



**2009 Health & Food Technology**

**Higher**

**Finalised Marking Instructions**

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**2009 Home Economics  
Health & Food Technology**

**Section A – Short Response Questions**

<b>Question</b>		<b>Response</b>	<b>Marking Guidelines</b>
1	State <b>one</b> function of folic acid.	<ol style="list-style-type: none"><li>1. Essential for the formation of blood cells/prevents anaemia.</li><li>2. Helps protect against neural tube defects/spina bifida (in unborn babies).</li><li>3. Required for the release of energy from food.</li><li>4. Required for the release of energy from protein.</li><li>5. Essential for normal growth.</li></ol>	<b>1 mark</b> for correct function
2	Name the process when yeast, under the right conditions, produces carbon dioxide and alcohol.	<ol style="list-style-type: none"><li>1. Fermentation</li></ol>	<b>1 mark</b> for correct process
3	Name <b>one</b> essential fatty acid.	<ol style="list-style-type: none"><li>1. Omega 3/linolenic acid.</li><li>2. Omega 6/linoleic acid.</li><li>3. Omega 9/oleic acid/eicosenoic acid.</li></ol>	<b>1 mark</b> for identification
4	State the legal minimum temperature required for the safe reheating of food.	<ol style="list-style-type: none"><li>1. 82°C</li></ol>	<b>1 mark</b> for correct temperature

Question		Response	Marking Guidelines
5	Identify <b>one</b> function of dietary fibre (NSP).	<ol style="list-style-type: none"> <li>1. Removal of waste products/regular bowel movements.</li> <li>2. Absorbs a lot of water ensuring that the faeces are soft/bulky/easy to pass.</li> <li>3. Helps prevent various bowel disorders/constipation/diverticular disease/bowel cancer/haemorrhoids (piles).</li> <li>4. Gives a feeling of fullness to help prevent overeating/obesity.</li> <li>5. Lowers the risk of heart disease.</li> <li>6. May help lower (LDL) cholesterol.</li> <li>7. Maintains a healthy digestive system.</li> </ol>	<b>1 mark</b> for function
6	What does the abbreviation <b>MAP</b> stand for?	<ol style="list-style-type: none"> <li>1. Modified atmosphere packaging.</li> </ol>	<b>1 mark</b> for abbreviation
7	State <b>one</b> effect of dry heat on sugar.	<ol style="list-style-type: none"> <li>1. Sugar melts.</li> <li>2. Caramelises.</li> <li>3. Burns.</li> <li>4. Forms golden colour in baked items.</li> </ol>	<b>1 mark</b> for effect

Question		Response	Marking Guidelines
8	Identify <b>one</b> sensory test.	<ol style="list-style-type: none"> <li>1. Ranking test.</li> <li>2. Rating test.</li> <li>3. Paired comparison test.</li> <li>4. Duo-trio test.</li> <li>5. Triangle test.</li> <li>6. Taste threshold test.</li> <li>7. Profiling test.</li> <li>8. Preference.</li> <li>9. Discrimination.</li> </ol>	<b>1 mark</b> for test
9	State <b>two</b> dietary causes of coronary heart disease.	<ol style="list-style-type: none"> <li>1. Obesity caused by over-eating.</li> <li>2. High fat/saturated fat intake.</li> <li>3. High trans fatty acids intake.</li> <li>4. High salt/sodium intake.</li> <li>5. High sugar intake.</li> <li>6. High intake of alcohol.</li> <li>7. Low dietary fibre (NSP) intake.</li> <li>8. Low intake of TCCs.</li> <li>9. Low fruit and vegetable intake.</li> <li>10. Low intake of oily fish.</li> <li>11. Low polyunsaturated fats intake.</li> <li>12. Low intake of ACE vitamins.</li> </ol>	<p><b>2 marks</b></p> <p>1 mark for <b>each</b> dietary cause</p>

Question		Response	Marking Guidelines
10	Give <b>one</b> advantage and <b>one</b> disadvantage of on-line shopping for food.	<p><b>Advantages</b></p> <ol style="list-style-type: none"> <li>1. Research/compare brands/prices from their home.</li> <li>2. Shop at any time of the day/night.</li> <li>3. Shop from the comfort of own home/saves travelling.</li> <li>4. Goods are delivered straight to the door.</li> <li>5. Convenient delivery times can be selected.</li> <li>6. There are no crowds/no queues to contend with.</li> <li>7. Cheaper/special internet discounts may be available.</li> <li>8. Time saving.</li> <li>9. Useful method of shopping for housebound/disabled/elderly.</li> <li>10. Less impulse buying/easier to budget.</li> <li>11. Environmentally friendly/reduces carbon footprint.</li> <li>12. Less risk of car damage/road accidents.</li> <li>13. Money saving on fuel.</li> <li>14. Wide range of food products available.</li> </ol>	<p><b>2 marks</b></p> <p>1 mark for <b>one</b> advantage which could be linked to food.</p>

Question	Response	Marking Guidelines
	<p><b>Disadvantages</b></p> <ol style="list-style-type: none"> <li>1. Some foods may not be available when ordered.</li> <li>2. Fruit/vegetables may be too large/too small/poor quality.</li> <li>3. Additional charge made for delivery.</li> <li>4. Cannot take advantage of in-store offers.</li> <li>5. Delivery during peak times may be more expensive.</li> <li>6. Alternative selected by store may not be suitable.</li> <li>7. Shorter shelf life on products often delivered than can be chosen in store.</li> <li>8. Cannot assess quality of foods.</li> <li>9. Only available for those with internet access/personal computer/to higher income families.</li> <li>10. Some reluctance to use cards on-line due to risk of fraud.</li> <li>11. Not available to all communities/households.</li> </ol>	<p>1 mark for <b>one</b> disadvantage</p>

Question		Response	Marking Guidelines
11	Give <b>two</b> benefits of a school breakfast club.	<ol style="list-style-type: none"> <li>1. Provides children with a source of energy.</li> <li>2. Aids concentration in school.</li> <li>3. Total complex carbohydrates give a slow (continual) release of energy.</li> <li>4. Helps prevent snacking/overeating/encourages healthy diet.</li> <li>5. Keeps blood sugar levels constant.</li> <li>6. Breakfast cereals/cereal bars contain NSP/Dietary fibre.</li> <li>7. Breakfast cereals are usually fortified with vitamins/minerals.</li> <li>8. Provides a warm/safe environment for children.</li> <li>9. Provides an area for children to socialise/mix with their friends.</li> <li>10. May help reduce childcare costs for working parents.</li> <li>11. May reassure parents that their child is safe.</li> <li>12. May save low-income families money.</li> <li>13. Provides children from (low-income families) with breakfast.</li> <li>14. May prevent lateness to school.</li> <li>15. Helps prevent obesity.</li> <li>16. Helps prevent diet related disease in later life (accept example).</li> <li>17. Helps speed up metabolism.</li> <li>18. Saves busy parents' time making breakfast for their children.</li> <li>19. Helps to meet the Scottish dietary targets.</li> </ol>	<p><b>2 marks</b></p> <p>1 mark for <b>each</b> benefit</p>

Question		Response	Marking Guidelines
12	State <b>two</b> health benefits of a diet rich in the ACE vitamins.	<ol style="list-style-type: none"> <li>1. Reduces the risk of cancers.</li> <li>2. Reduces the risk of heart disease.</li> <li>3. Reduces risk of damage to body cells/tissues.</li> <li>4. Maintains a healthy immune system/destroys free radicals.</li> <li>5. Slow down the rate of LDL cholesterol (being deposited on artery walls).</li> <li>6. Reduce harmful oxidation of fats in the body (to prevent cell damage).</li> <li>7. Vitamin A required to make vision purple for good vision in dim light.</li> <li>8. Vitamin A required to keep mucous membranes free from infection.</li> <li>9. Vitamin A required for the maintenance of healthy skin.</li> <li>10. Vitamin A required for normal growth of children.</li> <li>11. Vitamin C helps absorption of iron (preventing anaemia).</li> <li>12. Vitamin C is needed to make connective tissue.</li> <li>13. Vitamin C helps cuts/wounds heal quicker.</li> <li>14. Vitamin C is essential to manufacture blood/cell walls of blood vessels.</li> <li>15. Vitamin E is involved in maintenance of cell membranes.</li> <li>16. Vitamin E (as an antioxidant) helps to prevent cancers/heart disease.</li> </ol>	<p><b>2 marks</b></p> <p>1 mark for <b>each</b> health benefit</p>

Question		Response	Marking Guidelines
13	<p>Explain the following terms.</p> <p>(i) Intrinsic sugars</p> <p>(ii) Extrinsic sugars</p>	<p>(i) Intrinsic – those that form part of the cell structure of plants/fruit/vegetables.</p> <p>(ii) Extrinsic – not part of the cell structure of plants/extra sugar that is added to the product.</p>	<p><b>2 marks</b></p> <p>1 mark for <b>each</b> correct explanation of term</p>
14	<p>State <b>two</b> terms of the Trade Descriptions Act 1968.</p>	<ol style="list-style-type: none"> <li>1. It is a criminal offence to give a false description of goods.</li> <li>2. It is a criminal offence to supply goods with a false description.</li> <li>3. It is a criminal offence for an employer/trader/employee to falsely describe goods they are selling.</li> <li>4. It is a criminal offence for traders to knowingly mislead consumers.</li> </ol>	<p><b>2 marks</b></p> <p>1 mark for <b>each</b> term of Act</p>

## Section B

- 1 a) The table opposite shows a day's nutrient content of meals eaten by a male primary school child.  
Using your knowledge of nutrition and the information provided, evaluate the suitability of this day's nutritional intake.

### Marking Instructions:

6 x 1 mark for **each** point of evaluation which makes reference to the needs of a male (primary school) child.

**Total – 6 marks (EV)**

### 1. Energy

1. This day's meal is higher in energy than the EAR which is bad **as** this could lead to weight gain/obesity/diabetes in the **male primary school child** (if this continues over a prolonged period of time).
2. This day's meal is higher than the EAR for energy **therefore** this is bad **because** if the **male primary school child** does not burn off this excess energy this will lead to obesity/weight gain/CHD in later life.
3. If the high energy intake is in the form of sugar then this is bad **as** it could lead to tooth decay/diabetes (type 2) in the **male primary school child**.
4. The energy intake is high for the male primary school child, **however**, if the child is very active he may use up the excess energy during play/may not become overweight/obese.

### 2. Protein

1. The protein intake is lower than the RNI for the **male primary school child** which is bad **as** this may cause any damaged cells/tissues to take longer to heal (and the boy may be prone to injuries if he is very active).
2. The protein intake for this day's meal is lower than the RNI for the **male primary school child** therefore this is bad **as** it may cause problems with growth in the primary school child if this shortage were to continue (over a long period of time).
3. As protein intake is lower than the RNI the **male primary school child** cannot use excess protein as a secondary source of energy which is good **so** there is less chance of obesity.

### 3. Calcium

1. The calcium intake of this day's meal is too low in comparison to the RNI this is not good/ is bad **because** over a long period of time a low calcium intake may lead to poor bone development/rickets in the **male primary school child**.
2. This day's meal is lower in calcium than the RNI, this is bad **as** over a prolonged period of time if the **male primary school child** breaks/damages a bone then it **may** take longer to heal.
3. The **male primary school child's** day's intake is lower in calcium than the RNI which is not good **because** if this occurred over a long period of time the child may suffer from osteoporosis/osteomalacia in later life.
4. This day's meal is short in calcium in comparison to the RNI this is bad **because** over a prolonged period of time the **male primary school child** may suffer from poor dental health as calcium is required for the formation of strong teeth.

### 4. Vitamin C

1. This day's intake is slightly higher in Vitamin C than the RNI this is good as Vitamin C is required to heal cuts/wounds and the **male primary school child** may be active **therefore** likely to suffer from these.
2. This child's day's intake of Vitamin C is higher than the RNI this is good as Vitamin C is required to make connective tissue which the **male primary school child** will require **as** he is still growing.
3. The child's day's meal intake is higher in Vitamin C than the RNI this is good **as** Vitamin C is an antioxidant **therefore** over a prolonged period of time will protect the **male primary school child** against Coronary Heart Disease/Cancers in later life.
4. This day's intake is slightly higher in Vitamin C than the RNI which is good **as** it will help to assist iron absorption which is low **therefore** helping to prevent anaemia in the **male primary school child**.
5. This day's intake of Vitamin C is slightly higher than the RNI however this is good as it will **therefore** allow the **male primary school child** to manufacture blood/cell walls.

### 5. Iron

1. This day's intake of iron is slightly lower than the RNI this is not good for the child **because** the **male primary school child** may suffer from anaemia.
2. This day's intake of iron is lower than the RNI which is bad as the **male primary school child** may suffer from anaemia **which** may result in tiredness (this may eventually lead to obesity due to lack of energy to participate in sports).
3. Iron content of this day's meal is lower than the RNI which is bad as iron is required to produce haemoglobin which transports the oxygen to release energy from carbohydrates to allow the **male primary school child** to exercise he may **therefore** be unable to participate in activity.

**6. Vitamin B1**

1. This day's intake of Vitamin B1 is slightly higher than the RNI **therefore** this is good for the **male primary school child** as it will allow him to release energy from carbohydrates to participate in sports/activities.
2. This day's meal is slightly higher in Vitamin B1 than the RNI this is good **because** this is required for the normal growth of children and general good health **so** will allow the **male primary school child** to grow normally.
3. This day's intake is slightly higher than the RNI for Vitamin B1 which is good **as** it is required for the growth/normal functioning of the nervous system in the **male primary school child**.
4. This day's intake is slightly higher than the RNI for Vitamin B1 therefore this is good **as** it will allow the child's muscle tone to be maintained and will **therefore** allow the **male primary school child** to participate in sports/activities.

**7. Vitamin A**

1. This day's vitamin A intake is slightly lower than the RNI this is bad because **the male primary school child** could suffer from night blindness/poor vision in dim light if this continued **as** Vitamin A is required for manufacture of visual purple.
2. This day's vitamin A intake is slightly lower than the RNI this is bad because the **male primary school child** could suffer from dryness of the eyes if this continued.
3. This day's vitamin A intake is slightly lower than the RNI this is bad for the **male primary school child** who could suffer from an increased risk of cancer/coronary heart disease in later life **as** Vitamin A is one of the anti oxidant vitamins.
4. This day's vitamin A intake is slightly lower than the RNI this is bad for the **male primary school child** as Vitamin A is required for mucus secretions **which** will help to prevent infection in eyes/lungs/throat/digestive tract.
5. This day's vitamin A intake is slightly lower than the RNI this is bad for the **male primary school child** as Vitamin A is required for normal growth in children so if this continued for a period of time his growth may be restricted.
6. This day's vitamin A intake is slightly lower than the RNI this is bad for the **male primary school child** as Vitamin A may be linked to improve brain function **so** if this continued over a period of time brain function may be restricted.

1 b) Explain **four** reasons for obesity in primary school children.

**Marking Instructions:**

4 x 1 mark for **each** explanation which explains link between obesity and primary school children.

**Total – 4 marks (KU)**

**NB Headings are to assist markers and are not required by candidates**

**Explanation of reasons**

**1. High sugar diet**

1. If **primary pupils** are given access to sweets at lunch time/interval this will contribute to **obesity** over a prolonged period of time.
2. If **primary pupils** are allowed to purchase/consume drinks with added sugar this will contribute to **obesity**.

**2. High fat diet**

1. Fast foods and snacks are popular with **primary school children** and these are high in fat therefore regular consumption will lead to **obesity**.

**3. Reluctance to eat fruit/vegetables**

1. Many **primary school children** are used to snacking on high fat/sugar snacks instead of fruit and vegetables therefore this will lead to **obesity**.
2. Many families may not purchase fresh fruit/vegetables therefore high fat/sugar snacks may be given instead which will lead to **obesity in primary school children**.

**4. A diet too high in energy**

1. If **primary school children** consume more energy in a day's intake than their output of energy then over a prolonged period of time this will lead to **obesity**.

**5. Increased consumption of pre-prepared convenience meals**

1. Some families consume lots of pre-prepared convenience meals which can be high in fat/sugar so **children** are more likely to suffer from **obesity**.

**6. Increase in fast food eating**

1. More takeaways/fast food meals are eaten by children now and as these can be high in sugar/fat this will cause **obesity in primary school children**.

**7. Diet low in NSP/total complex carbohydrates**

1. Due to lack of consumption of foods high in NSP/TCC **primary school children** may snack on high fat/sugar foods which will lead to **obesity**.

**8. Lack of sensible eating habits**

1. Poor eating habits may have been formed in early childhood which causes the **primary school child** to eat high fat/sugar foods leading to **obesity**.
2. Many **primary school children** snack/graze in between meals on high fat/sugar foods which may lead to **obesity**.

**9. Lack of exercise/physical activity**

1. (Increased use of cars) means that **primary school children** are missing out on vital exercise to help prevent **obesity**.
2. Many **primary school children** would rather play computer games/watch TV instead of playing sport which in turn leads to **obesity**.
3. There may be a lack of sports facilities in the local area which result in the **primary school child** not being able to take part in sports at evenings/weekends therefore leading to **obesity**.
4. Many parents are inactive and do not encourage their **primary school children** to take part in sports which will eventually lead to **obesity**.

**10. Advertising/media**

1. High fat/sugar foods are promoted to **primary school children** through the media, this will encourage children to consume these products and over a long time will lead to **obesity**.

**11. Family income**

1. Where family income is limited, cheaper, poorer quality foods may be bought and given to the **primary school children** and these tend to be high in fat/sugar which will lead to **obesity**.
2. A higher family income may mean that there is more disposable income to be given to **primary school children** to purchase high fat/sugar foods which will lead to **obesity**.

**12. Lifestyle**

1. A lack of time in the family may result in convenience foods being purchased which tend to be high in fat/sugar therefore their **primary school children** may become **obese**.

**13. Psychological factors**

1. If **primary school child** is anxious/bored/lonely then they may eat high fat/sugar foods to find comfort and in turn this will lead to **obesity**.

**14. Parental Influence**

1. Poor eating habits will be passed on from parent to **primary school children** therefore leading to **obesity** in children.
2. Lack of food preparation skills in families leads to reliance on convenience foods which may be high in fat/sugar therefore encouraging **obesity** in **primary school children**.

**15. Peer pressure**

1. **Primary school children** are inclined to follow the eating patterns of their peer groups which may result in **weight gain/obesity**.

1 c) Identify and explain **three** factors which may contribute to a deficiency in iron.

**Marking Instructions:**

3 x 1 mark for **each** factor

3 x 1 mark for explanation which identifies how the factor contributes to the deficiency of iron.

Factor must be identified before mark can be awarded for explanation. Where the factor is incorporated in the explanation this can be credited.

**Total – 6 marks (KU)**

<b>Factor</b>	<b>Explanation</b>
<b>1. Low iron intake/ low intake of red meat</b>	1. If there is insufficient <b>iron</b> which is a vital part of haemoglobin (the pigment in red blood cells to bind with oxygen) this will lead to deficiency in iron.
<b>2. Low Vitamin C intake</b>	1. If the diet is lacking in vitamin C then the body will be unable to absorb (non-haem) <b>iron</b> leading to a deficiency.
<b>3. High NSP intake</b>	1. If too much (indigestible) NSP is consumed then this may bind with <b>iron</b> to prevent <b>iron</b> being absorbed leading to a deficiency.
<b>4. High phytates intake/High phytic acid intake</b>	1. Phytates/Phytic acid binds with <b>iron</b> to prevent absorption leading to a deficiency.
<b>5. Genetic factors</b>	1. Some inherited conditions (sickle cell anaemia) result in poor <b>iron</b> absorption leading to a deficiency.
<b>6. Intestinal diseases/ internal bleeding/ heavy menstruation</b>	1. Some intestinal diseases/Crohn's disease/Coeliac's disease make it difficult for the body to absorb <b>iron</b> leading to a deficiency. 2. Internal bleeding linked to a health problem/ulcer/cancer could mean the body is losing iron which may lead to anaemia.
<b>7. Vegetarian/vegan diet</b>	1. Vegetarian/vegan diets tend to be high in NSP/Phytates/Phytic acid which inhibit <b>iron</b> absorption. 2. Vegetarian/Vegan diets are often low in (haem) <b>iron</b> leading to a deficiency.
<b>8. Drugs/substance misuse/prescription drugs</b>	1. Certain prescription/illegal drugs may inhibit <b>iron</b> absorption leading to a deficiency.
<b>9. State of health/ surgery/ pregnancy/ child birth</b>	1. People with an eating disorder/anorexia/bulimia nervosa could lead to poor intake of <b>iron</b> leading to a deficiency. 2. If blood is lost from the body due to child birth/surgery this could lead to deficiency of <b>iron</b> . 3. There may be an increased demand for <b>iron</b> during pregnancy.
<b>10. Excessive exercise</b>	1. <b>Iron</b> appears to be depleted in people who exercise excessively so leading to a deficiency.

1 d) Evaluate the contribution of bread in the diet.

**Marking Instructions:**

4 x 1 mark for **each** point of evaluation which makes reference to bread in the diet.

**Total – 4 marks (EV)**

**Positive**

1. **Bread** is a good addition to the diet **because** it provides protein for the body **therefore** allowing growth and repair and maintenance of body cells.
2. **Bread** is a good addition to the diet **as** it is fortified with calcium **which** is needed for the development and maintenance of bones and teeth.
3. **Wholemeal bread** plays a good part in the diet **as** it is a good source of NSP, **which** helps to prevent constipation/diverticular disease/bowel cancer/haemorrhoids/piles/bowel disorders.
4. **Bread** plays a good part of the diet **because** it may contribute to folic acid **which** is needed to prevent spina bifida/neural tubes defects in babies.
5. **Bread** is a good addition to the diet **because** it may contain folic acid **which** helps to prevent anaemia.
6. **Bread** plays a good role in the diet **as** it contributes to iron/is fortified with iron intake **therefore** helping to prevent anaemia.
7. **Bread** is a good addition to the diet **as** it is low in fat **therefore** should not cause excess weight gain/obesity/high blood pressure/Coronary Heart Disease.
8. **Bread** is a good addition to the diet **as** it is low in sugar **therefore** should not cause excess weight gain/obesity/high blood pressure/Coronary Heart Disease/tooth decay/diabetes.
9. **Bread** is a good addition to the diet **as** it helps to fill you up **therefore** you are less likely to snack on high fat/sugar foods which can lead to obesity.
10. **Bread** is a good addition to the diet **because** it is relatively cheap to buy **therefore** can provide an inexpensive source of protein.
11. **Bread** is a good addition to the diet **as** it helps to meet the dietary target for an increase in bread consumption from 106g per day to 145g per day (mainly using wholemeal and brown breads).
12. **Bread** is good for diabetics as it contains total complex carbohydrate **which** helps to regulate blood sugar.
13. **Bread** is a good addition to the diet as it provides carbohydrate **which** is a source of energy for activity/people involved in sports.
14. **Bread** is a good addition to the diet as it provides slow release energy **which** aids concentration/helps control blood sugar levels.
15. Some breads are now fortified with omega 3 which may be good for children **as** this may help the development of their brain. (accept other health benefit linked to omega 3).

### **Negative**

1. **Bread** may not be a good option in the diet if a spread containing high amounts of saturated fat is used **as** this will contribute towards obesity/Coronary Heart Disease.
2. **If white bread** is consumed then this is a less healthy contribution to the diet **as** it is low in NSP therefore leading to constipation/diverticular disease/bowel cancer/haemorrhoids/piles/bowel disorders.
3. **Bread** can contain high amounts of salt which means it is not contributing towards a healthy diet **as** it may lead to high blood pressure.
4. **Bread** will not be a good addition to the diet if someone is suffering from allergies/intolerances/Coeliac disease **as** the bread may trigger the allergy due to its ingredients.
5. **Bread** may not be a good contribution to a healthy diet if the filling/topping is high in saturated fat **as** this may lead to obesity/Coronary Heart Disease.
6. **Bread** may not be a good contribution to a healthy diet if the filling/topping is high in sugar **as** this may lead to obesity/Coronary Heart Disease/dental caries.

2	a)	<p>A food manufacturer plans to develop a cereal bar.</p> <p>Identify and explain <b>three</b> stages in the development of this snack.</p>
<p><b>Marking Instructions:</b></p> <p>3 x 1 mark for the identification of <b>each</b> stage</p> <p>3 x 1 mark for each explanation linked to the development of the cereal bar.</p> <p>Stage must be identified before mark can be awarded for explanation. Where the stage is incorporated in the explanation this can be credited.</p> <p style="text-align: right;"><b>Total – 6 marks (KU)</b></p>		

Stage	Explanation
<p><b>1. Concept Generation</b></p>	<ol style="list-style-type: none"> <li>1. This is when the company will develop ideas for the <b>new cereal bar</b>.</li> <li>2. This is the thinking stage/thinking up new ideas for the <b>cereal bar</b>.</li> <li>3. The development of ideas from market research, for a new <b>cereal bar</b>.</li> </ol>
<p><b>2. Concept Screening</b></p>	<ol style="list-style-type: none"> <li>1. All ideas for the <b>cereal bar</b> are considered – some are kept and some are discarded.</li> <li>2. A specification is compiled for the <b>cereal bar</b>.</li> <li>3. The specification allows the manufacturer to discard ideas that do not meet the specification for the <b>cereal bar</b>.</li> </ol>
<p><b>3. Prototype Production</b></p>	<ol style="list-style-type: none"> <li>1. The prototype/example/sample <b>cereal bar</b> is developed.</li> <li>2. The prototype/example/sample <b>cereal bar</b> is measured against the specification.</li> <li>3. The prototype/example/sample <b>cereal bar</b> is tested for appeal and may be further modified/rejected.</li> </ol>
<p><b>4. Product Testing</b></p>	<ol style="list-style-type: none"> <li>1. A range of <b>cereal bars</b> are tested by target market/various ages/ tasting panels so opinions can be obtained.</li> <li>2. Sensory testing of the <b>cereal bar</b> allows for refining/improvements/ modifications of the recipe as a result of consumer opinion.</li> <li>3. A final prototype of the <b>cereal bar</b> is trialled.</li> </ol>

<p><b>5. Information and advertising materials designed for packaging</b></p>	<ol style="list-style-type: none"> <li>1. Food labels in compliance with food labelling regulations will be designed for the <b>cereal bar</b>.</li> <li>2. Suitable packaging will be developed/investigated/costed and produced for the <b>cereal bar</b>.</li> <li>3. The legal and advertising team will begin to develop materials/plan for selling the <b>cereal bar</b>.</li> <li>4. Allows the advertising team to cost the advertising programme and the packaging for the <b>cereal bar</b> (as this will affect the selling price of the bar).</li> </ol>
<p><b>6. First production run</b></p>	<ol style="list-style-type: none"> <li>1. The new <b>cereal bar</b> will be produced in bulk in a factory.</li> <li>2. Quality assurance will be carried out to ensure the <b>cereal bar</b> is an acceptable standard for sale.</li> </ol>
<p><b>7. Marketing plan</b></p>	<ol style="list-style-type: none"> <li>1. The marketing team meet to decide about the pricing of the <b>cereal bar</b> (eg low cost to attract interest, medium to high cost to imply luxury).</li> <li>2. An advertising plan is created to help launch the <b>cereal bar</b>.</li> <li>3. The marketing team meet to decide a range of ways to promote the <b>cereal bar</b> (where the product will be sold – supermarket/corner shop/position in the supermarket).</li> </ol>
<p><b>8. Launch</b></p>	<ol style="list-style-type: none"> <li>1. Depending on the budget available will affect how they choose to launch the cereal bar.</li> <li>2. Food exhibitions/store launch/press release may be selected as the most suitable method to launch the cereal bar.</li> <li>3. Market research will be carried out to check sales figures of the cereal bar.</li> </ol>

- 2 b) The star profile shows the results of testing a cereal bar.  
Evaluate the suitability of this cereal bar for teenagers.

**Marking Instructions:**

5 x 1 mark for **each** valid evaluation point linked to the cereal bar suitability for the teenagers.

**Total – 5 marks (EV)**

**1. Salty**

1. The low score (of 1) means the **cereal bar** does not contain a lot of salt making it suitable, **as** it will not have a salty flavour making the **cereal bar therefore** more appealing to the teenagers.
2. The **cereal bar** has a low salt score making it suitable for **teenagers because** it will help them to meet current dietary target for salt.
3. The score is low for salt so is good for **teenagers as** it will help reduce their risk of hypertension/stroke/CHD in later life.
4. The low score (of 1) means the **cereal bar** does not contain a lot of salt making it unsuitable, **as** it will not have a salty flavour, **therefore** may not appeal to some **teenagers**.

**2. Crisp**

1. The low score (of 1) means the **cereal bar** is not crisp making it unsuitable, **as teenagers** may prefer a crisper texture from a cereal bar.
2. The **cereal bar** has a low score for crispness making it suitable **because teenagers** may eat this bar on the go **so** there will be fewer crumbs/less mess made.

**3. Sweet**

1. The **cereal bar** has a high score for sweetness making it appealing to the **teenagers as** many like a sweet flavour.
2. The high score of sweetness for the **cereal bar** may not be good for **teenagers as** this could lead to obesity/CHD/dental caries/diabetes.
3. The high score of sweetness for the **cereal bar** is not good for **teenagers because** it means the teenagers may not meet the Scottish Dietary Targets for NME sugars/sugars to be reduced by half.

#### 4. Fruity

1. The **cereal bar** scored high for fruity making it suitable for the **teenagers as** they tend to like the flavours of fruit so would want to eat it.
2. The score for fruity is high (at 5) for the **cereal bar**. This is suitable for **teenagers as** they should be encouraged to eat more fruit following current dietary targets.
3. The score for fruity is high (at 5) for the **cereal bar**. This is suitable for **teenagers because** the fruit will benefit their health containing NSP/Dietary fibre preventing constipation/ACE vitamins preventing cancer and heart disease/low in fat preventing obesity.

#### 5. Colour

1. The colour scored high for the **cereal bar** so it has very good colour making it suitable for **teenagers as** they prefer foods to be interesting with good colour.
2. The **cereal bar** scored high for colour which could mean artificial colouring additives being added to the bar. This would make it unsuitable for **teenagers as** it could irritate sufferers of asthma/eczema/hyperactivity/allergies.

#### 6. Chewy

1. The **cereal bar** scored high for chewy at 4 which is not suitable **because teenagers** may not like this texture **as** it will take them longer to chew it/swallow and if they are in a rush will not have time to eat it.
2. The score is high for being chewy which is not suitable for the **teenagers because** the **cereal bar** will take longer to chew and so will be in the mouth for longer increasing the risk of dental caries.
3. The **cereal bar** scored 4 for chewy making the texture chewy. This would be suitable for **teenagers as** when eating the bar it would be less crumbly making less mess.
4. The **cereal bar** scored high for chewy making it suitable for the **teenagers because** the cereal bar will have a moister texture/not dry which will be liked by most teenagers.

2 c) Explain **two** reasons why a food manufacturer would use disassembly.

**Marking Instructions:**

2 x 1 mark for **each** explanation.

**Total – 2 marks (KU)**

1. To get ideas for the development of new food products manufacturers will disassemble similar products.
2. To assess an existing product, food manufacturers constantly review their own products and (their food technologists) may disassemble products if there has been a drop in sales/if they wish to produce a 'new and improved' version.
3. To produce a specification for a new food product.
4. To discover the functions/proportions of ingredients in existing food products (eg breads/spreads/ fillings in a sandwich/ready meals).
5. To understand how foods react when mixed with other ingredients.
6. To correct faults that might occur at any point in the manufacturing process of a food product.
7. To ensure food products are of the correct quality in order that the food product remains at its best during storage/until purchase/until consumption.
8. To ensure consumers will be satisfied with the newly developed food product and will continue to buy it.
9. To get ideas from competitors' food products/obtain some idea of the competition.
10. The results from other competitors are analysed/evaluated before the company launches its own food product.
11. Disassembly allows the manufacturer to investigate how the proportion/variety of ingredients will affect the cost/nutritional value of the food product.

- 2 d) The following marketing techniques are used to promote the cereal bar.
- (i) Point of sale display
  - (ii) Buy one get one free
  - (iii) In-store tasting
  - (iv) TV advertising

Evaluate the impact of **each** of these techniques on the consumer.

**Marking Instructions:**

4 x 1 mark for **each** evaluation of marketing technique linked to the launch of the cereal bar and the consumer.

**Total – 4 marks (EV)**

**1. Point of sale display**

- 1. If the cereal bar display is colourful/attractive this would be effective, **as** the **consumer** often has to queue at point of sale **so** would be tempted to purchase the **cereal bar**.
- 2. **Consumers** often have to queue at point of sale and **therefore** would have time to look at **cereal bar** and are tempted to buy food on an impulse. This would be an effective method of advertising.
- 3. This is an effective marketing technique if the cereal bar has an interesting colourful packaging **because children** may like the look of the bar and **so** pester **parents** to buy the **cereal bar**.

**2. Buy one get one free**

- 1. This would encourage **consumers** (on a budget) to buy it **because** they feel they are getting a bargain, two cereal bars for the price of one **therefore** an effective way to market the **cereal bar**.
- 2. This is an effective way to market cereal bars as many **consumers** like to feel they are getting a bargain so if the cereal bar is buy one get one free **therefore** more people are likely to feel that they have got a good deal.
- 3. This may not be an effective marketing technique as **consumers** may be unwilling to purchase the cereal bar at the normal price after the promotional launch **because** it will cost them more money for the **cereal bar**.

**3. In-store tasting**

- 1. This could encourage sales **as** consumers like to try new foods when free **so** tasting the **cereal bar** would encourage **consumers** to buy it again if they like it.
- 2. In-store tasting sessions in one supermarket chain would limit the sales of the cereal bar **as** only those **consumers** who shop in the store would be aware of the new **cereal bar**.
- 3. In-store tasting in many supermarket chains would be effective as the **cereal bar** would reach a wide **consumer** audience **so** increase sales.
- 4. The **consumers** may feel under pressure to purchase the **cereal bar** after trying the sample **therefore** buying the product, which will increase the sales.

#### **4. TV advertising**

1. This is an effective method of marketing as large numbers of **consumers** are exposed to the advert for the **cereal bar**, especially at peak viewing **so** more consumers are likely to purchase the cereal bar.
2. Adverts with a jingle/personality/celebrity are an effective marketing method for the **cereal bar** as it can catch the **consumers'** imagination and they will remember the new product so more likely to purchase the cereal bar.
3. Legislation has been passed to limit the TV advertising for foods during children's television (up to the age of 16) **therefore** the **cereal bar** may not be able to be marketed during this time meaning it is a less effective way to reach **consumers**.

- 2 e) Using Hazard Analysis and Critical Control Point (HACCP), explain **one** control measure which the cereal bar manufacturer should take at **each** of the following stages.
- (i) Storage
  - (ii) Preparation
  - (iii) Distribution

**Marking Instructions:**

3 x 1 mark for **each** explanation of the control measure linked to the cereal bar.

**Total – 3 marks (KU)**

**1. Storage**

1. **Cereal ingredients** must be kept in cool dry store and in sealed containers to prevent moisture affecting the foods causing microbial growth/weevils in flour.
2. **Cereal ingredients** must be kept covered to prevent contamination from foreign bodies/flies/air-borne bacteria etc.
3. Stock control systems should be used to ensure that first in first out (FIFO) system applies with all **cereal bar ingredients**.
4. Storage areas must be cleaned regularly to prevent microbial growth/dust/food debris **contaminating cereal bar ingredients** which could attract pests.
5. Storage areas must have regular temperature control/hygiene checks to prevent microbial growth in **cereal bar ingredients**.
6. **Cereal bar ingredients** must be used by their shelf-life/date marks to prevent microbial growth/deterioration of ingredients.
7. All **cereal bar ingredients** must be stored in a temperature-controlled environment to prevent microbial growth.
8. All **cereal bar ingredients** should be stored away from chemicals to prevent the risk of cross-contamination.
9. Any high risk ingredients/butter/spreads used in **cereal bar** should be stored below 5°C to prevent bacterial growth.

**2. Preparation**

1. Food handlers should follow strict hygiene guidelines/wear protective clothing/be trained in food safety to prevent contamination of **cereal bar ingredients**.
2. Equipment used in manufacture of **cereal bar** must be cleaned regularly to prevent the risk of contamination from micro-organisms.
3. Preparation areas for **cereal bars** should be subject to regular temperature-control/hygiene checks to prevent contamination from pests/micro-organisms.
4. Ingredients used for **cereal bar** must be checked to ensure no foreign bodies are present in the prepared foods as these could cause contamination (or cause consumer to choke eg button from clothing).
5. Fruit for **cereal bar** should be cleaned thoroughly to remove soil.
6. Preparation areas for **cereal bars** should have restricted access to prevent contamination.

### **3. Distribution**

1. Distribution vehicles used for **cereal bars** should be subject to regular temperature-control/hygiene checks to prevent contamination.
2. Packaging should be sealed to protect **cereal bars** from contamination during distribution.
3. Distribution vehicles should be cleaned regularly to prevent contamination of **cereal bars**.
4. Packaging for distribution of **cereal bars** should have clear storage instructions to prevent contamination.
5. **Cereal bars** must be kept cool and dry during transport to prevent moisture from affecting the foods causing microbial growth.

- 3 a) Evaluate the suitability of the following meal in relation to **different** Scottish dietary targets.
- Grilled breast of chicken brushed with garlic butter
  - Baked potato
  - Carrots

**Marking Instructions:**

4 x 1 mark for **each** point of evaluation of foods linked to **different** Scottish dietary targets.

**Total – 4 marks (EV)**

**1. Grilled chicken breast**

**Positive**

1. As the chicken has been grilled then no extra fat has been added **therefore** this helps to contribute towards the dietary target of **reducing fat/saturated fat intake to no more than 35%/11% of energy intake per day.**
2. Chicken is a lean meat/white meat which is good **because** this will help to contribute to the dietary target of **reducing fat intake/saturated fat intake to no more than 35%/11% of energy intake per day.**
3. The grilled chicken breast is good as no sugar is included **therefore** helping to meet the dietary target for **reduction in NME sugars in children to no more than 10% of total energy/no increase in adults.**

**Negative**

1. If the skin from the chicken has not been removed then this will not be so good **because** the skin is high in fat and will not help to **reduce fat intake/saturated fat intake (to no more than 35%/11% of energy intake per day.**

**2. Garlic Butter**

**Positive**

1. As the dish is served brushed with garlic butter then this means that salt may not be added for flavour which is good **as** this will help to meet the dietary target of **reducing salt intake to no more than 100mmol/6g per day.**
2. As the chicken is only brushed with garlic butter this means the total amount of saturated fat which is added is low which is good **as** this will help to meet the dietary target of **reducing fat intake/saturated fat intake to no more than 35%/11% of energy per day.**
3. Garlic butter is good as no sugar is included **therefore** helping to meet the dietary target for **reduction in (NME) sugars in children to no more than 10% of total energy/no increase in adults.**

**Negative**

1. The garlic butter will be high in saturated fat which is not good **as** this does not help to meet the dietary target of **reducing fat intake/saturated fat intake to no more than 35%/11% of energy intake per day.**

**3. Baked potato**

**Positive**

1. The baked potato is a good accompaniment to the meal **as** it is high in Total Complex Carbohydrate **therefore** helping to meet **the target of increasing Total Complex Carbohydrates by 25%.**
2. As the potato will be baked it will not have any fat added to it for cooking **therefore** helping to meet the dietary target of **reducing fat intake/saturated fat intake to no more than 35%/11% of energy intake per day.**
3. Baked potato is good as no sugar is included **therefore** helping to meet the dietary target for **reduction in NME sugars in children to no more than 10% of total energy/no increase in adults.**

**Negative**

1. Some people may serve the baked potato with butter which will increase fat consumption **therefore** not helping to achieve the **target of reducing fat intake/saturated fat intake to no more than 35%/11% intake per day.**

**4. Carrots**

**Positive**

1. The carrots will be a good addition to the meal **as** they are a vegetable **therefore** helping to contribute towards the dietary **target of increasing fruit and vegetable consumption to 400g per day/eat 5 a day.**
2. The carrots should not have to have fat added to them during cooking **therefore** they are helping to meet the dietary **target of reducing fat intake/saturated fat intake (to no more than 35%/11% of energy intake per day).**
3. The carrots are a good addition to the meal **as** they contain Total Complex Carbohydrates **therefore** helping to meet the dietary **target of increasing total complex carbohydrates by 25%.**
4. Carrots are good as no sugar is included **therefore** helping to meet the dietary target for **reduction in NME sugars in children to no more than 10% of total energy/no increase in adults.**

- 3 b) Identify **one** cause and **two** control measures for **each** of the following bacteria.
- (i) Salmonella
  - (ii) Campylobacter

**Marking Instructions:**

2 x 1 mark for cause of **each** bacteria.

2 x 1 mark for **each** control measure to total 3 marks linked to salmonella and campylobacter.

Cause must be identified before mark can be awarded. If cause is identified within explanation of control measure mark can be awarded.

**Total – 6 marks (KU)**

Cause of salmonella	Control measures
<p><b>1. Food of animal origin/eggs/meat/poultry</b></p>	<p>1. Wash hands thoroughly before and after handling animal foods/raw meat/poultry/eggs as these are likely sources of <b>salmonella</b>.</p> <p>2. Use different preparation areas/equipment for animal foods to prevent cross-contamination of <b>salmonella</b>.</p> <p>3. Clean all surfaces/equipment thoroughly after preparing animal foods to prevent cross-contamination of <b>salmonella</b>.</p>
<p><b>2. Contamination from domestic animals/cats/dogs/pets</b></p>	<p>1. Wash hands after handling animals/pets as these may carry <b>salmonella</b>.</p> <p>2. Do not allow animals/pets access to food preparation areas to prevent spread of <b>salmonella</b>.</p>
<p><b>3. Poor personal hygiene from food handlers</b></p>	<p>1. Ensure that all staff are trained to follow good personal hygiene rules to prevent the spread of <b>salmonella</b>.</p> <p>2. Separate hand washing facilities must be provided in food premises to prevent <b>salmonella</b> spreading from food handlers to food.</p>
<p><b>4. Undercooked eggs/meat/poultry</b></p>	<p>1. Cook eggs/meat/poultry thoroughly/75°C to ensure <b>salmonella</b> are killed by heat/reheat to 82°C</p> <p>2. Ensure meat joints/poultry is cooked thoroughly in the centre to prevent <b>salmonella</b> multiplying.</p>
<p><b>5. Incorrect thawing of frozen meats/poultry</b></p>	<p>1. Thaw frozen meat/poultry thoroughly before cooking to prevent <b>salmonella</b> multiplying.</p> <p>2. Thaw frozen meat/poultry in a refrigerator overnight to prevent <b>salmonella</b> multiplying.</p> <p>3. Do not defrost frozen meat/poultry at room temperature to prevent <b>salmonella</b> multiplying.</p>

<p><b>6. Poor food storage of raw meats/poultry</b></p>	<ol style="list-style-type: none"> <li>1. Store meats/poultry at the correct temperature/in a refrigerator/ below 5°C to prevent <b>salmonella</b> multiplying.</li> <li>2. Ensure meats/poultry are stored covered in the refrigerator to prevent the spread of <b>salmonella</b>.</li> <li>3. Store raw meats/poultry below cooked foods in the refrigerator to prevent drips from raw meats/poultry contaminating others with <b>salmonella</b>.</li> </ol>
<p><b>7. Poor kitchen hygiene</b></p>	<ol style="list-style-type: none"> <li>1. Ensure thorough cleaning of all equipment used for raw eggs/ meat/poultry to kill off <b>salmonella</b>.</li> <li>2. Use separate chopping boards/knives for raw meat/poultry and cooked food to prevent the spread of <b>salmonella</b>.</li> <li>3. Ensure meats/poultry are stored covered in the refrigerator to prevent the spread of <b>salmonella</b>.</li> <li>4. Store raw meats/poultry below cooked foods in the refrigerator to prevent drips from raw foods contaminating cooked foods with <b>salmonella</b>.</li> </ol>
<p><b>Cause of campylobacter</b></p>	<p><b>Control measures</b></p>
<p><b>1. Food of animal origin/ meat/poultry</b></p>	<ol style="list-style-type: none"> <li>1. Good personal hygiene/wash hands thoroughly after handling raw meats/poultry to prevent the spread of <b>campylobacter</b>.</li> <li>2. Ensure good personal hygiene rules are followed after touching animals to prevent the spread of <b>campylobacter</b>.</li> </ol>
<p><b>2. Contamination from domestic animals/cats/ dogs/pets</b></p>	<ol style="list-style-type: none"> <li>1. Ensure good personal hygiene rules are followed after touching animals as these may carry <b>campylobacter</b>.</li> <li>2. Do not allow animals into kitchen/food preparation areas to prevent the spread of <b>campylobacter</b>.</li> </ol>
<p><b>3. Poor personal hygiene from food handlers</b></p>	<ol style="list-style-type: none"> <li>1. Ensure that all staff are trained to follow good personal hygiene rules to prevent the spread of <b>campylobacter</b>.</li> <li>2. Separate hand washing facilities must be provided in food premises to prevent spread of <b>campylobacter</b>.</li> </ol>
<p><b>4. Poor food storage of raw meats/poultry</b></p>	<ol style="list-style-type: none"> <li>1. Store meats/poultry at the correct temperature/in a refrigerator/ below 5°C to prevent <b>campylobacter</b> multiplying.</li> <li>2. Ensure meats/poultry are stored covered in the refrigerator to prevent the spread of <b>campylobacter</b>.</li> <li>3. Store raw meats/poultry below cooked foods in the refrigerator to prevent drips from raw foods contaminating others with <b>campylobacter</b>.</li> </ol>

<p><b>5. Incorrect thawing of frozen meats/poultry</b></p>	<ol style="list-style-type: none"> <li>1. Thaw frozen animal foods thoroughly before cooking to prevent <b>campylobacter</b> multiplying.</li> <li>2. Thaw frozen meat/poultry in a refrigerator overnight to prevent <b>campylobacter</b> multiplying.</li> <li>3. Do not thaw/defrost frozen meat/poultry at room temperature to prevent <b>campylobacter</b> multiplying.</li> </ol>
<p><b>6. Undercooked meat/poultry</b></p>	<ol style="list-style-type: none"> <li>1. Good personal hygiene/wash hands thoroughly after handling raw meats/poultry to prevent the spread of <b>campylobacter</b>.</li> <li>2. Store meats/poultry at the correct temperature/in a refrigerator/ below 5°C to prevent <b>campylobacter</b> multiplying.</li> <li>3. Cook meat/poultry thoroughly to ensure <b>campylobacter</b> are killed by heat.</li> <li>4. Separate raw meat/poultry and cooked foods to prevent cross-contamination from <b>campylobacter</b>.</li> </ol>
<p><b>7. Poor kitchen hygiene</b></p>	<ol style="list-style-type: none"> <li>1. Ensure thorough cleaning of all equipment used for raw meat/poultry as these may contain <b>campylobacter</b>.</li> <li>2. Use separate chopping boards/knives for raw meat/poultry and cooked food to prevent the spread of <b>campylobacter</b>.</li> <li>3. Ensure meats/poultry are stored covered in the refrigerator to prevent the spread of <b>campylobacter</b>.</li> <li>4. Store raw meats/poultry below cooked foods in the refrigerator to prevent drips from raw foods contaminating cooked food with <b>campylobacter</b>.</li> </ol>
<p><b>8. Raw/unpasteurised milk</b></p>	<ol style="list-style-type: none"> <li>1. Ensure that only pasteurised milk is used/consumed as this may contain <b>campylobacter</b>.</li> <li>2. Avoid buying/using unpasteurised milk from local farms as it may contain <b>campylobacter</b>.</li> <li>3. Do not drink milk from bottles which have been pecked by birds as this milk may contain <b>campylobacter</b>.</li> </ol>
<p><b>9. Untreated natural water</b></p>	<ol style="list-style-type: none"> <li>1. Avoid use of such water and only use treated water as this may be a source of <b>campylobacter</b>.</li> <li>2. Avoid drinking water from lakes/streams/rivers as this may be contaminated by <b>campylobacter</b>.</li> </ol>

- 3 c) Explain how **each** of the following areas of the Food Safety Act 1990 protects the consumer.
- (i) Labelling
  - (ii) Additives and contaminants

**Marking Instructions:**

1 x 1 mark for explanation of how Food Safety Act 1990 protects the consumer through labelling.

1 x 1 mark for explanation of how Food Safety Act 1990 protects the consumer through additives and contaminants.

**Total – 2 marks (KU)**

**1. Labelling**

1. Food labelling must be accurate, so that **the consumer will be able to make an informed choice.**
2. This Act ensures that food is labelled to inform **the consumer about certain ingredients** which may cause allergies (such as nuts).
3. The Act refers to false claims and misleading descriptions, **so the consumer can be confident that the food purchased is as stated on the label.**
4. Manufacturers must be able to fulfil any claim made on the label **therefore consumers can be confident over what they are purchasing.**

**2. Additives and Contaminants**

1. Additives must meet the requirements of this Act and are carefully controlled **therefore the consumer can be reassured that any additives are monitored/safe to consume.**
2. Under the Act most UK additives must go through a (long and strict) safety review to get/ stay approved **therefore the consumer can feel confident that any additives in foods are safe.**
3. Under the Act any additive allowed in the UK is considered safe for almost everyone; **therefore very few consumers may have an allergic reaction.**
4. Under this Act additives must be listed by law on a food label **therefore the consumer may be able to check the contents before consumption.**
5. Under the Act food sold must not contain any contaminants which could cause injury/harm the health of the public.

- 3 d) The Food Safety Act 1990 also covers Public Health & Hygiene.  
Explain **four** ways in which an Environmental Health Officer would enforce this Act.

**Marking Instructions:**

4 x 1 mark for explanation of way in which an Environmental Health Officer would enforce public health & hygiene through the Food Safety Act 1990.

**Total – 4 marks (KU)**

**NB Headings are to assist markers and are not required by candidates**

**1. Food Premises**

1. Environmental Health Officers can enter food premises on a routine check/to investigate complaints under the Food Safety Act.
2. The Food Safety Act allows Environmental Health Officers to inspect food to see if it is safe and retain/seize/condemn food.
3. Under the Food Safety Act, Environmental Health Officers can enter food premises and take food samples away to be tested/record what they see.
4. Under the Food Safety Act, Environmental Health Officers can provide training to staff in food premises.
5. Anyone working in the food business (no matter the size of their business), must conform to the Food Safety Act.
6. Under the Food Safety Act food premises must be registered with the local authority to ensure good hygiene standards/safe food for consumers.

**2. Risk Assessment**

1. The Food Safety Act allows Environmental Health Officers to identify potential hazards in the food chain and carry out risk assessment.

**3. Notices**

1. The Food Safety Act allows the Environmental Health Officer to serve an improvement notice if there has been failure to comply with the food hygiene regulations.
2. The Food Safety Act allows an Environmental Health Officer to close the premises down with an emergency prohibition notice if there is an imminent risk to health.
3. Under the Food Safety Act offenders who serve food unfit for human consumption can be prosecuted.

- 3 e) Evaluate **each** of the following for the consumer.
- (i) Fair Trade products
  - (ii) Organic produce

**Marking Instructions:**

2 x 1 mark for **each** point of evaluation of fair trade products for the consumer.

2 x 1 mark for **each** point of evaluation of organic produce for the consumer.

**Total – 4 marks (EV)**

**1. Fair Trade Products**

**Positive**

1. In some cases the quality of the food is higher because Fair Traders consider the environment when producing **Fair Trade products** which is good **because** the **consumer** may receive a better quality product.
2. The **Fair Trade** label is clearly marked on products this is good **as consumers** can easily identify these products when shopping **so** will save time.
3. There is an increasing range of **Fair Trade products** which is good **so consumers** now have a wider choice of produce.
4. Most **Fair Trade products** generally do not cost more than other products which is good **so the consumer** is not out of pocket if they wish to choose Fair Trade.
5. Fair Trade encourages purchase through Fair Trade stores/supermarkets/catalogues/websites **therefore Fair Trade** products are available for the consumer from a variety of sources making shopping easier for the **consumer**.
6. **Fair Trade products** guarantees a decent income for the produce **so** reassures ethical consumers they are helping support low income workers/developing countries.

**Negative**

1. In some cases (eg coffee) the producers receive a high price per kilo this is not good **as the consumer** would then have to pay a higher price for **Fair Trade** coffees than other brands.
2. Some shops may not stock **Fair Trade products** which can be a problem **as** it will make it difficult for the **consumer** to source Fair Trade produce.
3. Many **Fair Trade products** are flown in from far away countries and **so** some **consumers** may find this unacceptable because of the carbon footprint concerns/environmental impact **so** will not purchase them.
4. Limited range of **Fair Trade products** available therefore less choice for consumers.

## 2. Organic Produce

### Positive

1. Many consumers buy organic produce as they believe they taste better **therefore** giving the **consumers** a better quality product.
2. Organic produce uses fewer fertilisers and chemicals **therefore** the **consumer** may prefer this as they feel it is more beneficial to health.
3. As organic produce is becoming more popular there is increased competition between retailers **therefore** meaning more competitive prices for **consumer**.
4. As organic produce is becoming more popular more products are being developed which is good **as** it means the **consumer will have a wider choice**.
5. Organic produce is good as it is more in keeping with consumers' ethical beliefs and will **therefore** offer **more choice for these people**.
6. Some studies have shown that organic produce contains more nutrients than traditional produce **therefore** they would be beneficial to the **consumers'** health.

### Negative

1. Organic produce tends to be expensive to buy **therefore** will **not be available to low-income groups**.
2. Quality of organic produce may not be as good/uniform which **may** be unacceptable to **consumers as** their appearance may be less attractive.
3. Maintaining quality/freshness of organic produce may not be as easy due to the absence of pesticides/preservatives **therefore consumers** may have to purchase them more regularly.
4. Organic produce is not completely free from fertilisers/chemicals **therefore** some risk to **health of consumers** is still possible.
5. The evidence as to the health benefits of organic produce are still not proven **therefore consumers** may be paying a high price for no valid reason.
6. Regulation of organic produce may be difficult **therefore** it would be difficult to ensure that each product is 100% organic which **may** confuse/mislead the **consumer**.
7. Some organic produce is flown in from far away countries and **so some consumers** may find this unacceptable because of the carbon footprint concerns/environmental impact **so** will not purchase them.

- 4 a) Evaluate how **each** of the following factors may influence a consumer's choice of food.
- (i) Working hours
  - (ii) Nutritional knowledge
  - (iii) Preparation and cooking skills
  - (iv) Foreign travel

**Marking Instructions:**

4 x 1 mark for **each** point of evaluation linked to consumer's choice of food.

**Total – 4 marks (EV)**

**1. Working Hours**

1. **Consumers** who have longer **working hours** will have less time/inclination to prepare food, so are more likely to buy ready meals/takeaways **as** they are quick/easy to prepare **so** saving time.
2. **Consumers** that have a **long working day** may choose to take (single-portion) ready meals with them to heat at work **so** saves time/wastage of food.
3. **Consumers** that have **irregular working hours/shifts** will mean irregular eating times different to their family, maybe more likely to buy ready made meals when they come home **as** they have limited time/lack of cooking skills to make the food.
4. **Consumers** that have **irregular working hours/shifts** will mean irregular eating times different to their family maybe more likely to buy ready made meals when they come home **so** may eat a diet which is less healthy/high in fat/salt/sugar.
5. **Consumers** with **long working hours** now have a wide choice of frozen/cool-chill meals/ready meals available for purchase which can be microwaved quickly **so** gives them greater choice/saves time.
6. **Consumers** take very **little time to eat meals while at work** may choose to buy snack lunches/pot noodles/dried soups/prepared sandwiches/prepared fruits/salads **which** are quick to eat.
7. **Consumers who work part time** will have more time to prepare food **so** may opt to shop for fresh ingredients to cook meals from scratch which may lead to a healthier diet.

## 2. **Nutritional knowledge**

1. **Consumers** with little **nutritional knowledge** may choose less healthy options/foods high in fat/sugar/salt/low in TCCs/oily fish/fruit and vegetables **which** may increase their risk of diet related diseases/coronary heart disease/obesity/hypertension/stroke/dental caries/constipation.
2. **Nutritional labelling** on food may not be easily understood by some **consumers** with little knowledge, and may not assist them to make healthy choices and **so** reduce the risk of diet related diseases/coronary heart disease/obesity/hypertension/stroke/dental caries/constipation.
3. **Consumers** with good **nutritional knowledge** may read nutritional labelling on food packets to make comparisons and **so** choose healthier food items/foods to benefit their health.
4. **Consumers** with good **knowledge of nutrition** have an increased awareness in the health benefits of foods/of 'healthy eating' and **so** are likely to choose food which could improve their health/reduce the risk of diet related disease in later life.
5. **Consumers** with **nutritional knowledge** may choose functional foods **because** of the added health benefits associated with the nutrient added to the food.

## 3. **Preparation and cooking skills**

1. Loss of practical skills/limited practical skills in **food preparation/cooking** may mean that **consumers** eat more ready-meals/take-away meals are used as an alternative to traditional cooking **which** may lead to an unhealthy diet.
2. If the **consumer** has **good preparation/cooking skills** then they are more likely to purchase individual ingredients/cook homemade dishes **therefore** giving them more variety in the diet/a healthier diet.
3. Reliance on purchase of convenience foods may mean that traditional **food preparation and cooking skills** are lost **so consumers** can only buy ready made foods.
4. **Consumers** with **good preparation/cooking skills** may purchase individual ingredients more confidently **as** they will have the knowledge to prepare and cook a variety of dishes.
5. **Consumers** with good **preparation/cooking skills** may choose to buy individual ingredients and prepare/cook them **because** it can save them money/cook in bulk and freeze.
6. **Consumers** with good **preparation/cooking skills** may choose to buy individual ingredients and prepare/cook them **because** they cook in bulk and freeze.
7. **Consumers** with good **preparation/cooking skills** may want to make homemade foods as they know all the individual ingredients used to make the dish, and **therefore** may not choose convenience foods as they are cheaper/healthier/reducing the risk of diet related diseases.

#### 4. Foreign Travel

1. More **consumers** travel abroad on holiday/business where they may develop different tastes and they want to **eat/choose foreign foods** at home **so** may purchase take-away ready-made foreign foods once home.
2. **More consumers** now travel abroad on holiday/business where they may develop different tastes and they want to eat/**choose foreign foods** at home **so** this may increase variety in their diet.
3. The food industry now produces a wide range of ready-meals with a combination of ethnic ingredients due to an increase in demand as a result of **consumers travelling abroad** and developing a taste for foreign foods so increasing the choice for consumers.
4. Consumption of rice/pasta/noodle dishes has increased by **consumers**, partly as a result of increased **foreign travel** so this is good as it can help meet the dietary target to increase consumption of Total Complex Carbohydrates (by 25%).
5. It is illegal to bring foods from **travels to foreign countries** into the United Kingdom so **consumers** cannot bring food from their foreign travel back with them or it will be confiscated (and they could be fined) so they will have to source ingredients for recipes in this country.
6. Food choice when **travelling to a foreign country** could be restricted as a result of the religion/religious festivals and **therefore** when visiting other countries these **consumers** need to take into account their food traditions/religions.
7. If staying in “All Inclusive” accommodation when **travelling abroad** this could be bad as this may restrict the choice of food/limit the access to traditional foods and **as** a result the **consumer** may not get a true experience of foods available in the country.
8. There are now a range of holidays where consumers can **travel abroad** to learn how to cook traditional foods of the country which is good for those **consumers** interested in foreign cookery **as** they can develop the skills.
9. There are now a range of holidays where consumers can **travel abroad** to learn how to cook traditional foods of the country for those **consumers** interested in foreign cookery however the disadvantage is that they tend to be very expensive.

4 b) Identify and explain **three** mechanical methods of introducing air in cake making.

**Marking Instructions:**

3 x 1 mark for identification of **each** mechanical method of introducing air.

3 x 1 mark for explanation linked to cake making

Mechanical method must be identified before mark can be awarded. If mechanical method is identified within explanation of introducing air mark can be awarded.

**Total – 6 marks (KU)**

<b>Mechanical method</b>	<b>Explanation</b>
<b>1. Sieving</b>	1. Air becomes trapped between the particles of flour when it is sieved during <b>cake making</b> .
<b>2. Creaming</b>	1. Air is trapped in the mixture when fat and caster sugar are beaten together to form an air-in-fat foam during <b>cake making</b> . 2. Air is trapped in the fat/sugar creamed mixture in tiny bubbles which makes the mixture lighter during <b>cake making</b> .
<b>3. Rubbing in</b>	1. Fat is rubbed into the flour and coats the flour particles which also traps air as the mixture is lifted/rubbed in with the fingertips during <b>cake making</b> .
<b>4. Whisking</b>	1. When egg white is whisked it increases the mixture in volume as air is trapped during <b>cake making</b> . 2. When the protein in egg (called albumin) is stretched through whisking air is trapped during <b>cake making</b> . 3. When egg is whisked with sugar, a large volume of air is trapped in a honeycomb-like mesh during <b>cake making</b> .

4 c) Explain the effects of **storage, preparation** and **cooking** on fats.

**Marking Instructions:**

3 x 1 mark for **each** explanation.

1 mark each for effect of storage, preparation, cooking

**Total – 3 marks (KU)**

**Fats**

**1. Storage**

1. Exposure to air leads to gradual deterioration/oxidation of fat due to rancidity.
2. The fat molecules absorb oxygen causing oxidation and reacts giving fat an unpleasant flavour/colour.
3. Fat left out in light will oxidise faster due to the impurities in fat (by enzymes) and the presence of many polyunsaturated fatty acids.
4. Fat can become rancid due to enzyme (lipase) that breaks down fat molecules and “off” flavours/colours develop because of the fatty acids in the food.

**2. Preparation**

1. Fats can be difficult to digest so preparing fat by exposing more of the surface to the digestive juices makes it more easily digested (eg grating, slicing and chopping).
2. Preparing a high fatty food with a starchy food, will help the fat to be absorbed by the starch making it more easily digested (eg macaroni cheese/potatoes and cheese).

**3. Cooking**

1. Solid fat melts to liquid when heated.
2. Fats are fairly stable to heat at normal cooking temperatures.
3. At very high temperatures (200°C) will break into fatty acids and glycerol/below smoke point.
4. If fat continues to be heated a blue haze is given off, the fat ignites and burns rapidly.
5. If fat is overheated the breakdown of fatty acids and glycerol reduces the nutritional value and keeping qualities of the fat/causes oxidation.
6. When the fat smokes this shows that the chemical structure is beginning to break down and fat will go rancid.
7. If the chemical structure of fat is broken down the fat will smell and a substance called acrolein (which affects the eyes) is produced.

- 4 d) Explain how **each** of the following technological developments are used in food production.
- (i) Ultra Heat Treated (UHT)
  - (ii) Sugar substitutes

**Marking Instructions:**

2 x 1 mark for **each** explanation of the Ultra Heat Treated (UHT) in food production.

2 x 1 mark for **each** explanation of the sugar substitutes in food production.

**Total – 4 marks (KU)**

**1. Ultra Heat Treated (UHT) products**

1. Used to produce long shelf life **UHT products** such as milk, fruit juices.
2. A long shelf life for **UHT products** allowing long-term storage/reducing the consumer's time shopping.
3. **UHT products** tend to be cheaper than fresh alternatives/good for consumers on a budget/can save money.
4. **UHT products** are completely sterile/killing bacteria making the food safer for consumers/reducing risk of food poisoning.
5. **The storage of UHT products** do not have to be stored in a refrigerator/are more convenient/consumers do not need specialist storage equipment.
6. **UHT products** can be bought in bulk/are handy for consumers in remote areas/useful for emergencies in bad weather.

**2. Sugar Substitutes**

1. **Sugar substitutes** in food products can reduce the sugar content of the diet/can assist weight reduction/can help consumers to meet the dietary target for sugar consumption.
2. **Sugar substitutes** in food products have little/no energy value/can aid weight reduction.
3. **Sugar substitutes** (especially intense sweeteners) can be used in the 'lite' market for foods/assist weight reduction.
4. **Sugar substitutes** can be used in confectionery/bakery goods to provide a range of 'healthy options' available.
5. **Sugar substitutes** are used in sugar-free confectionery to reduce the risk of tooth decay/obesity.
6. The **sugar substitutes**: bulk sweeteners do not require insulin to be metabolised/are used in products suitable for diabetics (eg jam/jellies)/increase the choice food for diabetics.
7. **Sugar substitutes** sweeten a product without adding excessive calories/they allow the sweet taste of food without the extra calories.

4 e) Evaluate the effect of food packaging on the environment.

**Marking Instructions:**

3 x 1 mark for **each** evaluation of the impact of food packaging on the environment.

**Total – 3 marks (EV)**

**Positive**

1. **UHT/canned products** are more environmentally friendly as the packaging preserves the food without having to be chilled/frozen **therefore** this will reduce the **energy required** for fridge/freezer (producing less carbon emissions reducing global warming).
2. **Food products can be packaged** in compostable materials (netting/flow wrap/film wrap/moulded cartons) they are more environmentally friendly **as** they are made from materials (maize/sugar/starch) which can **biodegrade**.
3. **Food products that are packaged** in compostable materials are more environmentally friendly **because** they are made from **renewable resources** so less **CO2 emissions**.
4. **Food products packaged in glass bottles** (such as milk) can be recycled making them more environmentally friendly **as energy is saved so less CO2 emissions/reduced waste at landfills**.
5. **Food packaging** that can be recycled glass/aluminium/cardboard/some plastic can be more environmentally friendly **because as** they can then be recycled preventing packaging going to **landfill sites/causing damage to environment**.
6. **Food packaging** for ready-made meals may produce less waste than fresh foods **so** can be more **environmentally friendly because** individual ingredients are not having to be purchased in their own packaging **so** may reduce overall packaging waste **which** has to be **recycled/sent to landfill sites**.
7. Some **food packaging** has recycle symbols displayed which is good as this will encourage the consumer/show the consumer how to/where to recycle the packaging **which** will mean less packing is sent to land fill sites.

**Negative**

1. Tamper evident food packaging is less environmentally friendly as more materials are needed, materials which are not all recyclable **so** have to be **incinerated and will cause an increase in carbon emissions/sent to landfill sites**.
2. Food packaging made from paper/cardboard are not as environmentally friendly **as** trees have to be cut down for this **so will increase global warming**.
3. Food packaging is not environmentally friendly because food residue from the food sticks to the packaging **therefore** it cannot be recycled meaning it has to **be incinerated which will increase the risk of global warming/be sent to landfill sites/contaminate the land**.

4. Food packaging made from certain plastics cannot be recycled so are not environmentally friendly **because** they will have to be sent to **landfill/contaminate the land/be incinerated/increase the risk of global warming.**
5. The manufacturing of the food packaging uses a lot of energy **so** is not environmentally friendly **because** it uses **energy** produces **carbon emission/global warming.**
6. Foods which are packaged are transported long distances by manufacturers which make them not environmentally friendly **as** the **fuel** used by the transport will produce **CO2/increase global warming.**
7. There has been a rise in smaller households **therefore** people need to buy small portions of food **which** increases the amount of food packaging/rubbish generated **so** will increase **energy used/recycling/incineration/landfills which increases CO2/global warming.**
8. Some packaging **which** is not biodegradable is bad for the environment **as** animals could be harmed if they become trapped in packaging/consumer packaging.

Context:

Higher Home Economics. Analysis of the 2009 Question Paper

× Health and Food Technology

Section A

Question	Resource Management Unit		Consumer Studies Unit		Course Skills		Totals
	Course content	Mark	Course content	Mark	Knowledge	Evaluation	
1	Function & sources of nutrients	1			1		1
2	Functional Properties of Food	1			1		1
3	Function & sources of nutrients	1			1		1
4	Causes of contamination & cross contamination	1			1		1
5	Function of Dietary fibre (NSP)	1			1		1
6			Impact of technological development on food choices (MAP)	1	1		1
7	Effect of cooking on nutrients	1			1		1
<b>Totals</b>		<b>6</b>		<b>1</b>	<b>7</b>	<b>0</b>	<b>7</b>

**Context:**

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**Section A (continued)**

Question	Resource Management Unit		Consumer Studies Unit		Course Skills		Totals
	Course content	Mark	Course content	Mark	Knowledge	Evaluation	
8	Sensory testing	1			1		1
9	Prevention of dietary diseases	2			2		2
10			Factors which influence consumer choice of food	2		2	2
11	Hungry for success	2			2		2
12	Prevention of dietary diseases	2			2		2
13	Current dietary advice	2			2		2
14			Trade Descriptions Act	2	2		2
<b>Carried forward</b>		<b>6</b>		<b>1</b>	<b>7</b>	<b>0</b>	<b>7</b>
<b>Totals</b>		<b>15</b>		<b>5</b>	<b>18</b>	<b>2</b>	<b>20</b>

**Context:**

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**Section B Question 1**

<b>Question</b>	<b>Resource Management Unit</b>		<b>Consumer Studies Unit</b>		<b>Course Skills</b>		<b>Totals</b>
	<b>Course content</b>	<b>Mark</b>	<b>Course content</b>	<b>Mark</b>	<b>Knowledge</b>	<b>Evaluation</b>	
(a)	Use of DRV's	6				6	6
(b)	Prevention of diet related diseases – obesity	4			4		4
(c)	Prevention of diet related diseases – anaemia	6			6		6
(d)	Current dietary advice – bread	4				4	4
<b>Totals</b>		<b>20</b>		<b>0</b>	<b>10</b>	<b>10</b>	<b>20</b>

**Context:**

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**Section B Question 2**

Question	Resource Management Unit		Consumer Studies Unit		Course Skills		Totals
	Course content	Mark	Course content	Mark	Knowledge	Evaluation	
(a)	Product development strategy	6			6		6
(b)	Sensory testing	5				5	5
(c)	Product development strategy – disassembly	2			2		2
(d)			Factors which influence consumers – marketing techniques	4		4	4
(e)			HACCP	3	3		3
<b>Totals</b>		<b>13</b>		<b>7</b>	<b>11</b>	<b>9</b>	<b>20</b>

Context:

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Section B Question 3

Question	Resource Management Unit		Consumer Studies Unit		Course Skills		Totals	
	Course content	Mark	Course content	Mark	Knowledge	Evaluation		
(a)	Current dietary advice	4				4	4	
(b)	Causes of food poisoning	6			6		6	
(c)			Food Safety Act 1990	2	2		2	
(d)			Role Of Environmental Health Officer/Food Safety Act 1990	4	4		4	
(e)			Food politics					
			(i) Fair Trade products	2	2		2	2
	(ii) Organic produce	2	2		2	2		
<b>Totals</b>		<b>10</b>		<b>10</b>	<b>12</b>	<b>8</b>	<b>20</b>	

**Context:**

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**Section B Question 4**

Question	Resource Management Unit		Consumer Studies Unit		Course Skills		Totals
	Course content	Mark	Course content	Mark	Knowledge	Evaluation	
(a)			Factors which influence consumer choice of food	4		4	4
(b)	Functional properties	6			6		6
(c)	Effect of storage on preparation and cooking on fats	3			3		3
(d)			The impact of technological developments – UHT, sugar substitutes	2 2	2 2		2 2
(e)			Factors which influence consumer choice of food – environmental issues	3		3	3
<b>Totals</b>		<b>9</b>		<b>11</b>	<b>13</b>	<b>7</b>	<b>20</b>

<b>Context:</b>	
<b>Higher Home Economics. Analysis of the 2009 Question Paper</b>	<b>× Health and Food Technology</b>
<b>Question Paper Summary: Mark Allocation</b>	

Question	Unit title		Course Skills		Totals
	Resource Management	Consumer Studies	Knowledge	Evaluation	
Section A	15	5	18	2	<b>20</b>
Section B					
1	20	0	10	10	<b>20</b>
2	13	7	11	9	<b>20</b>
3	10	10	12	8	<b>20</b>
4	9	11	13	7	<b>20</b>
<b>Totals</b>	54-58	22-26	51-53	27-29	
<b>Target Range</b>	<b>50-60 marks</b>	<b>20-30 marks</b>	<b>50-55 marks</b>	<b>25-30 marks</b>	<b>80</b>

[END OF MARKING INSTRUCTIONS]