the production of the actual chilled ready meal for the first time as a full production run so the run can be assessed for success/new machines may be required.</p> <p>35. It enables the quality assurance team to test the chilled ready meal to ensure quality, safeguard staff health and uniformity of standards during the manufacturing processes.</p> <p>36. It allows the manufacturer to maintain food safety standards and to consider HACCP issues such as shelf life of the product/quick chilling of the ready meal/storage after preparation.</p> <p>37. This stage allows for potential production problems to be sorted out before large scale production begins as this may in future result in 'down time' when production has to be stopped.</p> <p>38. This is a vital stage as it is here that changes may take place which could affect other aspects of the product eg changes to the ingredients will result in changes having to be made to the ingredients list on the label/ ordering of new equipment/machinery to carry out specific parts of the process.</p> <p><b><u>Marketing plan</u></b></p> <p>39. This allows for a range of activities to be developed to promote the chilled ready meal eg where it will be sold, position in the shop, special introductory offers etc.</p> <p>40. This is important as it may help determine the initial price of the chilled ready meal eg low to attract new customers, higher to denote quality.</p> <p>41. Packaging can now be finished to take account of marketing plans/product price.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
4.	<p>(cont)</p> <p><b><u>Product launch</u></b></p> <p>42. An important stage of the plan as the chilled ready meal is now on sale.</p> <p>43. Piloting of the product could be carried out to monitor the sales in a small area initially. From experience gained here the manufacturer can adjust the marketing approach before using it more widely (Piloting to gauge success of product).</p> <p>44. Market monitoring: finally the chilled ready meal is launched into the national market-place. Promoting awareness to future customers.</p> <p>45. Sales figures will be checked very carefully initially and gain the key role of market research will provide regular feedback so that manufacturer can continually rethink and readapt the marketing approach as quickly, economically and effectively as possible.</p> <p>46. Market research will provide regular feedback. This allows the product to continue to be refined and improved.</p> <p>47. If successful the product will continue to be sold.</p> <p>48. If sales are low then the product may be withdrawn and the product refined or rejected.</p> <p>49. Type of retail outlet suitable for launching a product may have to be carefully considered to ensure a high profile during launch and the correct target group attracted.</p> <p>50. A range of promotional techniques need to be used to help promote the sales of the chilled ready meal eg in store tasting/special offers/ TV adverts etc.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
4.	<p>(cont)</p> <p><b>Use of computer technology in food production.</b>  <b>The candidate could include reference to the use of computer technology at some of the stages in the product development process previously outlined.</b></p> <p>51. Computer Aided Design (CAD) software encompasses all areas of product development, from idea generation and research, investigating the functionality and interactivity of different ingredients, producing manufacturing flow-charts to assess food safety issues, knowledge-based systems and innovative imaging systems for product quality and fault diagnostic purposes.</p> <p>52. Computer Aided Manufacture (CAM) is increasingly used by the food industry to help in the manufacture of food products. There has been an increasing demand for machines to take over the more complex operations previously carried out by hand, eg chopping/peeling of vegetables. This would improve consistency and quality control, reduce overheads and increase production capacity.</p> <p>53. Computer Integrated Manufacture (CIM) means that computers are used as an integral element of the entire manufacturing process. It involves computer-based process control and automation; operations and information systems for manufacturing and quality control. The hope that profitability can be increased or maximised with automation has been a driving force for computer integrated manufacturing (CIM).</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
5.	<p><b>18-25 marks</b> Candidates are able to develop a full and coherent discussion of the main issues in the debate surrounding the contribution of functional foods to diet and health. The discussion shows good analysis of the data with full explanations.</p> <p><b>15-17 marks</b> Candidates are able to develop a discussion on the main issues in the debate surrounding the contribution of functional foods to diet and health. The discussion shows analysis of the data with explanations.</p> <p><b>1-14 marks</b> Candidates are able to develop only a limited discussion of the main issues in the debate surrounding the contribution of functional foods to diet and health with little or no explanation.</p> <p><b>Answers should make reference to the following points linked to the contribution of functional foods to diet and health:</b></p> <p><b>In general</b></p> <ol style="list-style-type: none"> <li>1. The market for functional foods is growing as consumers become more health conscious.</li> <li>2. Functional foods are those foods that encompass potentially healthful products including any modified food or ingredient that may provide a health benefit beyond the traditional nutrients it contains.</li> <li>3. A functional food is a food modified in such a way that the amount of a beneficial component is increased/new beneficial components are added/harmful components are replaced or eliminated/a component is added to preserve the beneficial effects.</li> <li>4. Functional foods contain ingredients which have health promoting properties over and above their nutritional value.</li> <li>5. They are foods which have been altered to enhance or improve health through diet/reduce the incidence of illness or a particular disease.</li> </ol>	25	

Question	Expected Answer(s)	Max Mark	Additional Guidance
5.	<p><b>(cont)</b></p> <ol style="list-style-type: none"> <li>6. Functional foods include a very broad range of products – from foods generated for a particular functional ingredient to staple foods which have been fortified with a nutrient.</li> <li>7. It is generally accepted that ‘health promoting’ claims rather than disease prevention or medical claims can be made.</li> <li>8. From a legislative point they are categorised as foods not medicines. Currently in the UK there is no specific legislation covering claims for functional foods.</li> <li>9. The relevant food law that identifies the boundaries for such claims is embodied in the Food Safety Act 1990, which prohibits medicinal claims such as: ‘prevents’ or ‘treats’ or ‘cures’ a disease.</li> <li>10. It is essential that robust science exists to underpin the claims being made. Ideally this should include evidence that the substance is absorbed or reaches its site of action/that consumption of the food beneficially influences a physiological function (eg blood pressure)/ that it is recognised to impact on health (eg blood cholesterol) and, ideally, that this effect has a direct impact on health status.</li> <li>11. The level of consumption of the functional food that is required to achieve a beneficial effect on health is also an important consideration/it should be possible to achieve the required level of intake of the functional food or ingredient within normal dietary patterns.</li> <li>12. Much of the research behind functional foods such as probiotics is in its early stages and much more research is required before firm conclusions can be made with regard to the benefits.</li> <li>13. The large numbers of trials that have taken place in humans have not shown adverse effects to probiotics so their intake can be considered safe.</li> </ol>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
5.	<p><b>(cont)</b></p> <p><b>Types of functional foods</b></p> <p>14. Spreading fats are a popular functional foods in the UK.</p> <p>15. Margarines and spreads eg Benecol, Flora Pro-active can include the plant sterols or stanols which have been shown to lower cholesterol and so help reduce the risk of CHD.</p> <p>16. Plant sterols and stanols are found naturally in fruit, vegetables, cereals and other plant food in small amounts.</p> <p>17. Taking 2-3g of plant sterols or stanols daily has been shown to lower cholesterol.</p> <p>18. The way that these work is by blocking the absorption of cholesterol from the small intestine into the blood, therefore there is less cholesterol circulating in the blood.</p> <p>19. Research claims that using such products has been shown to reduce LDL levels by between 10-15% in a few weeks but is most beneficial to those with high cholesterol.</p> <p>20. Another area is the incorporation of mono or polyunsaturated fatty acids so helping to reduce the risk of heart disease through altering cholesterol levels.</p> <p>21. Some spreads provide Omega 3 fatty acids from oily fish which could help to lower triglyceride fats in the blood but the amount of Omega 3 provided is usually insignificant.</p> <p>22. However they may be useful to some people who dislike oily fish and do not eat the recommended amount weekly.</p> <p>23. Margarines/spreads/butter are fortified with Vitamin D – assists absorption of calcium.</p> <p>24. Milks/yoghurts have Omega 3 added and so could play a role in prevention of CHD.</p> <p>25. Another large functional food area is that of yoghurts and fermented milk products containing “friendly” bacteria.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
5.	<p><b>(cont)</b></p> <p><b>Probiotics</b></p> <p>26. Evidence for the benefits of probiotics have been increasing in recent years – but this is an area of debate.</p> <p>27. It is thought that probiotics only have a transient effect and regular daily consumption is needed to bring about health benefits.</p> <p>28. It is important that probiotics are strong enough to survive the acid in our stomach and reach the large intestine where they can colonise and so balance out our own gut bacteria.</p> <p>29. Probiotics are usually found in types of milk products/yogurts.</p> <p>30. Probiotics are a ‘live microbial supplement’ which improves the intestinal microbial balance so claiming to promote good intestinal health and act as an aid to digestion.</p> <p>31. Bifidobacteria may help fight a range of harmful and food poisoning bacteria, including the potentially fatal E Coli 0157.</p> <p>32. Some studies have been undertaken that show probiotics will help protect people from getting diarrhoea when taking antibiotics.</p> <p>33. Some studies have shown that probiotics can reduce the chance of getting traveller’s diarrhoea; other studies have concluded they will make no difference.</p> <p>34. Other studies have shown that bacteria found in bio yoghurt, can prevent young children suffering from diarrhoea in the first place or for shortened duration of diarrhoeal disease in children.</p> <p>35. Other suggested benefits are inhibition of <i>Helicobacter pylori</i>, improved well-being among patients with Crohn’s disease.</p> <p>36. Studies have shown that probiotics may help to reduce the symptoms of irritable bowel syndrome – severe diarrhoea or constipation, together with bloating.</p> <p>37. Studies have also shown that they may reduce the duration of diarrhoea in patients with an infectious form of diarrhoea.</p> <p>38. Supplementing with probiotics may also help reduce certain food allergies according to some research.</p> <p>39. Some trials have shown reduction in numbers who tested positive for the bacteria called <i>Clostridium Perfringens</i>.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
5.	<p><b>(cont)</b></p> <p><b>Prebiotics</b></p> <p>40. Prebiotics are non-digestible carbohydrates that selectively stimulate the growth of beneficial bacteria in the colon.</p> <p>41. Eating prebiotics therefore causes more good gut bacteria to grow in our gut.</p> <p>42. Prebiotics are increasingly used in supplements and can have a more long lasting effect as they encourage the growth of good bacteria.</p> <p><b>Fruit/vegetables</b></p> <p>43. The quality of tomatoes, cereals and other crops may be improved in the future by using new genetic modified crops with a greater content of antioxidants, such as natural flavonoids or other phenolic compounds. (Because of the healthy profile of these antioxidants, which are believed to have a protective effect against cardiovascular diseases and some forms of cancers, these new crops are considered as functional foods).</p> <p>44. Scientists are trying to identify key genes responsible for flavonoid production and have started to grow the very first generation of tomato plants possibly high in flavonoids.</p> <p>45. US scientists have created purple tomatoes which have the antioxidant pigment from red wine which is believed to prevent heart disease.</p> <p>46. Biologically active plant chemicals now known as 'phytochemicals' can reduce cancer risk.</p> <p>47. Benefits of garlic added to foods include cancer chemopreventive, antibiotic, anti-hypersensitive, cholesterol lowering properties.</p> <p>48. Cranberry juice is recognised as helping in the treatment of urinary tract infections and may be considered a functional food by some although no specific ingredient has been added.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
5.	<p><b>(cont)</b></p> <p><b>Drinks</b></p> <p>49. Tea, especially green tea has beneficial effect on cancer risk and may be considered by some to be a functional food.</p> <p>50. Drinks are a fast developing area of functional foods, for example some are fortified with the antioxidant vitamins A, C and E, some with calcium (and others with herbal extracts).</p> <p>51. Some drinks claim to help overcome problems ranging from PMS to lack of energy.</p> <p>52. Orange juice with added plant sterols to reduce cholesterol levels is available in the USA.</p> <p><b>Meat/Fish/Eggs</b></p> <p>53. Improvement of the health profile of beef – to produce a functional red steak. The objective will be met through improvement of the fat composition by decreasing saturated fatty acids and increasing conjugated fatty acids (CFA) as well as Omega-3 fatty acids (PUFA) with related health benefits.</p> <p>54. Beef is a source of conjugated linoleic acid (CFA) which has been shown to modulate tumour development.</p> <p>55. More recently CFA has been investigated for its ability to change body composition suggesting a role as a weight-reduction agent.</p> <p>56. Eggs with added Omega 3 – reduce cholesterol levels lowering risk of CHD.</p> <p><b>Cereals and Grains</b></p> <p>57. This is an area where vitamin and mineral fortification is strong – added to both breakfast cereals and fortified cereal bars.</p> <p>58. Calcium enrichment of foods (and beverages) can allow up to 30 times the amount of calcium present in an equivalent volume of milk to be incorporated – could address issues such as osteoporosis and other calcium related diseases.</p> <p>59. Oats are a source of cholesterol-lowering soluble fibre betaglucan which can reduce LDL cholesterol thereby reducing the risk of CHD.</p>		

Question	Expected Answer(s)	Max Mark	Additional Guidance
5.	<p><b>(cont)</b></p> <p>60. Soy is thought to play preventative and therapeutic roles in cardiovascular disease (CVD), cancer, osteoporosis and the alleviation of menopausal symptoms.</p> <p>61. Flaxseed consumption has been shown to reduce total and LDL cholesterol as well as platelet aggregation.</p> <p>62. Burgen is bread containing soya flour and linseeds which provide phytoestrogens, natural substance which mimic the structure of the hormone oestrogen. Phytoestrogens have been said to enhance oestrogen levels when hormonal level are low (ie at the menopause) or to weaken the effects of oestrogen when levels are high. This action may protect against both hot flushes and breast cancer.</p> <p>63. Breads with the prebiotic insulin added to it are on sale in Germany and Australia.</p> <p>64. In Japan, bread which offers cosmetic benefits is proving popular.</p> <p>65. In Germany, bread enriched with L-Carnitine claims to boost energy, particularly among active people/sports enthusiasts.</p> <p>66. Development of bread fortified with soya isoflavones and trehalose to increase calcium absorption is under way.</p> <p>67. In the UK, Allied Bakers have launched a soy-enriched bread said to lower cholesterol and improve heart health.</p>		



Question	Context	Elaboration	Skills Knowledge	Evaluation	Totals
2	Nutrients and their effect on the health and developments of individuals.	Micronutrients, their function and effect on the health and development in relation to the elderly.	25		25
3	Food Commodities  Food Science	Composition and properties of egg in raw and cooked state - Uses in food preparation - Changes during cooking The properties and uses of proteins.	25		25
4	The Food Chain	Product design and quality	25		25
5	Biochemistry, preservation and processing.	Functional foods	25		25

[END OF MARKING INSTRUCTIONS]