



# **2012 Health and Food Technology**

## **Higher**

### **Finalised Marking Instructions**

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2012 Home Economics

Health & Food Technology

Section A – Short Response Questions

| Question |  | Response   | Marking Guidelines                |
|----------|--|--|-----------------------------------|
| 1.       | State <b>one</b> source of Low Biological (LBV) protein. | <ol style="list-style-type: none"> <li>1. Cereals.</li> <li>2. Wheat (examples accepted eg pasta).</li> <li>3. Rice (examples accepted eg noodles).</li> <li>4. Oats.</li> <li>5. Peas (examples accepted eg garden peas, black eyed peas, sugar peas, chickpeas).</li> <li>6. Lentils.</li> <li>7. Beans (examples accepted eg baked beans, runner beans, kidney beans, haricot beans, butter beans).</li> <li>8. Nuts (examples accepted eg hazelnuts, peanuts, pecan, walnuts etc).</li> <li>9. Maize/corn.</li> <li>10. Bread.</li> <li>11. Seeds (examples accepted eg sunflower seeds, sesame seeds, poppy seeds, pumpkin seeds).</li> <li>12. Barley.</li> <li>13. Breakfast cereals.</li> <li>14. Bulgar wheat.</li> <li>15. Pulses.</li> </ol> <p>(Accept any other example of low biological value protein).</p> | <b>1 mark</b> for correct source  |
| 2.       | Name one fat soluble vitamin.                            | <ol style="list-style-type: none"> <li>1. (Vitamin) A.</li> <li>2. (Vitamin) D.</li> <li>3. (Vitamin) E.</li> <li>4. (Vitamin) K.</li> </ol>   | <b>1 mark</b> for correct vitamin |
| 3.       | Identify <b>one</b> source of salmonella.                | <ol style="list-style-type: none"> <li>1. Foods/food products of animal origin/meat/poultry/ milk/eggs.</li> <li>2. Egg products/raw eggs/fresh custard/mayonnaise/ prepared salads containing mayonnaise.</li> <li>3. Unpasteurised milk/unpasteurised dairy products.</li> <li>4. Meat products.</li> <li>5. Contaminated water.</li> <li>6. Rats/mice/domestic pets/birds.</li> <li>7. Food handlers.</li> </ol>  | <b>1 mark</b> for correct source  |

| Question |   | Response  | Marking Guidelines                     |
|----------|---|---|--|
| 4.       | Give <b>one</b> statutory point of information found on a food label. | <ol style="list-style-type: none"> <li>1. Name of food.</li> <li>2. List of ingredients.</li> <li>3. Shelf life/Use by date/Best before date.</li> <li>4. Name and address of manufacturer/packer/EU seller.</li> <li>5. Weight/volume of product.</li> <li>6. Place of origin.</li> <li>7. Storage instructions.</li> <li>8. Instructions for use/cooking instructions.</li> <li>9. Food additives.</li> <li>10. Amount/type of ingredient.</li> <li>11. Food allergens.</li> <li>12. Lot number.</li> </ol> | <b>1 mark</b> for correct point        |
| 5.       | State <b>one</b> way of incorporating air into a product to be baked. | <ol style="list-style-type: none"> <li>1. Sieving.</li> <li>2. Whisking.</li> <li>3. Rubbing in.</li> <li>4. Creaming.</li> <li>5. Kneading.</li> <li>6. Beating.</li> <li>7. Rolling/Folding.</li> </ol>   | <b>1 mark</b> for                      |
| 6.       | What does the abbreviation TVP stand for?                             | Textured Vegetable Protein.   | <b>1 mark</b> for correct abbreviation |
| 7.       | Explain the term intrinsic sugar.                                     | <ol style="list-style-type: none"> <li>1. Sugars found in plant cells/natural sugar.</li> <li>2. Intrinsic sugar are those that form part of the cell structure of plants/fruit/vegetables.</li> </ol>  | <b>1 mark</b> for correct explanation  |

| Question | Response   | Marking Guidelines                              |
|----------|--|---|
| 8.       | <p>Give <b>one</b> responsibility of the Food Standards Agency (FSA).</p> <ol style="list-style-type: none"> <li>1. Responsible for food safety/food hygiene across the UK.</li> <li>2. Protect the consumer through effective enforcement/monitoring of food related regulations/policies.</li> <li>3. Monitors/enforces food safety standards.</li> <li>4. To reduce food-borne illness.</li> <li>5. To help educate consumers on issues linked to food hygiene/safety/nutrition/healthy eating/labelling.</li> <li>6. Provide information via website/leaflets on a range of food issues/food hygiene/safety/nutrition/healthy eating/labelling.</li> <li>7. Controlling the production of novel foods.</li> <li>8. Controls composition/sale of natural mineral water/spring water/bottled water.</li> <li>9. Control of genetically modified food for human consumption/animal feedstuffs.</li> <li>10. Licensing/inspection of manufacturers/producers of irradiated food.</li> <li>11. Monitor (the use of) food additives.</li> <li>12. Monitor the composition of food/food labelling/additives.</li> <li>13. Promote accurate/informative/meaningful food labelling/issues labels/posters.</li> <li>14. Develops food labelling/labels to give more accurate information to help with safe storage of food.</li> <li>15. Licensing of meat processing companies.</li> <li>16. (In Scotland) deal with issues relating to meat/meat products and/or regulations on animal feed.</li> <li>17. Will deal with issues relating to meat/meat products.</li> <li>18. (In Scotland) deal with issues relating to food hygiene/fish/shellfish/milk hygiene/novel foods/radiological safety/food emergencies.</li> <li>19. Consult/seek advice from advisory/support committees.</li> <li>20. Represents the UK on matters of food safety/food standards in the EU/worldwide.</li> <li>21. Promote best practice within the food Industry.</li> <li>22. Protect public health against chemical contaminants in food.</li> <li>23. Commissions research into food related matters/support giving information to consumers/industry are kept up to date.</li> </ol> | <p><b>1 mark</b> for correct responsibility</p> |

| Question |  | Response   | Marking Guidelines  |
|----------|--|--|---|
| 9.       | State <b>two</b> advantages of breastfeeding.  | <ol style="list-style-type: none"> <li>1. Breastfeeding helps the mother and baby to bond.</li> <li>2. Breast milk is always at the correct temperature/cannot be prepared incorrectly.</li> <li>3. Breast milk is free.</li> <li>4. Breast milk is convenient/reduces the need to carry bottles/sterilising equipment.</li> <li>5. Breast milk contains the right proportion of nutrients.</li> <li>6. Babies are less likely to become overweight.</li> <li>7. Breast milk contains antibodies/help to fight infection.</li> <li>8. Less risk of baby developing eczema/asthma/allergies.</li> <li>9. Breast milk is clean/cannot be contaminated.</li> <li>10. Breast milk is natural/contains no chemicals.</li> <li>11. Breast milk contains omega 3/omega 6/essential fatty acids.</li> <li>12. Breast milk assists in brain development of babies.</li> <li>13. Breastfeeding may help the mother's womb to contract/return to its normal position.</li> <li>14. Breastfeeding may help the mother to lose excess fat stores.</li> <li>15. Women who breastfeed maybe less likely to develop breast cancer.</li> </ol>  | <p><b>2 marks</b><br/> <b>2 x 1 mark</b> for each correct advantage</p> |
| 10.      | Give <b>two</b> benefits of a vegetarian diet. | <ol style="list-style-type: none"> <li>1. Vegetarian diets may be high in NSP.</li> <li>2. Vegetarian diets may reduce the risk of constipation/bowel disorders/diverticulitis/bowel cancer/haemorrhoids (piles).</li> <li>3. Vegetarian diets may reduce the risk of Coronary Heart Disease.</li> <li>4. Vegetarian diets may contain low amounts of fat/saturated fat/cholesterol.</li> <li>5. Vegetarian diets may reduce the risk of obesity/coronary heart disease.</li> <li>6. Vegetarian diets may lower blood cholesterol.</li> <li>7. Vegetarian diets may reduce the risk of hypertension/stroke/heart disease/diabetes/gallstones/rheumatoid arthritis.</li> <li>8. Vegetarian diets/fruit/leafy green vegetables contain a good source of antioxidants/A/C/E vitamins.</li> <li>9. Vegetarian diets may help to ward of free radicals in the body/reduce the risk of certain cancers.</li> <li>10. Vegetarianism may protect against certain food-borne illnesses/bird flu/mad cow disease.</li> <li>11. May result in a greater demand for locally grown produce.</li> <li>12. May result in more people choosing to grow their own produce.</li> <li>13. Less packaging required if vegetarians are cooking from raw/fresh ingredients.</li> <li>14. Specialist shops/cafes available in large towns/cities which cater for vegetarian diets.</li> <li>15. Vegetarian diets are often cheaper/meat is more expensive.</li> </ol> | <p><b>2 marks</b><br/> <b>2 x 1 mark</b> for each correct benefit.</p>  |

| Question |   | Response   | Marking Guidelines   |
|----------|---|--|--|
| 11.      | State <b>two</b> advantages of genetically modified (GM) foods. | <ol style="list-style-type: none"> <li>1. Crops can be grown which are resistant to disease/ items/crops and so results in a constant supply of food/more stable prices/less waste.</li> <li>2. Can improve the nutritional value of foods (by manipulating the genes in the food by) increasing the protein content in food (accept an appropriate example).</li> <li>3. Preventing the ripening of fruits/vegetables enabling a longer shelf-life.</li> <li>4. Can produce foods in greater quantities.</li> <li>5. Lower/more stable price of food items.</li> <li>6. Can help to modify/alter foods to meet consumer demands/produce health benefits (accept examples).</li> <li>7. Can increase/improve the variety/texture, appearance of food.</li> <li>8. Can increase the shelf-life (of fresh foods without the use of preservatives/additives).</li> <li>9. Vegetarian cheeses can now be produced.</li> </ol>  | <p><b>2 marks</b><br/>2 x 1 mark for <b>each</b> advantage</p> |
| 12.      | Give <b>two</b> benefits of school meals.                       | <ol style="list-style-type: none"> <li>1. Provide a healthy/nutritious balanced meal.</li> <li>2. (Provision of school meals) gives a warm safe environment.</li> <li>3. (Provision of school meals) gives an area for children to socialise etc.</li> <li>4. School meals are good value/do not make a profit.</li> <li>5. Provides children from low income families with lunch (at no cost to parents).</li> <li>6. School meals saves busy parents' time making lunch for children.</li> <li>7. Schools will have implemented a nutrient based national standard for meals/portion size.</li> <li>8. Food labelling/menu/packaging allows pupils to make informed choices.</li> <li>9. Only oils and spreads high in polyunsaturated/ monounsaturated fats can be used (in food for sale in schools).</li> <li>10. A choice of at least two types of vegetables/fruit/additional bread must be provided every day as part of the school lunch.</li> <li>11. Oily fish must be provided once every three weeks as part of the school lunch.</li> <li>12. No more than three deep fried items can be sold in a week.</li> <li>13. Additional salt is not provided.</li> <li>14. No savoury snacks/confectionary can be provided as part of the lunch menu.</li> <li>15. Only the following drinks are permitted in schools: water (still or carbonated)/skimmed, semi-skimmed milk/drinking yoghurts/drinks from soya/rice/oat/tea/coffee/fruit/vegetable juices.</li> </ol> | <p><b>2 marks</b><br/>2 x 1 mark for <b>each</b> benefit</p>   |

| Question |   | Response   | Marking Guidelines   |
|----------|---|--|--|
| 13.      | State <b>two</b> advantages of hydroponics.                               | <ol style="list-style-type: none"> <li>1. Enables food to be grown in areas where soil/water conditions are poor.</li> <li>2. Will enable consumers to have access to foods that might not otherwise be available.</li> <li>3. Cuts out the problem of soil-borne disease.</li> <li>4. Provides plant food which can be of good quality/disease resistant.</li> <li>5. Could help the developing world's food shortage.</li> <li>6. Growers can expect much higher yields.</li> </ol>  | <p><b>2 marks</b><br/> <b>2 x 1 mark</b> for each advantage</p>                            |
| 14.      | Give <b>one</b> advantage and <b>one</b> disadvantage of market research. | <p><b>Advantages</b></p> <ol style="list-style-type: none"> <li>1. Identifies a need/want for a particular food product on the market.</li> <li>2. Identifies target group /likes and dislikes of target group.</li> <li>3. Identifies a gap in the market for a particular food product.</li> <li>4. Identifies market trends (to see what would be a success/popular).</li> <li>5. Helps with any marketing/promotional ideas/ packaging.</li> <li>6. Establishes an idea of when to introduce the food product to the market.</li> <li>7. Collects consumer's views on existing food products.</li> <li>8. Identifies competitors (products).</li> <li>9. Identifies how much people are willing to pay for food products.</li> <li>10. Can establish reasons for a drop in sales.</li> <li>11. Helps identify strengths in an existing food product.</li> <li>12. Ensures food product will be successful in the market place.</li> </ol> <p><b>Disadvantages</b></p> <ol style="list-style-type: none"> <li>1. Takes time to collect/process data.</li> <li>2. May have difficulty recruiting people to take part in research/or to carry out research.</li> <li>3. Expensive to carry out market research/cost carried onto consumer.</li> <li>4. Not all data reliable/up to date.</li> </ol> | <p><b>2 marks</b><br/> <b>1 mark</b> for advantage<br/> <b>1 mark</b> for disadvantage</p> |

## Section B

### Question 1

- (a) The table shows a day's nutrient content of meals eaten by a 40 year old male. Using your knowledge of nutrition and the information provided, evaluate the suitability of this day's nutritional intake.

#### Marking Instructions:

6 × 1 mark for **each** point of evaluation which makes reference to the needs of a 40 year old male.

**Total – 6 marks (EV)**

(Headings have been provided to assist marking but are not required to be provided by the candidate.)

**Opinion = high/low for the nutrient. Good/bad for the person.**

**Fact = function of the nutrient.**

**Consequence = impact on health/wellbeing of too much/too little of the nutrient linked to the 40 year old male.**

#### Energy (Low)

1. The day's meal is lower in energy for the **40 year old male** which is **bad as** energy is required for all body activity **therefore** reduced levels of energy could leave him feeling tired/lethargic/ lead to weight loss.
2. The day's meal is lower for energy which is bad for **40 year old male as** energy not used for all body activity would be stored as a body fat **therefore** there is less risk of obesity/hypertension/CHD.
3. The day's meal is lower in energy for the **40 year old male** which **may be good as** he won't have enough energy for body activities but the excess protein can contribute to the energy level **therefore** will prevent him becoming tired/lethargic/lead to weight loss.

#### Protein (High)

1. The protein intake is higher for the **40 year old male** this may be **good as** protein is required for (growth), repair and maintenance **so** will allow his tissues/cells to be repaired if they are damaged (during physical activity).
2. The protein content of the day's intake is higher for the **40 year old male** which is **bad as** excess protein can be used as a secondary source of energy **so** could be stored in the body as fat/may cause obesity/CHD.
3. The protein intake is higher for the **40 year old male** this may be **good as** excess protein can be used as a secondary source of energy **therefore** providing extra energy as his energy intake is low preventing him becoming tired/weak.

#### Vitamin B1

1. Vitamin B1 is higher for the **40 year old male** this is **good as** he is low in energy his body will use the vitamin B1 to access energy more effectively **so** he may not become tired/lethargic.
2. Vitamin B1 is higher for the **40 year old male** this **good as** it is a water soluble vitamin/not harmful in large quantities **so** may not cause any health concerns **as** it is excreted from the body.
3. Vitamin B1 is high which is **good** for the **40 year old male as** it helps with nerve function **therefore** he may have a healthy nervous system/won't suffer from neuritis.
4. Vitamin B1 is higher for the **40 year old male** but this is **good as** it is needed for brain function/concentration/memory function/prevention of anxiety **therefore** he may not suffer from any of these disorders.
5. Vitamin B1 is high for the **40 year old male** this is **good as** needed for the correct functioning of the heart muscle, **therefore** reduce risk of heart failure.

## Question 1 (continued)

### Vitamin C (High)

1. Vitamin C content of this day's meal is high which is **good as** it is an antioxidant vitamin and could assist in the prevention of Coronary Heart Disease and/or cancers for **40 year old male**.
2. Vitamin C content of this day's meal is high which is **good as** it is required to absorb iron so preventing the **40 year old male** from developing anaemia.
3. Vitamin C levels for this day's meal are high which is **good as** it is needed to prevent illnesses/infections **therefore** over a long period of time the **40 year old male** may be able to resist infections/illness.
4. Vitamin C content of this day's meal is high which is **good as** it is required by the **40 year old male** for the production of red blood cells **therefore** preventing anaemia.
5. Vitamin C content of this day's meal is high which is **good as** it is needed for connective tissue **therefore** if the **40 year old male** has adequate supply of vitamin C this may ensure that cuts/wounds heal quicker.
6. Vitamin C is higher than the RNI for the **40 year old male** this is **good as** it is a water soluble vitamin/not harmful in large quantities **so** may not cause any health concerns as it is excreted from the body.

### Iron (Low)

1. The day's meal is low in iron for the **40 year old male**. This is **bad as** iron is required for the production of haemoglobin/red blood cells therefore the **40 year old male** may be at risk of anaemia (feel tired/lack of energy).

### Sodium (High)

1. The day's intake of sodium is high for the **40 year old male** which is **bad as** high intake of salt will cause hypertension which may lead to coronary heart disease/strokes/kidney damage.
2. The day's intake of sodium is high for the **40 year old male** which is **bad as** sodium is required to maintain the correct fluid balance in the body so this may lead to hypertension/coronary heart disease/strokes.
3. The day's intake of sodium is high for the **40 year old male** which is **bad as** this may lead to calcium depletion from the bones **which** may result in osteomalacia/osteoporosis in later life.
4. The day's intake of sodium is high for the **40 year old male** which may **be good** as sodium is required for muscle/nerve activity so preventing muscle cramps.

### Saturated fat (High)

1. Saturated fat content is higher than recommended (11% of food energy) which is **bad as** it may increase the level of cholesterol (sticking to artery walls) in the **40 year old male** so increasing his risk of blood clots/blockage of artery/heart attack/coronary heart disease.
2. Saturated fat content is higher than the recommended (11% of food energy) which is **bad as** fat is a concentrated source of energy so may give the **40 year old male** extra calories/increasing his risk of obesity/weight gain.
4. The **40 year old male's** day's intake of saturated fats is higher than the recommended (11% of food energy) this is **bad as** a diet high in saturated fat increases fatty deposits in the body/alter hormone balance so high fat intake may increase the risk of cancer.

### Question 1 (continued)

(b) Explain the inter-relationship between **each** of the following:

- (i) Carbohydrates and Vitamin B Complex.
- (ii) NSP and water.

#### **Marking Instructions:**

3 x 1 mark for **each** explanation about **inter-relationship of** Carbohydrates and Vitamin B Complex/NSP and water.

Minimum 1 mark from each inter-relationship.

**Total – 3 marks (KU)**

#### **(i) Carbohydrates and vitamin B complex**

1. Vitamin B complex release energy to the body from carbohydrates.
2. Vitamin B complex acts as a link in a complex chain of chemical reactions when releasing energy from carbohydrates.
3. If the body required more energy (sports person) from carbohydrates increased intake of vitamin B complex would be required to release the energy.
4. Thiamine/vitamin B1 helps release energy from glucose.
5. Riboflavin/vitamin B2/Niacin/vitamin B3 help release energy from carbohydrate.
6. Energy from carbohydrates may be inaccessible if there is insufficient Vitamin B complex consumed.

#### **(ii) NSP and Water**

1. Both water and NSP are required to create soft faeces which are easily flushed out/ ridding the body of poisonous toxins/prevents constipation/bowel diseases.
2. NSP absorbs water so waste matter absorbs the water it becomes bulkier/softer and passes easily out of the body.
3. NSP soaks up the water in the food, (allowing it to swell), creating a feeling of fullness which reduces desire to snack/helps prevent obesity.
4. If there is too little water NSP is less bulky resulting in constipation/bowel diseases.

### Question 1 (continued)

(c) Explain the effects of **storage, preparation and cooking** on vitamin C.

#### Marking Instructions:

3 x 1 mark for **each** explanation linked to vitamin C.

1 x storage, 1 x preparation, 1 x cooking.

**Total – 3 marks (KU)**

#### Storage

1. Exposure to air leads to oxidation of **vitamin C**.
2. Long-term storage causes deterioration of **vitamin C**.
3. Loss of **vitamin C** will occur if food is exposed to light during storage.
4. Store in a refrigerator as low temperature slows down oxidation of **vitamin C**.
5. Frozen foods have a higher **vitamin C** content as they are frozen quickly so the **Vitamin C** is retained/conserved.

#### Preparation

1. **Vitamin C** is readily soluble in water therefore avoid soaking to prevent **vitamin C** being leached into the water.
2. Advanced preparation of foods leads to destruction/loss of **vitamin C** through oxidation.
3. Peeling foods would expose more surfaces to the air and cause loss of **vitamin C** through oxidation.
4. Blunt knives cause more cells to rupture/be disrupted causing more of the enzyme oxidase to be released which destroys **vitamin C**.
5. Preparing foods into large chunks results in less surface area being exposed to the air and will prevent the loss of **vitamin C** through oxidation.
6. Use of acids (lemon juice/vinegar) can prevent/slow down the loss of **vitamin C** by oxidation.

#### Cooking

1. Heat destroys **vitamin C** so cook for as short a time as possible.
2. Avoid cooking foods rich in **vitamin C** into boiling water which destroys **vitamin C**.
3. Steaming/stir frying/microwaving/pressure cooking/quick methods of cooking will help to conserve/minimise loss of **vitamin C**.
4. **Vitamin C** is water soluble and will be lost/leached into cooking liquid.
5. Use minimal amounts of water when cooking to avoid too **much vitamin C** leaching into the cooking water.
6. **Vitamin C** can be oxidized if cooked foods are not served immediately/kept warm.
7. Cooking **vitamin C** rich foods in copper/copper alloy pots causes **vitamin C** to oxidize.
8. Alkaline cooking mediums destroy **vitamin C**.

## Question 1 (continued)

(d) Evaluate the contribution of oily fish in the diet.

### Marking Instructions:

4 x 1 mark for **each** point of evaluation linked to oily fish in the diet.

**Total – 4 marks (EV)**

(Headings have been provided to assist marking but are not required to be provided by the candidate).

**Fact = contribution/function of oily fish.**

**Opinion = good/bad.**

**Consequence = consequence/impact on health/diet.**

### 1. Omega oils

#### Positive

- P 1. **Oily fish** is a rich source of omega 3/fatty acids which is **good as** these have been shown to reduce the risk of heart disease.
- P 2. **Oily fish** is a rich source of omega 3/fatty acids which is **good as** these have been shown to prevent some cancers.
- P 3. Omega 3/fatty acids found in **oily fish** are **good as** it helps to make the blood less sticky/allowing it to flow around the body easier therefore reducing the risk of heart disease.
- P 4. Omega 3/fatty acids found in **oily fish** are **good as** known to have a role to play in the maintenance of healthy cells/the nervous system therefore contribute to general good health.
- P 5. Omega 3/fatty acids found in **oily fish** are **good as** known to have a role to play in brain development/aid concentration.
- P 6. Omega 3/fatty acids found in **oily fish** are **good as** they can reduce inflammation/may help ease arthritis (therefore help provide relief for sufferers and contribute to their general improved health).

### 2. Protein content

#### Positive

- P 1. **Oily fish** is a rich source of protein which is **good** and will therefore contribute to the growth/repair/maintenance of body tissues.
- P 2. **Oily fish** is a rich source of protein which is **good** and will therefore provide a secondary source of energy.

### 3. Fat content

#### Positive

- P 1. **Oily fish** is a rich source of polyunsaturated fats which is **good as** and these are known to assist in the prevention of heart disease/cholesterol reduction/stroke/arthritis/psoriasis.
- P 2. **Oily fish** is a rich source of fat which is beneficial/**good as** it supplies the body with a source of energy/fat soluble vitamins/protects organs/provides warmth/to ensure good health.

#### Negative

- N 1. **Oily fish** is high in fat/energy which may be harmful/**bad as** it could lead to obesity.

## Question 1 (continued)

### 4. Vitamin Content

#### Positive

- P 1. **Oily fish** contains B vitamins/Thiamin (B1), Riboflavin (B2), Niacin (B6)/Biotin/Pantothenic Acid which is **good as** these vitamins are essential for the conversion of food to energy/( preventing tiredness/ impaired nerve function).
- P 2. **Oily fish** contains B vitamins/Thiamin (B1), Riboflavin (B2), Niacin (B6)/Biotin/Pantothenic Acid which is **good as** these vitamins are essential for healthy nerve tissue.
- P 3. **Oily fish** contains Vitamin A which is **good as** it is required for normal growth in children/enables eyes to see in dim light/protection for surface tissues /prevents night blindness/gives healthy skin.
- P 4. **Oily fish** contains Vitamin D which is **good as** it aids the absorption of calcium/is essential for the development of strong bones/healthy teeth/helps prevent osteoporosis.
- P 5. **Oily fish** contains Vitamin D which is **good as** it aids the absorption of calcium/healthy teeth/helps prevent dental caries.
- P 6. **Oily fish** contains vitamins A/E/antioxidants which is good as it helps prevent cancer/ CHD.

### 5. Calcium content

#### Positive

- P 1. The bones of **oily fish** (if eaten) contribute to calcium consumption this is **good as** it assists in the maintenance of strong bones/healthy teeth.
- P 2. The bones of **oily fish** (if eaten) are **good as** this would contribute to calcium consumption this is **good as** prevents osteoporosis/brittle bone disease/osteomalacia.

### 6. Iron content

#### Positive

- P 1. **Oily fish** tends to be high in iron which is **good as** it is required for the formation/ production of red blood cells therefore helping to prevent anaemia/tiredness/exhaustion.

### 7. Sodium content

#### Positive

- P 1. **Oily fish** contain sodium which is **good as** it will add flavour to dishes without the addition of extra salt, so may prevent hypertension/strokes/CHD.

#### Negative

- N 1. Sodium/salt content of some **oily fish** may be high which is **bad as** may lead to CHD/ hypertension/strokes.
- N 2. Sodium/salt content of some **oily fish** is high which is **bad as** may not meet dietary target for a reduction in sodium/salt intake.

### 8. Dietary targets

#### Positive

- P 1. Increasing **oily fish** in the diet is a dietary target and this is **good as** oily fish consumption assists in providing a healthy diet.

#### Negative

- N 1. Some **oily fish** are high in sodium/salt which is **bad as** it may not meet dietary target for a reduction in sodium/salt intake.

## Question 1 (continued)

### 9. Cooking time

#### Positive

- P 1. **Oily fish** can be quick/easy to cook which is **good as therefore** may encourage consumption.

### 10. Convenience forms

#### Positive

- P 1. **Oily fish** is available in a variety of forms/tinned/fresh/frozen/smoked which is **good as** makes consumption versatile/convenient for the consumer.
- P 2. A wide range of ready to eat **oily fish** dishes are available **which is good as** it may help increase consumption by the consumer.

### 11. Toxins

#### Negative

- N 1. Some types of **oily fish** have been shown to contain dioxins/heavy metals/mercury which is **bad as** these may be harmful (to the body/health).

### 12. Likes/dislikes

#### Positive

- P 1. Many consumers do like **oily fish**/are eating the recommended intake per week which is **good as** this will add variety to their diet.

#### Negative

- N 1. Many consumers do not like **oily fish**/are not eating the recommended intake per week which is **bad** and **so** the contribution of oily fish to their diet may be limited.
- N 2. Many consumers are put off by the strong smell of **oily fish** which is **bad as** they may not choose it.

### 13. Cost

#### Positive

- P 1. Some **oily fish** (tuna/sardines/pilchards) may be inexpensive which is **good as** it can provide a cheap source of protein/fat/omega3/B group vitamins/calcium/iron/vitamin A/D.

#### Negative

- N 1. Some **oily fish** (salmon/trout) may be expensive which is **bad as** it is only affordable to high income groups for consumption.

**Question 1 (continued)**

(e) Identify and explain **two** factors, **other than diet**, which can contribute to coronary heart disease (CHD).

**Marking Instructions:**

2 x 1 mark for identification of factor.

2 x 1 mark for each explanation linked to contribution to **coronary heart disease**.

**Total – 4 marks (KU)**

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

| Factor                              | Explanation   |
|-------------------------------------|---|
| <p>1. Smoking</p>                   | <p>1. Smoking causes the blood to thicken, increasing the tendency to clot and contributes to <b>coronary heart disease</b>.</p> <p>2. Smoking constricts (narrows) the arteries, reducing the blood flow to the heart contributing to <b>coronary heart disease</b>.</p> <p>3. The nicotine in tobacco smoke increases the pulse rate and raises blood pressure which can contribute to <b>coronary heart disease</b>.</p> <p>4. The carbon monoxide content of cigarette smoke cuts down the oxygen in the blood so the heart has to work harder causing <b>coronary heart disease</b>.</p> <p>5. Smoking introduces harmful free radicals into the body/destroys antioxidant vitamins, which could then lead to a build up of cholesterol in the arteries and cause <b>coronary heart disease</b>.</p> |
| <p>2. Heredity</p>                  | <p>1. Genetic conditions may produce high blood cholesterol levels contributing to <b>coronary heart disease</b>.</p> <p>2. Some families may inherit high risk factors and this increases the risk of <b>coronary heart disease</b>.</p>   |
| <p>3. Lack of physical exercise</p> | <p>1. Lack of physical exercise may cause energy intake to exceed energy output increasing the risk of obesity and <b>coronary heart disease</b>.</p> <p>2. A sedentary lifestyle from an early age contributes to overweight/obesity and therefore <b>coronary heart disease</b>.</p> <p>3. The heart muscle can be strengthened by exercise so a lack of exercise can contribute to development of <b>coronary heart disease</b>.</p> <p>4. Blood cholesterol/stress levels can be lowered by exercise so a lack of exercise can contribute to development of <b>coronary heart disease</b>.</p>  |
| <p>4. Stress</p>                    | <p>1. People who are tense/impatient/anxious may be more likely to suffer from <b>coronary heart disease</b>.</p> <p>2. Stress can increase blood pressure which increases the risk of <b>coronary heart disease</b>.</p>   |

Question 1 (continued)

| Factor          | Explanation  |
|-----------------|--|
| 5. Gender       | <ol style="list-style-type: none"><li>1. More men than women tend to have <b>coronary heart disease</b>.</li><li>2. Women under 40 years may be protected from <b>coronary heart disease</b> by the hormone oestrogen.</li><li>3. After the menopause, when oestrogen levels are reduced, cholesterol levels rise and the risk of <b>coronary heart disease</b> increases.</li></ol> |
| 6. Hypertension | <ol style="list-style-type: none"><li>1. Hypertension can contribute to <b>coronary heart disease</b> as when blood is forced through arteries at high pressure it is more likely to damage artery walls.</li></ol>  |
| 7. Drugs        | <ol style="list-style-type: none"><li>1. People who consume drugs may find that their blood pressure increases which could contribute to <b>coronary heart disease</b>.</li></ol>  |
|                 | <ol style="list-style-type: none"><li>2. Certain drugs when consumed can increase heart rate and contribute to <b>coronary heart disease</b>.</li></ol>  |

## Question 2

(a) Explain **each** of the following stages in the development of a new yoghurt:

- (i) Concept screening
- (ii) Prototype production
- (iii) First production Run
- (iv) Marketing Plan

### Marking Instructions:

4 x 1 mark for **each** explanation linked to each stage of development and the **new yoghurt**.

**Total – 4 marks (KU)**

### (i) Concept Screening

1. All ideas for the **new yoghurt** are considered – some are kept and some are discarded
2. A specification is compiled for the **new yoghurt**.
3. The specification allows the manufacturer to discard ideas that do not meet the specification for the **new yoghurt**.

### (ii) Prototype Production

1. The prototype/example/sample **new yoghurt** is developed.
2. The prototype/example/sample **new yoghurt** is measured against the specification.
3. The prototype/example/sample **new yoghurt** is tested for appeal and may be further modified/rejected.
4. It enables testing to be carried out to avoid costly mistakes before the first production run of the **new yoghurt**.
5. The production run for the **new yoghurt** is tested so the processes can be checked.

### (iii) First Production Run

1. The **new yoghurt** will be produced in bulk in a factory and can be assessed.
2. Quality assurance will be carried out to ensure the **new yoghurt** is an acceptable standard for sale.
3. This is an important stage in the manufacture of the **new yoghurt** as it affects other stages (eg if ingredients changed label needs to be changed).

### (iv) Marketing Plan

1. Allows for the development of a range of activities/advertising campaign to promote the **new yoghurt** (eg special offers, where it will be sold).
2. The position in which the **new yoghurt** will be sold/displayed will be considered to attract new/potential customers.
3. The initial price of the **new yoghurt** will be considered, eg low cost to attract new interest/high cost to denote quality/luxury.
4. Packaging can be finalised for the **new yoghurt** taking into account marketing plans/product price.
5. An advertising plan is created to help launch the **new yoghurt**.

## Question 2 (continued)

(b) The star profile shows the results of testing a **yoghurt**.

Evaluate the suitability of the yoghurt for a **teenager**.

### Marking Instructions:

5 x 1 mark for **each** valid evaluation point linked to the suitability of a **yoghurt** for the **teenager**.

**Total – 5 marks (EV)**

**Fact – Show understanding of rating from profile (high/low).**

**Opinion – Positive/negative.**

**Consequence – of the rating for the teenager.**

### Fruitiness (high/4)

#### Positive

- P 1. The **yoghurt** has a high score for fruitiness this is **good** as the **teenager** may prefer fruity flavours **so** would want to eat it.
- P 2. The **yoghurt** has a high score for fruitiness this is **good** as the **teenager** is likely to try it and **therefore** follow current dietary advice (increase fruit consumption).
- P 3. The **yoghurt** has a high score for fruitiness this is **good** as it may benefit the **teenager's** health as it may contain more NSP **therefore** preventing constipation.
- P 4. The **yoghurt** has a high score for fruitiness this is **good** as it may benefit the **teenager's** health as it may contain ACE vitamins **therefore** preventing coronary heart disease/cancer in later life.
- P 5. The **yoghurt** has a high score for fruitiness this is **good** as it may benefit the **teenager's** health as it may be low in fat **therefore** reducing obesity/coronary heart disease in later life.

#### Negative

- N 1. The **yoghurt** has a high score for fruitiness this may be **bad as** some **teenagers** do not like fruit /fussy eaters **so** may not choose to eat it.

### Consistency (very high/5)

#### Positive

- P 1. The **yoghurt** has a very high score for consistency this is **good** as the **teenager** may like lumps/smooth consistency **so** would want to eat it.
- P 2. The **yoghurt** has a very high score for consistency this is **good** as it could contain pieces of fruit **which** would help the **teenager** to meet the dietary target to increase consumption of fruit and vegetables.

#### Negative

- N 1. The **yoghurt** has a very high score for consistency this may make it unsuitable as many **teenagers** do not like 'bits' **so** may not eat it.

### Sweetness (very high/5)

#### Positive

- P 1. The **yoghurt** has a very high score for sweetness this could be **good as most teenagers** like sweet foods/may like the taste **so** are more likely to eat it.

## Question 2 (continued)

### Negative

- N 1. The **yoghurt** has a very high score for sweetness this could be **bad** as the yoghurt may be high in sugar **so** increasing the **teenager's** risk of weight increase/obesity/dental caries.
- N 2. The **yoghurt** has a very high score for sweetness this could be **bad** for the **teenager as** the sweetness may be from artificial flavourings/additives causing hyperactivity.
- N 3. The **yoghurt** has a very high score for sweetness this may be **bad** as the **teenager** may not like the very sweet taste **so** be less likely to eat it.

### Smell (high/4)

#### Positive

- P 1. The **yoghurt** has a high score for smell this could be **good as** teenagers may like a strong smelling yoghurt **so** are more likely to eat it.

#### Negative

- N 1. The **yoghurt** has a high score for smell this may be **bad** for teenagers **as** they may be put off eating the yoghurt.

### Colour (very low/1)

#### Positive

- P 1. The **yoghurt** has a very low score for colour this could be **good** as it may show there are no food colourings added to the product **therefore** less risk of allergies/hyperactivity for the **teenager**.
- P 2. The **yoghurt** has a very low score for colour this may be **good** if the yoghurt is in a tube **as** the **teenager** may drink it without seeing it **so** may not put them off.

#### Negative

- N 1. The **yoghurt** has a very low score for colour this may be **bad as** the lack of colour may be less appealing to **teenagers** so less likely to eat/select it.

### Texture (very high/5)

#### Positive

- P 1. The **yoghurt** has a very high score for texture this may be **good as** it may be easier for the **teenager** to drink **therefore** more appealing.

#### Negative

- N 1. The **yoghurt** has a very high score for texture this may be **bad** for some **teenagers** as it may be difficult to eat **therefore** it may be messy.

**Question 2 (continued)**

(c) Identify and explain **three** factors which may help to prevent osteoporosis.

**Marking Instructions:**

3 x 1 mark for mark for identification of factor.

3 x 1 mark for each explanation linked to prevention of osteoporosis.

**Total – 6 marks (KU)**

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

| Factor   | Explanation  |
|--|--|
| <p><b>1. Calcium rich diet/adequate calcium intake</b></p> | <p>1. High intake of calcium in childhood/younger life/during the main stages of development help to raise peak bone mass/helps to prevent the development of <b>osteoporosis</b> in later life.</p> <p>2. Calcium is necessary for the formation/maintenance/development of bones/helps achieve peak bone mass/ensures strong bones are developed/helps to reduce the risk of developing weak/brittle bones/<b>osteoporosis</b>.</p> <p>3. Calcium combines with phosphorous to produce calcium phosphate which is the main substance necessary for bone hardness/strength/ helps to achieve peak bone mass/helps to prevent <b>osteoporosis</b>.</p> |
| <p><b>2. Vitamin D rich diet</b></p>                       | <p>1. Vitamin D helps the absorption of calcium in the body which helps to achieve peak bone mass/helps prevent <b>osteoporosis</b>.</p> <p>2. Vitamin D helps the absorption of calcium, which is essential for bone formation which reduces the risk of <b>osteoporosis</b>.</p>   |
| <p><b>3. Phosphorous rich diet</b></p>                     | <p>1. Phosphorous combines with calcium to produce calcium phosphate which is (the main substance) necessary for bone hardness/strength/helps to achieve peak bone mass/helps to prevent <b>osteoporosis</b>.</p> <p>2. Phosphorus is necessary for formation/maintenance/development of bones/helps achieve peak bone mass/ensures strong bones are developed/helps to reduce the risk of developing weak/brittle bones/<b>osteoporosis</b>.</p>  |
| <p><b>4. Low fat/saturated fat intake</b></p>              | <p>1. A high intake of fat/saturated fat may lead to poor calcium absorption which could contribute to <b>osteoporosis</b>.</p>  |
| <p><b>5. Low sodium/salt intake</b></p>                    | <p>1. This will slow down the loss of calcium from the bones and help to prevent <b>osteoporosis</b>.</p>  |
| <p><b>6. Low NSP intake</b></p>                            | <p>1. Low intake of NSP in the diet may mean absorption of calcium not hindered allowing peak bone mass and preventing <b>osteoporosis</b>.</p>  |
| <p><b>7. Low phytic acid</b></p>                           | <p>1. Low intake of phytic acid could mean absorption of calcium is not hindered so allowing peak bone mass and preventing <b>osteoporosis</b>.</p>  |

Question 2 (continued)

| Factor  | Explanation   |
|---|---|
| 8. <b>Include lactose in the diet</b>                   | 1. Lactose in the diet could assist absorption of calcium/help achieve peak bone mass and so prevent <b>osteoporosis</b> .  |
| 9. <b>Include protein in the diet</b>                   | 1. Protein in the diet could assist absorption of calcium help achieve peak bone mass and so prevent <b>osteoporosis</b> .  |
| 10. <b>Exposure to sunlight/<br/>ultra violet light</b> | 1. Exposure to sunlight/ultra violet light is essential for the synthesis of Vitamin D. Vitamin D is essential for calcium absorption for bone formation which helps prevent <b>osteoporosis</b> .  |
| 11. <b>A balanced diet</b>                              | 1. An unbalanced diet may result in a diet low in calcium/vitamin D/phosphorous and bone density/mass may be affected therefore increasing the risk of <b>osteoporosis</b> .  |
| 12. <b>A healthy body weight</b>                        | 1. Be a healthy weight as being underweight may mean that the calcium target is not being met therefore an increased risk of <b>osteoporosis</b> .<br>2. As obesity could put an extra strain on the bones/indicate an unbalanced diet which may be short in calcium therefore an increased risk of <b>osteoporosis</b> .   |
| 13. <b>Low intake of junk foods</b>                     | 1. As junk foods tend to be lacking in calcium and don't enable peak bone mass to develop. This then increases the risk of <b>osteoporosis</b> .<br>2. As junk foods tend to be high in fat/saturated fat which may hinder calcium absorption leading to increased risk of <b>osteoporosis</b> .  |
| 14. <b>Low intake of carbonated drinks</b>              | 1. Low intake may prevent erosion of bone mass so reducing risk of <b>osteoporosis</b> .  |
| 15. <b>Low alcohol intake</b>                           | 1. Low intake may mean less toxin to bone cells/less reduction of bone mass so preventing <b>osteoporosis</b> .   |
| 16. <b>Exercise</b>                                     | 1. Regular exercise will increase bone density/stimulate bone formation and reduce risk of developing <b>osteoporosis</b> .<br>2. In young people, exercise may raise peak bone mass reducing the onset of the <b>osteoporosis</b> in later life.<br>3. In adults, exercise protects against bone loss reducing the risk of/delaying the onset of <b>osteoporosis</b> . |
| 17. <b>Not smoking</b>                                  | 1. The nicotine in cigarettes can cause bone loss so stopping smoking can reduce bone loss/help prevent <b>osteoporosis</b> .   |
| 18. <b>HRT</b>  | 1. HRT/hormone replacement treatment assists in the prevention of loss of calcium from bones/stimulates the production of new bone therefore helping to ensure that bones don't become thin/brittle/helps prevent <b>osteoporosis</b> .   |

## Question 2 (continued)

(d) Evaluate **each** of the following technological developments to the consumer.

- (i) Extrusion cooking
- (ii) Sugar substitutes

### Marking Instructions:

3 x 1 mark for **each** valid evaluation point linked to the technological development and the consumer.

**Total – 3 marks (EV)**

Minimum of 1 mark for each technological development

**Fact = fact relating to extrusion cooking/sugar substitutes.**

**Opinion = good/bad for the consumer.**

**Consequence = impact on the consumer (relating to the fact).**

### Extrusion Cooking

#### Positive

- P 1. **Extrusion** cooking makes starch is easier to digest/more easily absorbed into the bloodstream this is beneficial to **consumers as** it will allow glucose to enter the bloodstream more quickly/provide energy.
- P 2. Some **extruded** foods may have slightly higher levels of NSP this is beneficial to **consumers as** it will help the digestive system remove waste from the body/prevent bowel disorders.
- P 3. **Extrusion** cooking provides a range of precooked/pasta shapes/noodles this is beneficial to the **consumer** as it adds variety in colour/texture/shape to the diet.
- P 4. **Extrusion** cooking provides a wide variety of breakfast cereals/snacks/pasta available in different shapes/sizes this is beneficial **as** it can appeal to **consumers/variety** for consumers.
- P 5. Textured Vegetable Protein (TVP) can be made by **extrusion** cooking this is beneficial to **consumers as** vegetarians can consumer a product that resembles meat in appearance/structure/nutrients.
- P 6. **Extrusion** can make food/snacks more attractive by refining the rough texture from bran this is beneficial to **consumers as** it may make food/snacks more appealing/palatable.
- P 7. **Extruded** foods can be processed with no added fat this is beneficial to **consumers as** it will help them to meet the dietary target to reduce fat.
- P 8. **Extruded** products have a long shelf life this is beneficial to **consumers as** they will have to shop for foods less often/won't waste foods.
- P 9. **Extrusion** cooking uses readily available/cheap ingredients this is beneficial for the **consumer as** food products will be low in cost to manufacturer/cheaper for consumer.

#### Negative

- N 1. Some **extruded** food products may have been deep fried (eg snacks) and they will have a high fat content which would not be suitable for **consumers as** it could cause weight gain/obesity/CHD.
- N 2. Some breakfast cereals that have been **extruded** are coated in sugar this may not be suitable for **consumers as** it could cause tooth decay/dental caries/weight gain/obesity.
- N 3. **Extrusion** cooking has extended the snack market this may not be suitable for **consumers as** they may choose too many of these type of products which could lead to weight gain/obesity/CHD/tooth decay.

## Question 2 (continued)

### Sugar Substitutes

#### Positive

- P 1. **Sugar substitutes** sweeten a food product without adding excessive calories this is beneficial to **consumers as** it lets them have the sweet taste of food without the extra calories.
- P 2. **Sugar substitutes** in food products can reduce the sugar content of the diet this is beneficial to **consumers as** it can assist weight reduction/can help consumers to meet the dietary target for sugar consumption.
- P 3. **Sugar substitutes** in food products have little/no energy value this is beneficial to **consumers as** it can aid weight reduction/prevent obesity.
- P 4. Some sugar **substitutes** do not require insulin this is beneficial to **consumers as** it can increase the range of products suitable for diabetics.
- P 5. Developments in some sugar **substitutes** show no side effects when ingested **making** them suitable for **diabetics/allow people** who suffer from diabetes to satisfy sweet cravings (without affecting blood glucose levels.)
- P 6. **Sugar substitutes** are used to produce sugar-free confectionery this is beneficial to **consumers as** it can help to reduce the risk of tooth decay/obesity.
- P 7. **Sugar substitutes** can be used in a wide range of food products increasing the range of healthy options available this is beneficial to **consumers as** it will give them increased choice.
- P 8. Some **sugar substitutes** are weight for weight sweeter than normal sugar and are economical to use by food manufacturers this is beneficial to **consumers as** it should result in low cost products.

#### Negative

- N 1. **Sugar substitutes** do not educate the palate this is not good for **consumers as** they may not reform eating habits to encourage weight loss/reduction in sugar intake.
- N 2. Some **sugar substitutes** do not have the same functional properties as standard sugar this may not be suitable for **consumers as** they are less suitable for food preparation in the home/may waste food.
- N 3. Some **sugar substitutes** may have an aftertaste this is not good as it can make them unpleasant to the **consumer**.
- N 4. Some countries have banned certain **sugar substitutes** this may put some **consumers** off these sugar substitutes **as** they may have an adverse effect on health/cause cancer.
- N 5. The **sugar substitute** aspartame contains phenylalanine this is bad as some **consumers** are unable to break this down **therefore** it can become toxic.
- N 6. Some **sugar substitutes** (aspartame) used in food products have been linked to causing severe migraines/cancer which is bad for the consumer as they may favour sugar.
- N 7. Some **sugar substitutes** change the flavour of food products which is bad as **consumers** may favour high sugar alternatives.

## Question 2 (continued)

(e) Explain **two** ways in which the Food Safety Act 1990 protects the consumer.

### Marking Instructions:

2 x 1 mark for **each** explanation linked to the Food Safety Act and the consumer.

**Total – 2 marks (KU)**

**(Headings have been provided to assist marking but are not required to be provided by the candidate)**

### Labelling

1. The Food Safety Act ensures that food labelling is accurate so that the **consumer** will be able to make an informed choice.
2. The Food Safety Act ensures that food is labelled to inform the **consumer** about certain ingredients which may cause allergies (such as nuts).
3. The Food Safety Act relates to treatment/composition/labelling of the food which protects the **consumer** from inaccurate food labelling.
4. The Food Safety Act refers to false claims/misleading descriptions, so the **consumer** can be confident that the food purchased is as stated on the label.
5. The Food Safety Act states that manufacturers must be able to fulfil any claim made on the label therefore **consumers** can be confident over what they are purchasing.
6. Under the Food Safety Act Environmental Health Officer/Trading Standards Officers can take samples of food for analysis, helping the **consumer** make a legal case if food is falsely described/labelled.
7. The Food Safety Act lists it an offence to mislead the consumer via a label and therefore helps protect the **consumer**.

### Additives and Contaminants

1. Additives must meet the requirements of the Food Safety Act and are carefully controlled therefore the **consumer** can be reassured that any additives are monitored/safe to consume.
2. Under the Food Safety Act most UK additives must go through a safety review to get/stay approved therefore the **consumer** can feel confident that any additives in foods are safe.
3. Under the Food Safety Act any additive allowed in the UK is considered safe for almost everyone; therefore very few **consumers** may have an allergic reaction.
4. Under the Food Safety 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 Food Safety Act food it is an offence to sell contaminated food therefore the **consumer** is protected and can make a claim if such food is purchased.

### Composition of foods

1. It is an offence to sell food which is not of the nature/ substance/quality expected of its type so the **consumer** can be reassured they can make a claim if poor quality food is sold.

## Question 2 (continued)

### Public Health and Hygiene

1. The Food Safety Act ensures that anyone working in the food business conforms to the code of practice which ensures all food produced is safe for the **consumer** to eat.
2. The Food safety Act makes it an offence to produce and/or sell to the **consumer** any food that is injurious to their health/unfit for consumption.
3. The Food Safety Act enforces strict hygiene rules helping to protect the **consumer** against food poisoning.
4. This Food Safety Act controls food hygiene in factories/hotels/shops/cafes/restaurants/stalls/mobile shops/vehicles, protecting the **consumer** from the sale of unfit food.
5. The Food Safety Act covers the whole food chain from farm and/or factory to point of sale for the **consumer**, reducing the number of cases of food- borne illness.
6. The Food Safety Act ensures that all food premises must be registered which enables Environmental Health Officers to monitor food hygiene/safety within the premise and so helps protect the **consumer**.
7. The Food Safety Act can impose a prohibition order on the manager of any food business not complying with the Act and so helps protect the **consumer**.
8. The Food Safety Act relates to temperature controls, eliminating potential food poisoning of the **consumer**.
9. The Food Safety Act is a criminal law that demands that food must not injure the health of the **consumer**.
10. The Food Safety Act demands that food cannot be unfit for **consumer** consumption and therefore helps protect the consumer.

**Question 3**

(a) Identify and explain **three** factors which influence consumer choice of food.

**Marking Instructions:**

3 x 1 mark for identification of factor.

3 x 1 mark for **each** explanation linked to consumer choice of food.

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)**

| Factor  | Explanation   |
|---|---|
| <p><b>1. Advertising/<br/>marketing/<br/>promotional<br/>techniques</b></p> | <ol style="list-style-type: none"> <li><b>1. Consumers</b> may read articles in newspapers/magazines about food which may influence the <b>foods</b> they choose.</li> <li><b>2. Advertising</b> may persuade a <b>consumer</b> to choose a new <b>food</b> product.</li> <li><b>3. Adverts</b> on TV are shown when the target group will be watching so could influence <b>consumers</b> to choose a new <b>food</b> product.</li> <li><b>4. TV /radio</b> adverts with a jingle/personality/celebrity will catch the <b>consumers'</b> imagination and they may remember the <b>food</b> product so more likely to purchase it.</li> <li><b>5. Buy one get one free</b> offers may encourage <b>consumers</b> (on a budget) to choose a <b>food</b> product because they feel they are getting a bargain.</li> <li><b>6. If point of sale displays</b> for <b>food</b> products are colourful/ attractive this could tempt <b>consumers</b> to choose certain food products.</li> <li><b>7. In store tasting</b> of food products will let <b>consumers</b> try a <b>food</b> product which if they like they may choose to purchase.</li> <li><b>8. Free products</b> that are given away with <b>food</b> products may persuade a <b>consumer</b> to choose a certain food product.</li> </ol> |
| <p><b>2. Available income</b></p>   | <ol style="list-style-type: none"> <li><b>1. Amount of money</b> available can restrict/improve the options of quantity/quality/variety/brand of <b>food</b> which can be purchased by <b>consumers</b>.</li> <li><b>2. High fat/sugar foods</b> tend to be cheaper therefore may be purchased by <b>consumers</b> if they are on a limited income.</li> <li><b>3. Fresh fruit/vegetables/previously untried foods</b> may not be purchased by <b>consumers</b> for fear of waste if income/money is limited.</li> <li><b>4. Ready meals</b> may increase in popularity, as it may be cheaper for <b>consumers</b> to purchase these rather than cook a meal for one if income/money is limited.</li> <li><b>5. High disposable income/two household wages</b> may result in <b>consumers</b> having more money being available for ready meals/convenience foods/better brand foods/exotic fruits/functional foods/organic foods.</li> </ol>   |

Question 3 (continued)

| Factor   | Explanation  |
|--|--|
| <p>3. <b>Climatic conditions</b></p>                   | <ol style="list-style-type: none"> <li>1. Climate will influence the <b>foods</b> that can be grown in a country so may limit the range of foods <b>consumers</b> can choose from.</li> <li>2. Climate has less influence on <b>consumer</b> food choice due to technological developments allowing foods to be imported/grown in this country.</li> <li>3. In cold weather <b>consumers</b> will tend to choose <b>foods</b> that will provide warmth to the body/energy giving/filling/warm foods.</li> <li>4. In warm/hot weather <b>consumers</b> will tend to choose refreshing <b>foods</b> that will cool the body.</li> </ol>  |
| <p>4. <b>Cultural/religious/ethical influences</b></p> | <ol style="list-style-type: none"> <li>1. More <b>consumers</b> travel abroad therefore have developed different tastes want to choose to eat similar exotic/ethnic <b>foods</b> at home.</li> <li>2. Increased number of ethnic groups in the UK has provided a greater choice in takeaway <b>foods</b> for <b>consumers</b>.</li> <li>3. The food industry now produces a range of ready meals with a combination of ethnic ingredients making it easier for the <b>consumer</b> to choose to eat <b>food</b> of ethnic origin.</li> <li>4. TV cookery programmes with celebrity chefs have given <b>consumers</b> a taste for more <b>exotic foods</b> and so the consumer may choose these foods/ingredients when shopping/eating in restaurants.</li> <li>5. <b>Consumers</b> religion may influence <b>food</b> choice as some religions require that certain foods are excluded from the diet restricting choice - accept examples eg Hindus will not eat pork/Jews will only eat kosher meat etc.</li> <li>6. <b>Consumers</b> festivals influence the choice of <b>food</b> consumed as often there are traditional foods served at the festival - accept examples eg Christmas – turkey trimmings/Christmas pudding.</li> <li>7. As <b>consumers</b> of other nationalities come and live in the country there has been an increased range of <b>foods</b> available for people to purchase from their own culture – (accept examples eg wide range of Polish foods available in supermarkets).</li> </ol> |
| <p>5. <b>Lifestyle</b></p>                             | <ol style="list-style-type: none"> <li>1. An increase in household income when both adults work allows <b>consumers</b> to choose exotic/expensive/ready prepared/take away <b>foods</b>.</li> <li>2. As both adults tend to work there is less time for food preparation and <b>consumers</b> may choose <b>foods</b> which are easy to prepare/cook.</li> <li>3. <b>Consumers</b> travel greater distances to work meaning there is less time to prepare/cook <b>food</b>.</li> <li>4. Many <b>consumers</b> live alone which may encourage them to choose single portion <b>meals</b>.</li> <li>5. Snacking/grazing is more common among <b>consumers</b> who will choose <b>foods</b> that can be eaten on the move.</li> <li>6. The majority of <b>consumers</b> have freezers which allow consumers to store <b>food</b> meaning they could take advantage of special offers on food products.</li> <li>7. The majority of <b>consumers</b> have a microwave which allows them to choose ready meals/cook <b>food</b> quickly.</li> </ol>  |

Question 3 (continued)

| Factor                                 | Explanation   |
|--|---|
| <p>6. <b>Nutritional knowledge</b></p> | <ol style="list-style-type: none"> <li>1. <b>Consumers</b> with little nutritional knowledge may choose less healthy options/<b>foods</b> 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.</li> <li>2. Nutritional labelling on <b>food</b> may not be easily understood by some <b>consumers</b> with little knowledge, and may not assist them to make healthy choices.</li> <li>3. <b>Consumers</b> with good nutritional knowledge may read nutritional labelling on <b>food</b> packets to make comparisons and choose healthier food items/foods to benefit their health.</li> <li>4. <b>Consumers</b> with good <b>knowledge of nutrition</b> have an increased awareness of 'healthy eating' and <b>so</b> choose food which may improve their health/reduce the risk of diet related diseases.</li> <li>5. <b>Consumers</b> with nutritional knowledge may choose functional <b>foods</b> because of the added health benefits associated with the nutrient added to the food.</li> </ol> |
| <p>7. <b>Environmental issues</b></p>  | <ol style="list-style-type: none"> <li>1. Increased interest in environmental issues has led to fewer genetically modified <b>foods</b> being produced/chosen as <b>consumers</b> are aware of the effects GM crops may have on the environment.</li> <li>2. <b>Consumers</b> may choose more <b>vegetarian foods</b> due to increased fear of animal related illnesses.</li> <li>3. <b>Consumers</b> may be choosing more <b>natural/organic/unprocessed foods</b> because of the concerns that man-made chemicals could be carcinogenic/contain cancer causing agents.</li> <li>4. <b>Consumers</b> wishing to help protect the environment/help conserve energy are increasingly using microwave ovens which increases the demand for <b>microwave foods/meals</b>.</li> <li>5. <b>Consumers</b> wishing to be more environmentally friendly are pressuring food manufacturers to produce environmentally friendly <b>food</b> packaging.</li> <li>6. <b>Consumers</b> may choose more cruelty free/free range/dolphin friendly/farm assured <b>food products</b> because of concerns about how animals are bred/treated.</li> </ol>                   |
| <p>8. <b>Foreign travel</b></p>        | <ol style="list-style-type: none"> <li>1. More <b>consumers</b> travel abroad on holiday/business where they may develop different tastes and they want to eat/choose foreign <b>foods</b> at home.</li> <li>2. More <b>consumers</b> now travel abroad on holiday/business where they may develop different tastes and they want to eat/choose foreign <b>foods</b> at home.</li> <li>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 <b>consumers</b> travelling abroad and developing a taste for foreign foods.</li> <li>4. Consumption of <b>rice/pasta/noodle</b> dishes has increased by <b>consumers</b>, partly as a result of increased foreign travel.</li> <li>5. Food choice when travelling to a foreign country could be restricted as a result of the religion/religious festivals and when visiting other countries these <b>consumers</b> need to take into account their food traditions/religions.</li> </ol>  |

Question 3 (continued)

| Factor   | Explanation  |
|--|--|
| <p>9. <b>Geographical location/access to shops</b></p> | <ol style="list-style-type: none"> <li>1. Choice of <b>food</b> could be either vast / minimal therefore impacting on the range of foods the <b>consumer</b> is able to purchase/frequency of shopping.</li> <li>2. For those living in the countryside, farmers may offer 'pick your own' facilities/fresh fruit and vegetables often at lower costs therefore providing the <b>consumer</b> with affordable fresh produce/saving money on transport.</li> <li>3. Corner shops are vital in small towns/villages/communities however choice in these is often restricted due to limited space / the cost is often higher therefore limiting choice of <b>food</b> to the <b>consumers</b>.</li> <li>4. Throughout the UK, transport/delivery of <b>food</b> products is now very advanced so it is now possible for <b>consumers</b> to obtain a wide variety of fresh produce from around the world regardless of their geographical location.</li> <li>5. In rural areas <b>consumers</b> may have access to <b>foods</b> eg wild game/fishing/wild berries/mushrooms whereas city dwellers would not.</li> </ol> |
| <p>10. <b>Health</b></p>                               | <ol style="list-style-type: none"> <li>1. <b>Consumers</b> who have allergies choice of <b>food</b> will be limited as they will not be able to consume foods they are allergic to.</li> <li>2. Young children/pregnant women/convalescents/elderly <b>consumers</b> have specific nutritional needs which will affect their choice of <b>food</b> to ensure good health.</li> <li>3. <b>Consumers</b> may wish to avoid additives in <b>food</b> to ensure good health so this would restrict the choice of foods available to them.</li> <li>4. <b>Consumers</b> suffering from dietary diseases should avoid/ should consume specific <b>foods</b> and this would influence their food choice.</li> <li>5. <b>Consumers</b> may want to follow the dietary targets to ensure good health and may choose <b>foods</b> which meet the targets.</li> </ol>   |
| <p>11. <b>Peer pressure</b></p>                        | <ol style="list-style-type: none"> <li>1. Due to peer pressure, teenage <b>consumers</b> may go through <b>food</b> fads/spells of vegetarianism/special diets so they are made to feel more of a group/if their friends are also going through the same change in diet.</li> <li>2. Food choice may be influenced by peer pressure as in a group situation some <b>consumers</b> may be pressured into sharing <b>food</b> within the group.</li> <li>3. Food choice may be influenced by peer pressure as if friends are <b>consuming</b> a <b>food</b> product consumers are more likely to choose that product as well.</li> <li>4. Influences from peer groups due to the need for social acceptance/the need to fit in with your friends influences <b>consumers food</b> choice.</li> <li>5. Influences from peer group may determine where <b>consumers food</b> is purchased/eaten.</li> </ol>  |

Question 3 (continued)

| Factor  | Explanation   |
|---|---|
| <p>12. <b>Personal taste/likes dislikes</b></p>           | <ol style="list-style-type: none"> <li>1. <b>Consumers</b> all have <b>foods</b> they like/dislike therefore this will influence the foods they choose to eat.</li> <li>2. <b>Consumers</b> are more likely to choose <b>foods</b> which looks attractive/smells appetizing/tastes good.</li> <li>3. The food industry produces a huge range of <b>food</b> products to suit a wide variety of tastes so <b>consumers</b> should be able to choose foods to give them variety in their diet.</li> <li>4. <b>Consumers</b> may find the taste/texture of ready meals becomes repetitive and may choose to buy ingredients to cook <b>food</b> at home.</li> <li>5. Consumers may have chosen to be vegetarian/vegan and as a result will not choose foods which have involved the killing of animals/of animal origin.</li> </ol>  |
| <p>13. <b>Preparation/cooking equipment available</b></p> | <ol style="list-style-type: none"> <li>1. <b>Consumers</b> may have cooking equipment which can help speed up the cooking process which could encourage them to choose <b>foods</b> they can use in the equipment.</li> <li>2. <b>Consumers</b> may have cooking equipment which can help make <b>food</b> preparation easier (food processor, mixer etc) which could encourage them to choose more fresh foods.</li> <li>3. The majority of <b>consumers</b> have microwaves which allows them to choose ready meals/ <b>foods</b> which can cook quickly.</li> <li>4. The majority of <b>consumers</b> have freezers which allows consumers to store <b>food</b> meaning they could take advantage of special offers on food products.</li> </ol>   |
| <p>14. <b>Preparation/cooking skills priorities</b></p>   | <ol style="list-style-type: none"> <li>1. Loss of practical skills/limited practical skills in <b>food</b> preparation/cooking may mean that <b>consumers</b> eat more ready-meals/take-away meals are used as an alternative to traditional cooking.</li> <li>2. If the <b>consumer</b> has good preparation/cooking skills then they are more likely to purchase individual <b>ingredients</b>/cook homemade dishes.</li> <li>3. The skills involved in making home prepared <b>foods</b> take time to carry out this may conflict with leisure/work interests meaning <b>consumers</b> are more likely to choose convenience <b>foods</b>.</li> <li>4. <b>Consumers</b> cooking skills may be limited so they can still provide variety in the diet by choosing from a range of ready meals/<b>food</b> products available to buy.</li> <li>5. <b>Consumers</b> may be more likely to choose exotic/luxury type <b>foods</b> because they do not have the skills/expertise/confidence to prepare/cook them from scratch.</li> <li>6. Reliance on purchase of convenience foods may mean that traditional <b>food</b> preparation and cooking skills are lost <b>so consumers</b> can only buy ready made foods.</li> <li>7. <b>Consumers</b> with good preparation/cooking skills may choose to buy individual <b>ingredients</b> and prepare/cook them because they cook in bulk and freeze.</li> </ol> |

Question 3 (continued)

| Factor  | Explanation   |
|---|---|
| <p>15. <b>Time available for preparation/cooking/eating</b></p> | <ol style="list-style-type: none"> <li>1. Many <b>consumers</b> who work do not have the time to prepare/cook meals so for convenience buy quick <b>ready meals</b>.</li> <li>2. <b>Consumers</b> who have little time to prepare/cook <b>food</b> will probably be more likely to purchase cook-chill products/ready meals.</li> <li>3. <b>Consumers</b> are working longer hours and the demand for take away <b>food</b>/eating out has grown saving time in food preparation/cooking.</li> <li>4. <b>Consumers</b> may have appliances that can be programmed to cook <b>food</b> so can save time in food preparation.</li> <li>5. There are many <b>foods</b> that can be cooked in one container (slow cooker, steamer, casserole) and so will save the <b>consumer</b> time in cooking/washing up.</li> <li>6. <b>Consumers</b> may take very little time to eat meals while at work so may choose to buy <b>snack</b> lunches/pot noodles/dried soups/prepared sandwiches/prepared fruits/salads that need no preparation.</li> <li>7. Time available for food preparation/cooking may influence food choice so <b>consumers</b> might not prepare a meal/opt for convenience foods.</li> <li>8. <b>Consumers</b> may make time for <b>food</b> preparation/cooking if cooking is a hobby/they like entertaining and so may choose to buy individual ingredients/make the recipe from scratch.</li> </ol>  |
| <p>16. <b>Range of retail outlets selling food</b></p>          | <ol style="list-style-type: none"> <li>1. Availability of markets/farmers markets may influence <b>food</b> choice as it allows <b>consumers</b> to purchase local food produce which may be cheaper/less food miles/support Scottish farmers/quality foods.</li> <li>2. Discount food stores may restrict choice of <b>foods</b> for <b>consumers</b> as they stock a limited range of food products.</li> <li>3. Discount food stores may influence choice of <b>foods</b> for <b>consumers</b> as they stock a range of food products at cheaper prices.</li> <li>4. Discount food stores may influence choice of <b>foods</b> for <b>consumers</b> as they often import products which may have high food miles.</li> <li>5. Supermarkets/superstores may influence <b>food</b> choice for <b>consumers</b> as they often have special offers increasing food choice.</li> <li>6. Supermarkets/superstores may influence <b>food</b> choice for <b>consumers</b> as they often stock a wide range of foods increasing food choice.</li> <li>7. Supermarkets/superstores offer fresh bakery/fishmonger/butcher/delicatessen increasing consumers <b>food</b> choice.</li> <li>8. Supermarkets/superstores may influence <b>food</b> choice for <b>consumers</b> as they have long opening hours/24 hour opening increasing access to a range of <b>food</b>.</li> <li>9. Local shops/specialist shops may influence food choice for <b>consumers</b> as prices may be higher/may be restricted <b>food</b> choice/quality may be higher.</li> <li>10. Home-delivery food services increase the range of <b>foods</b> for <b>consumers</b> available that can be delivered to your home with no preparation.</li> </ol> |

Question 3 (continued)

| Factor  | Explanation   |
|---|---|
| <p><b>17. Working hours /shift patterns</b></p>               | <ol style="list-style-type: none"> <li>1. <b>Food</b> choice may be influenced by long working hours/ shift patterns as <b>consumers</b> will have less time/inclination to prepare food, so are more likely to buy ready meals/takeaways.</li> <li>2. <b>Food</b> choice may be influenced by long working hours / shift patterns as <b>consumers</b> who are eating a meal at work may choose to take ready meals with them (to heat at work).</li> <li>3. <b>Food</b> choice may be influenced by if <b>consumers</b> have irregular working hours/shifts will mean eating times different to their family, maybe more likely to consume ready made meals when come home.</li> <li>4. <b>Food</b> choice may be influenced if <b>consumers</b> with long/irregular working hours now have a wide choice of frozen/cool-chill meals/ready meals available for purchase which can be microwaved.</li> <li>5. <b>Food</b> choice may be influenced by long working hours/shift patterns as <b>consumers</b> may have little time to eat meals at work may choose to buy snack lunches/pot noodles/dried soups/prepared sandwiches/prepared fruits/salads.</li> <li>6. <b>Food</b> choice may be influenced by working part time /shift patterns as <b>consumers</b> who work part time may have more time to prepare food so may opt to shop for fresh ingredients to cook meals from scratch.</li> </ol> |
| <p><b>18. Technological innovations / online shopping</b></p> | <ol style="list-style-type: none"> <li>1. Online shopping saves <b>consumers</b> time which allows them to choose <b>foods</b> from the comfort of their own home.</li> <li>2. Online shopping allows <b>consumers</b> who are housebound/disabled to purchase a wide range of <b>foods</b> that otherwise may not be able to access.</li> <li>3. When shopping online <b>consumers</b> will not be tempted to choose <b>foods</b> that they do not need.</li> <li>4. Loyalty cards store a record of <b>consumer's</b> past purchases making it easy for them to choose <b>foods</b> when they shop online.</li> </ol>   |

### Question 3 (continued)

- (b) Evaluate **each** of the following ways food manufacturers are helping consumers meet dietary targets:
- (i) Increasing fruit and vegetables.
  - (ii) Reducing salt intake.

#### Marking Instructions:

2 x 1 mark for each valid point of evaluation linked to **food manufacturers** and **increasing fruit and vegetable intake**.

2 x 1 mark for each valid point of evaluation linked to **food manufacturers** and **reducing salt intake**.

**Total – 4 marks (EV)**

**Opinion = good / bad for the consumer.**

**Fact = way food manufacturers are helping to meet dietary target.**

**Consequence = impact on the consumer (linked to the fact).**

#### Increasing fruit and vegetable intake

##### Positive

- P 1. **Food manufacturers** are helping consumers (increase **fruit/vegetable intake**) by having prepared vegetables available in the supermarket this is **good** as the **consumer** does not have to spend time preparing/peeling **so** are more likely to eat them/purchase them.
- P 2. **Food manufacturers** are helping consumers (increase **fruit/vegetable intake**) having a wide range of pre-packed salads available this is **good** as the **consumer** does not need to do preparation/buy what they need so saving waste.
- P 3. **Food manufacturers** are helping **consumers**( increase **fruit/vegetable intake**) by having a wide range of prepared salads now available this is **good** as the consumer is more likely to try them **therefore** encourage their use/consumption.
- P 4. **Food manufacturers** are helping **consumers** (increase **fruit/vegetable intake**) by using fruit and vegetables may give bulk to healthy-option dishes this is **good as** it ensures consumer consumption.
- P 5. **Food manufacturers** are helping **consumers** (increase **fruit/vegetable intake**) by adding dried fruit to many breakfast cereals this is **good as** the consumer indirectly increases consumption.
- P 6. **Food manufacturers** are helping **consumers** (increase **fruit/vegetable intake**) by producing fruit smoothies these are **good as** the consumer can increase consumption with no effort/preparation.
- P 7. **Food manufacturers** are helping **consumers** (increase **fruit/vegetable intake**) with useful portion labelling this is **good as** consumer can track/easily see how much fruit and vegetables they are eating.
- P 8. **Food manufacturers** are helping consumers (increase **fruit /vegetable intake**) by providing recipes/serving suggestions for fruit/vegetable dishes which is **good** as it gives consumers new ways to eat them/increased variety.

### Question 3 (continued)

#### Increasing fruit and vegetable intake

##### Negative

- N 1. **Food manufacturers** have introduced a range of fruit smoothies to help **consumers** meet the target (for and, **increase in fruit and vegetables to** however), this may be **bad** as many of these products are high in sugar **so** may cause weight gain/dental caries/increase sugar consumption.
- N 2. **Food manufacturers** are introducing pre-prepared fruits / vegetables to help **consumers** meet the target (for an **increase in fruit and vegetables to**) this is **bad** as it may result in a loss of food preparation skills in the long run.
- N 3. **Food manufacturers** have introduced pre-prepared fruit /vegetables to help **consumers** meet the target (for **an increase in fruit and vegetable** consumption) this is **bad** as these are more expensive for consumers/only available to high income groups.
4. **Food manufacturers** have introduced pre-prepared fruit/vegetables to help **consumers** meet the target (for **an increase in fruit and vegetable** consumption ) this is **bad** as this increases packaging so may be harmful to the environment.
5. **Food manufacturers** have introduced pre-prepared fruit/vegetables to help **consumers** meet the target (for **an increase in fruit and vegetable** consumption) this is **bad** as this increases energy costs (due to need for refrigeration) so may be harmful to the environment.

#### Reducing salt intake

##### Positive

- P 1. **Food manufacturers** are helping **consumers** (reduce **salt intake**) by using less salt in processed foods this is **good** for the consumer **as** they do not need to make any effort/realise to achieve a reduction in salt.
- P 2. **Food manufacturers** are helping **consumers** (reduce **salt intake**) by using a salt alternative such as 'lo salt this is **good as** the consumer does not notice a change in flavour while meeting the dietary target.
- P 3. **Food manufacturers** are helping **consumers** (reduce **salt intake**) by using additional natural flavourings/herbs/spices this is **good as** the consumer still has flavour without the salt intake.
- P 4. **Food manufacturers** are helping **consumers** (reduce **salt intake**) by packing of some foods in substances other than brine this is **good as** the consumer achieves a reduction in salt.
- P 5. **Food manufacturers** are helping **consumers** (reduce **salt intake**) by use of information on the food labels/traffic light labelling to identify such low-salt foods this is good **as** consumer can track/easily see how much salt they are eating.
- P 6. **Food manufacturers** are helping **consumers** (reduce **salt intake**) by increasing the range of ready meals with salt reduction this is **good** as many consumers no longer cook/prepare food from scratch / not adding salt during cooking **therefore** helping them meet the dietary target.

#### Reducing salt intake

##### Negative

- N 1. **Food manufacturers** are helping **consumers**( reduce **salt intake**) by providing labels/traffic light labelling however, this may be **bad as** each manufacturer can adopt their own labelling scheme which may be confusing to consumers.

### Question 3 (continued)

(c) Evaluate the nutritional suitability of the following meal for a child.

- Cream of vegetable soup.
- Spaghetti bolognaise and garlic bread.
- Glass of fresh orange juice.

#### Marking Instructions:

4 x 1 mark for **each** valid point of evaluation linked to the nutritional needs of a **child**.

**Total – 4 marks (EV)**

**Fact = nutritional value of the food/meal.**

**Opinion = good / bad for the child.**

**Consequence = impact on the health/well being of the child (linked to the fact).**

#### Cream of Vegetable Soup

##### Positive

- P 1. The soup may be rich in vegetables this is good **as** it may provide NSP which may help prevent the **child** becoming constipated/suffer bowel disorders.
- P 2. The soup may be rich in vitamin C from the vegetables this is good **as** it may help with the absorption of iron and prevent the **child** becoming anaemic.
- P 3. The soup may be rich in vitamin C from the vegetables this is good **as** it will help cuts/wounds heal quicker if a **child** hurts themselves.
- P 4. The soup may be rich in vitamin A / C / E from the vegetables this is good **as** it may reduce the **child's** risk of cancer/heart disease in later life.
- P 5. The soup may be rich in vitamin A from the vegetables this is good **as** it is required for the normal growth in **children**.
- P 6. The soup may be rich in vitamin A from the vegetables this is good **as** it is required to keep the mucous membrane in the eyes/lungs/throat/digestive tract moist/free from infection therefore ensuring a **child** will be healthy.
- P 7. The soup may be rich in folate from the vegetables this is good for the **child** as it is essential for the normal growth.
- P 8. The soup may be rich in calcium from the vegetables; this is good **as** it will help give the **child** hardness/strength to their bones.
- P 9. The soup may be rich in calcium from the vegetables this is good **as** it may prevent the **child** getting osteoporosis in later life.
- P 10. The soup may contain fat from the cream which is good for the **child** as it provides a concentrated source of energy/warmth.
- P 11. The soup may contain fat from the cream which is good for the **child** as it will protect their vital organs.
- P 12. The soup may contain fat from the cream which is good for the **child** as it provides a source of fat soluble vitamins A/D/E/K.
- P 13. The soup may contain fat from the cream which is good for the **child** as it provides a source of essential fatty acids.

#### Cream of Vegetable Soup

##### Negative

- N 1. The soup may be high in fat/energy from the cream this may be bad **as** this may contribute to the **child** gaining weight/ heart disease in later life.
- N 2. The soup may be high in salt this may be bad as the **child** may develop a taste for salty food / suffer hypertension in later life.

### Question 3 (continued)

#### Spaghetti Bolognese

##### Positive

- P 1. The Bolognese sauce may be rich in HBV protein this is good **as** it will ensure the **child** ensure the **child** grows/repairs body cells.
- P 2. The Bolognese sauce may be rich in protein this is good **as** it could provide a **child** with a secondary source of energy.
- P 3. The Bolognese sauce may be rich in iron this is good **as** it may reduce the risk of the **child** suffering anaemia.
- P 4. The Bolognese sauce may be rich in vegetables; this is good as it may add NSP into the **child's** diet **therefore** reducing her risk of constipation.
- P 5. The Bolognese sauce may be rich in ACE vitamins; this is good **as** it may reduce the **child's** risk of heart disease/cancer in later life.
- P 6. The Bolognese sauce may have herbs which may mean less salt has been added; this is good **as** it may mean the **child** may have a reduced risk of hypertension in later life.
- P 7. The spaghetti may be a rich source of complex carbohydrates; this is good **as** it will supply the **child** with a source of energy.
- P 8. The spaghetti may be whole-wheat this is good **as** it may add extra NSP in the **child's** diet and reduce risk of constipation.
- P 9. The spaghetti Bolognese may contain fat which is good for the **child** as it provides a concentrated source of energy/warmth.
- P 10. The spaghetti Bolognese may contain fat which is good for the **child** as it will protect their vital organs.
- P 11. The spaghetti Bolognese may contain fat which is good for the **child** as it will provide a source of fat soluble vitamins A/D/E/K.
- P 12. The spaghetti Bolognese may contain fat which is good for the **child** as it provides a source of essential fatty acids.
- P 13. The spaghetti Bolognese is a rich source of complex carbohydrate/fat this may be good as it will provide the **child** with energy and prevent them snacking.
- P 14. The spaghetti Bolognese may contain Vitamin B complex, this is good as it will allow the **child** to release energy from carbohydrates/foods eaten.

#### Spaghetti Bolognese

##### Negative

- N 1. The Bolognese sauce may be high in saturated fat from the meat this is bad **as** this may increase the **child's** risk of weight gain/heart disease in later life.
- N 2. The spaghetti may be a rich source of complex carbohydrates this is bad **as** this may give the **child** an extra energy source may cause weight gain/obesity.
- N 3. The spaghetti Bolognese may be high in salt this may be bad as the **child** may develop a taste for salty food / suffer hypertension in later life.

Accept any other answer linked to nutritional value of ingredients contained in the meal and linking to nutritional needs of a child.

### Question 3 (continued)

#### Garlic Bread

##### Positive

- P 1. The garlic bread may be a rich source of complex carbohydrate this may be good **as** it may this may give the **child** an extra energy source.
- P 2. The garlic bread may contain fat which is good for the **child** as it provides a concentrated source of energy/warmth.
- P 3. The garlic bread may contain fat which is good for the **child** as it will protect their vital organs.
- P 4. The garlic bread may contain fat which is good for the **child** as it will provide a source of fat soluble vitamins A/D/E/K.
- P 5. The garlic bread may contain fat which is good for the **child** as it provides a source of essential fatty acids.
- P 6. The garlic bread is a rich source of complex carbohydrate/fat this may be good as it will provide the **child** with energy and prevent them snacking.

#### Garlic Bread

##### Negative

- N 1. The garlic bread may be a rich source of complex carbohydrate this is bad **as** it may this may give the **child** an extra energy source which may cause weight gain/obesity.
- N 2. The garlic butter may be high in (saturated) fat this is bad **as** this may increase the **child's** risk of weight gain/heart disease in later life.

#### Glass of fresh orange juice

##### Positive

- P 1. The orange juice may provide a rich source of Vitamin C this is good **as** it may help the **child** absorb iron / reduce the risk of anaemia.
- P 2. The orange juice may be rich in vitamin C this is good **as** it may help with the absorption of iron and prevent the **child** becoming anaemic.
- P 3. The orange juice may be rich in vitamin C this is good **as** it will help cuts/wounds heal quicker if a child hurts themselves.
- P 4. The orange juice may be rich in vitamin C this is good **as** it may reduce the **child's** risk of cancer/heart disease in later life.
- P 5. The orange juice may provide a rich source of antioxidants which is good as it will mop up free radicals in the **child so** less risk of cancers.
- P 6. The orange juice may be fortified in calcium this is good **as** it will help give the child hardness/strength to their bones / prevent osteoporosis in later life.
- P 7. The orange juice may be fortified in iron; this may be good **as** it may reduce the risk of the **child** suffering anaemia.
- P 8. The orange juice may be high in NSP this is good as it may help prevent the **child** becoming constipated.
- P 9. The orange juice may be rich in folate this is good **as** it contributes towards the **child's** folate intake therefore ensuring normal growth in the child.

#### Glass of fresh orange juice

##### Negative

- N 1. The orange juice may contain sugars this may be bad **as** it may cause the **child** to gain addition weight/dental caries.
- N 2. The orange juice may be acidic this may be bad **as** it can cause the enamel of the **child's teeth** to erode contributing to dental caries.

Accept any other answer linked to nutritional value of ingredients contained in the meal and linking to nutritional needs of a child.

### Question 3 (continued)

- (d) Explain how **each** of the following functional properties may be used in food manufacture.
- (i) Crystallisation.
  - (ii) Coagulation.

#### Marking Instructions:

4 x 1 mark for each explanation of crystallisation / coagulation linked to **food manufacture**.  
At least one mark from each area.

**Total – 4 marks (KU)**

#### Crystallisation

1. Crystallisation happens when crystals form after sugar is boiled with water then cooled (to form invert sugars) this is used in **food manufacturers** to make jams /sweets / confectionary.
2. Crystallisation happens when crystals form after sugar is boiled with water then cooled (to form invert sugars,) if too little invert sugars are added during **food manufacture** then jam becomes gritty.
3. Crystallisation is used in the **manufacture of jam** as crystals form after sugar is boiled with water then cooled, adding acids / lemon juice prevent large crystals forming/spoiling the jam.
4. Crystallisation is used in the **manufacture** of fudge / tablet / confectionary when crystals form after sugar is boiled with water (then cooled) adding milk/butter/chocolate/ starch/gelatine to prevent/delay/ large crystals forming.
5. Crystallisation is used in the **manufacture** of fudge / tablet / confectionary when crystals form after sugar is boiled with water then cooled, products are beaten as they cool during **manufacture** to prevent large crystals forming/create a smoother texture.

#### Coagulation

1. Coagulation is used in **food manufacture** to thicken a mixture, this happens when protein is heated and there is a change from liquid to a solid.
2. Protein when heated will coagulate, thickening a mixture this can be used in **food manufacture** to make custards/flans/sauces/lemon meringue pie.
3. **Food manufacturers** may add extra egg to a mixture so that when it is heated the additional egg will coagulate giving a firmer set.
4. **Food manufacturers** may use egg to bind ingredients together, when the product is heated the egg coagulates holding the ingredients together.
5. **Food manufacturers** may use egg to coat food products when heated the egg coagulates and sets prevents the food falling apart.
6. Whisking of egg white causes partial coagulation of the protein, this can be used in **food manufacture** to hold the shape of baked goods.
7. **Food manufacturers** use rennet to coagulate milk to produce curds in cheese making.
8. Eggs can be used to glaze goods **food manufacturers** may use this to give a shiny finish as the egg coagulates on baking.
9. Protein foods heated beyond coagulation temperature denatures the protein therefore **food manufacturers** need to ensure they cook foods correctly to avoid becoming hard/tough/rubbery.
10. The addition of salt/acid affects coagulation this can be used in **food manufacture** to produce products with a firmer / softer / looser set.
11. The addition of sugar to food products which coagulate causes the temperature of coagulation to be raised, this can be used in **food manufacture** to produce a looser set.
12. Egg whites and egg yolks coagulate at different temperatures this property can be used in **food manufacture** to ensure that the correct part of an egg is used to achieve the correct set.

### Question 3 (continued)

- (e) Explain two responsibilities of the Trading Standards Department in protecting the consumer.

#### Marking Instructions:

2 x 1 mark for each explanation linked to the **Trading Standards Department** and the **consumer**.

**Total – 2 marks (KU)**

1. The **Trading Standards Department** promotes a fair market in consumer goods/services protecting the **consumer** from unfair traders.
2. The **Trading Standards Department** enforce The Weights and Measures Act 1963 this protects the **consumer** as they ensure all food items have the quantity of the goods being indicated on the package/prepacked foods have to be sold in prescribed metric measurements.
3. The **Trading Standards Department** is responsible for ensuring that all foods are sold in metric weights protecting the **consumer** as they are able to compare food products.
4. The **Trading Standards Department** enforce The Weights and Measures Act 1985 this protects the **consumer** as they ensure traders do not use inaccurate weighing/measuring equipment.
5. The **Trading Standards Department** enforce The Weights and Measures Act 1985 they make sure that **consumers** are not given less than they have paid for as it is illegal to give short weight/ an inadequate quantity.
6. The **Trading Standards Department** enforce (The Trades Description Act 1968)/ Consumer Protection from Unfair Trading Regulations 2008) this protects the **consumer** as they protected from traders who falsely describe/mislead the consumer about the goods/services they are selling.
7. The **Trading Standards Department** enforce The Food Safety Act 1990 where it deals with labelling of food they can take legal action/court procedures on people guilty of offences, protecting the **consumer** against unlawful traders/goods.
8. The **Trading Standards Department** enforce The Food Safety Act 1990 by taking samples of food ensuring the **consumer** is purchasing food of the correct composition.
9. The **Trading Standards Department** enforce The Food Safety Act 1990 any trader found guilty of offences under this act may be fined/imprisoned protecting the **consumer** as traders should comply with the act.

## Question 4

(a) Evaluate how each of the following ingredients used in a pizza base affect the finished product.

- (i) Strong wholemeal flour.
- (ii) Sugar.
- (iii) Salt.
- (iv) Yeast.

### Marking Instructions:

4 x 1 mark for **each** valid evaluation point linked to **each** ingredient and the **pizza base**.

**Total – 4 marks (EV)**

**Fact = fact relating to the ingredient.**

**Opinion = good / bad / suitable / unsuitable for the pizza base.**

**Consequence = impact on the finish of the pizza base ( linked to the fact).**

### Strong wholemeal flour

#### Positive

- P 1. Strong wholemeal flour has a high gluten content which is good **as** it will produce an elastic dough to make the shape of the **pizza base**.
- P 2. Strong wholemeal flour has a high gluten content which is good **as** it will form the structure of the **pizza base**.
- P 3. Strong wholemeal flour contains starch/allows for dextrinisation which is good during the cooking of the **pizza base**, **as** gives it a golden brown colour.
- P 4. Strong wholemeal flour adds a nutty flavour to the **pizza base** this is good **as** makes it different from other/more common /more appealing flavour.
- P 5. Strong wholemeal flour adds a crunchy texture to the **pizza base** this is good **as** makes it different from other/more common pizza bases/more appealing texture.
- P 6. Strong wholemeal flour affects the appearance of the **dough** this is good **as** gives a darker/speckled look/more appealing.

### Strong wholemeal flour

#### Negative

- N 1. Strong wholemeal flour adds a nutty flavour to the **pizza base** this is bad **as** makes it different from other/more common pizza bases/less appealing flavour.
- N 2. Strong wholemeal flour adds a crunchy texture to the **pizza base** this is bad **as** makes it different from other/more common pizza base/less appealing texture.
- N 3. Strong wholemeal flour affects the appearance of the **dough** this is bad **as** gives a darker/speckled look/less appealing look.

## Sugar

### **Positive**

- P 1. A little sugar is good for the **pizza base as** it would help the yeast ferment (to produce CO<sub>2</sub>) **therefore** help the dough rise effectively.
- P 2. A little sugar would be good for the **pizza base as** it would not over sweeten the base **therefore** ensuring the **pizza base** is appetizing/ more appealing flavour.
- P 3. Sugar would be good for the **pizza base as** it will help caramelise the dough **therefore** resulting in a golden brown **pizza base/** more appealing look.

## Sugar

### **Negative**

- N 1. Too much sugar would not be good for the **pizza base as** it would make the base too sweet **therefore** resulting in an unappetizing **pizza base/** less appealing flavour.
- N 2. Too much sugar would not be good for the **pizza base as** it would kill the yeast **therefore** the dough would not rise effectively.

## Salt

### **Positive**

- P 1. Salt is necessary **as** helps to improve the flavour of the final product **therefore** ensuring the **pizza base** is appetising.
- P 2. Salt strengthens gluten in the flour **which** would help the pizza base to rise **therefore** resulting in an acceptable shape of **pizza base**.

## Salt

### **Negative**

- N 1. If there is too little salt added, the **pizza base** dough will rise too quickly **resulting in a pizza base which** would be uneven in shape.
- N 2. Too much salt kills the yeast/dough which could produce a **pizza base which** has uneven texture/close texture/poor volume/poor shape/not risen well **therefore** the appearance would be unacceptable.
- N 3. Too much salt is **bad as** it would produce a **pizza base** which has a salty flavour **therefore** resulting in a pizza which would be unappetizing.

## Yeast

### **Positive**

- P 1. Yeast is necessary **as** it ferments the sugar **which** helps to ensure the **pizza base** will rise **therefore** resulting in an even shaped pizza.
- P 2. Yeast is necessary **as** it ferments the sugar **which** helps to ensure the **pizza base** will rise **therefore** resulting in a light textured pizza.

## Yeast

### **Negative**

- N 1. If the yeast is inactive/does not produce enough carbon dioxide gas, this will result in a **pizza base** that is small/dense **therefore** resulting in tough texture.
- N 2. If the yeast is killed before the loaf is baked this will result in a **pizza base** that has not risen well **therefore** resulting in a hard/ coarse in texture.

#### Question 4 (continued)

- (b) Using Hazard Analysis Critical Control Point (HACCP) explain one control measure for each of the following stages in the production of a pizza.
- (i) Purchase of ingredients.
  - (ii) Storage of ingredients.
  - (iii) Preparation of ingredients.
  - (iv) Packaging.

#### Marking Instructions:

4 x 1 mark for **each** correct explanation of a control measure linked to **each stage** in the production of a pizza.  
1 mark from each stage.

**Total – 4 marks (KU)**

#### (i) Purchase of ingredients

1. **Pizza ingredients** should be purchased from an approved/ reputable supplier who has high standards of food hygiene to ensure food safety.
2. High risk **pizza ingredients**/cheese/meats should be delivered refrigerated / below 5°C) to prevent bacterial growth.
3. It is essential to specify and check the delivery temperature of any high risk **pizza ingredients** to prevent bacterial growth.
4. Frozen **foods / ingredients** for use on the **pizza** should be delivered at -18°C to prevent bacterial growth.
5. Records of temperatures must be kept when **pizza ingredients** arrive to ensure ingredients do not have high levels of bacteria.
6. **Pizza ingredients** must have use by/best before date checked when they are purchased to prevent microbial growth/deterioration of ingredients.

#### (ii) Storage of ingredients

1. **Dry Pizza ingredients (strong flour, sugar, salt, yeast)** must be kept in cool dry store/in sealed containers to prevent moisture affecting the foods /causing microbial growth/weevils in flour.
2. All **pizza ingredients** must be stored off the floor to prevent contamination from dust/insects / chemicals / cleaning materials.
3. **High risk ingredients/cheese/meats used in pizza** should be stored below 5°C to prevent bacterial growth.
4. Raw and cooked **pizza ingredients** should be kept separate to prevent cross-contamination.
5. All **pizza ingredients** must be kept covered to prevent contamination from foreign bodies/ flies/air borne bacteria etc.
6. Stock control systems should be used to ensure that first in first out (FIFO) system applies with all **pizza ingredients**.
7. Storage areas must be cleaned regularly to prevent food debris contaminating area for storage of **pizza ingredients** which could attract pests.
8. Storage areas must have regular temperature control/hygiene checks to prevent microbial growth in **pizza ingredients**.
9. **Pizza ingredients** must be used by their shelf-life/date marks to prevent microbial growth /deterioration of ingredients.

#### Question 4 (continued)

10. All **pizza ingredients** must be stored in a temperature-controlled environment to prevent microbial growth.
11. All **pizza ingredients** should be stored away from chemicals to prevent the risk of cross-contamination.
12. Regular checks should be in place to inspect freshness /colour/ odour/ contamination /infestations/packaging/labelling of all **pizza ingredients** to prevent microbial growth/deterioration of ingredients.
13. All **pizza ingredient** storage areas should be well lit/ well ventilated away from heat/sun rays to prevent multiplication of bacteria due to warmth.
14. Checks should be in place to record the temperature of any fridge/freezers storing **pizza ingredients** twice per day to prevent microbial growth/deterioration of ingredients.
15. **Pizza ingredients** from cans that are open or part used cans should be emptied into another container and labelled/dated to prevent contamination from the oxidation of the metal.

#### (iii) Preparation of ingredients

1. Food handlers should follow strict hygiene guidelines/wear protective clothing/be trained in food safety to prevent contamination of **pizza ingredients**.
2. Equipment used in manufacture of **pizza** must be cleaned regularly to prevent the risk of contamination from micro-organisms.
3. Preparation areas for **pizza** should be subject to regular temperature-control/hygiene checks to prevent contamination from pests/micro-organisms.
4. Ingredients used for **pizza** must be checked to ensure no foreign bodies are present in the prepared foods as these could cause contamination.
5. Fruit/vegetables for pizza should be cleaned thoroughly to remove soil/foreign bodies/bacteria.
6. Preparation areas for **pizza** should have restricted access to prevent contamination.
7. Handling time of high risk **pizza ingredients** should be limited to prevent bacterial growth.
8. Food handlers making the **pizza** should report to manager if they become ill/are ill to prevent contamination of pizza.
9. Foods for the **pizza** that require thawing must be placed into a separate area and checked using digital thermometers to prevent bacterial growth.
10. The temperature of the **pizza** preparation area should be kept outside the danger zone to prevent bacterial growth.
11. **Pizza food** handlers should have the REHIS certificate of food hygiene to ensure there are high standards of hygiene at all times.
12. **Pizza food** handlers should be working with colour coded boards and knives etc to prevent cross contamination.

#### (iv) Packaging

1. **Pizza** should be packaged / sealed/covered securely to prevent physical / chemical / bacterial contamination.
2. Packaging for the **pizza** will have to withstand chilling/freezing without breaking up / deteriorating.
3. **Pizza** packaging should be checked for burst seams/holes to prevent contamination / retain quality.
4. Packaging should be robust to protect **pizza** when being transported to prevent contamination / retain sellable condition / quality.

#### Question 4 (continued)

(c) Explain **two** reasons why a food manufacturer would use sensory testing.

**Marking Instructions:**

2 x 1 mark for **each** correct reason which links to a food manufacturer

**Total – 2 marks (KU)**

1. When a **food manufacturer** is developing a new product they would use sensory testing to decide about its acceptability to consumers.
2. A **food manufacturer** could use sensory testing to compare a product they are developing against that of a competitor.
3. A **food manufacturer** could use sensory testing to investigate why one product is more popular than another.
4. Sensory testing can be used by **food manufacturers** to assess the shelf-life to see how the eating quality is affected by testing the product at various lengths of time after production.
5. A **food manufacturer** could use sensory testing to monitor prototypes, checking that the specifications/improvements have been met.
6. A **food manufacturer** could use sensory testing to find out if changes to existing products, (e.g. reducing salt content in line with current dietary advice) are noticeably affecting the eating quality.
7. Sensory testing can be used by **food manufacturers** to carry out quality control, ensuring a consistent standard across different batches of the product /compare against the original specification.
8. Sensory testing can be used by **food manufacturers** to reduce costs by trying to change the price of the product without affecting the taste.
9. A **food manufacturer** could use sensory testing to investigate why a food product has had a sudden drop in sales.

**Question 4 (continued)**

|  |   |
|--|---|
| (d)  | Identify and explain <b>three</b> methods of preserving food. |
| <p><b>Marking Instructions:</b><br/>           3 x 1 mark for identification of each method.<br/>           3 x 1 mark for each explanation linked to <b>preserving food/keeping food longer</b>.</p> <p>Method of preservation must be identified before mark is awarded for explanation. Where the method of preservation is incorporated in the explanation this can be credited.</p> <p style="text-align: right;"><b>Total – 6 Marks (KU)</b></p> |   |

| Method of preservation                                   | Explanation  |
|--|--|
| <b>1. Irradiation</b>                                    | 1. Foods are given small dose of radiation to reduce the bacteria which cause <b>food spoilage</b> .<br>2. Process is called “ionising radiation” The rays that pass through the food kill off harmful bacteria and extend the <b>shelf life</b> of the food.<br>3. The irradiation delays the ripening of fruit/vegetables, which slows down the natural decay process and increasing shelf life of the food. |
| <b>2. Chilling/cook-chill products</b>                   | 1. The process of chilling perishable foods at temperatures of between 1°C-8°C prevents the multiplication of bacteria which increases the <b>shelf life</b> of the food.<br>2. Chilled foods are refrigerated to retard/prevent growth of micro-organisms so preserving food.<br>3. Cook chill foods are cooked in the factory and chilled rapidly to below 3°C to remove heat/prevent growth of bacteria.    |
| <b>3. Freezing</b>                                       | 1. Freezing of fresh food is carried out rapidly to ensure small ice crystals form, giving better quality food.<br>2. Freezing at -18°C makes micro-organisms inactive, therefore increasing the shelf life of the product.  |
| <b>4. Freeze drying (accelerated freeze drying, ADF)</b> | 1. Food is dried under a vacuum at reduced pressure The removal of moisture prevents micro-organisms from multiplying, hence extending the shelf life of the food.   |
| <b>5. Modified Atmosphere Packaging (MAP)</b>            | 1. The air within the pack is changed so micro-organisms cannot multiply without the oxygen, hence the shelf life of product increases.<br>2. Bacterial growth/enzyme spoilage is retarded due to the reduction of the oxygen within the pack.<br>3. The package film used is waterproof and is a high gas barrier material, to improve storage and preserve the food longer.                                  |
| <b>6. Vacuum packaging</b>                               | 1. Air is removed under a vacuum from the food pack which slows the food spoilage rate.<br>2. When the air is removed it the food is then thoroughly sealed in anaerobic conditions which slows down the food spoilage rate.   |
| <b>7. Ultra high temperature</b>                         | 1. A sterilizing process/ food rapidly heated to high temperatures/ 140°C, held for a few seconds, which kills any bacteria present, increasing the shelf life.<br>2. Rapid cooling and packed into pre-sterilised containers with an air tight seal prevents further recontamination until opened.  |

**Question 4 (continued)**

| <b>Method of preservation</b>    | <b>Explanation</b>   |
|----------------------------------|--|
| <b>8. Salt (curing)</b>          | 1. Salt removes the available water from the food so that micro-organisms cannot multiply.   |
| <b>9. Dehydrating</b>            | 1. Water is removed from the food so preventing microbial growth which extends the shelf life of the food.   |
| <b>10. Canning/Bottling</b>      | 1. Fruits/vegetables/foods are heated to destroy any micro organisms.<br>2. Canned/bottled foods are sealed to prevent growth of aerobic micro organisms.  |
| <b>11. Sugar (jam making)</b>    | 1. Sugar is added to fruit/vegetables (then heated) which forms crystals and makes water unavailable to micro-organisms/ prevents growth.<br>2. The large quantity of sugar in jam does not allow micro-organisms to multiply.<br>3. Heat in boiling destroys micro-organisms so prevents growth.  |
| <b>12. pH (pickling/chutney)</b> | 1. Sugar is added to fruit then heated which forms crystals and makes water unavailable to micro organisms.<br>2. Acid is added/vinegar/lemon juice/pH is lowered (which makes water unavailable) so/micro organisms cannot survive in an acid pH/alkaline pH.<br>3. Boiling of fruit/vegetable mixture destroys micro organisms so preventing growth. |

#### Question 4 (continued)

(e) Evaluate **each** of the following foods to the consumer:

- (i) Organic Foods.
- (ii) Fair Trade Foods.

#### Marking Instructions:

4 x 1 mark for **each** valid point of evaluation linked to **organic or fair trade foods and the consumer**.

**Minimum of one mark from each area.**

**Total – 4 marks (EV)**

**Fact = fact relating to organic / fair trade foods.**

**Opinion = good/bad for consumer.**

**Consequence = impact on the consumer(linked to the fact).**

#### Organic Foods

##### **Positive**

- P 1. Organic produce may taste better / better flavour **this is good** for the **consumers** as they consider they are getting a better quality / more flavoursome product.
- P 2. Organic produce uses fewer fertilisers/chemicals **this is good** for the **consumer** as they may feel it is more beneficial to health / less likely to cause cancer.
- P 3. Organic produce uses fewer fertilisers /chemicals **this is good** for the **consumer** as they may feel it is more beneficial to health / less likely to cause allergies.
- P 4. Organic produce uses fewer fertilisers /chemicals **this is good** for the **consumer** as they may feel it is more beneficial to the environment.
- P 5. Organic produce is becoming more popular there is increased competition between retailers **this is good** for the **consumer** as means more competitive prices.
- P 6. Organic produce is becoming more popular so more products are being developed which is good **as** it means the **consumer will have a wider choice**.
- P 7. Organic foods may help to protect the environment this is good for the ethical **consumer** as they have more (environmentally friendly) products to choose from.
- P 8. Studies have shown that organic produce contains more nutrients than traditional produce **this is good** as they could be beneficial to the **consumers'** health.

## Question 4 (continued)

### Organic Foods

#### Negative

- N 1. Organic produce tends to be expensive to buy therefore bad for the low income **consumers** as they would increase food expenditure.
- N 2. Quality of organic produce may not be as good/uniform which **may** be bad for **consumers as** their appearance may be less attractive.
- N 3. Quality/freshness of organic produce may not be as good due to the absence of pesticides/preservatives this is bad as **consumers** may have to purchase them more regularly/waste food.
- N 4. Organic produce is not completely free from fertilisers/chemicals this is bad **as** some risk to **health of consumers** is still possible.
- N 5. The evidence as to the health benefits of organic produce are still not proven this is bad as **consumers** may be paying a high price for no valid reason.
- N 6. Regulation of organic produce may be difficult this is bad as it would be difficult to ensure that each product is 100% organic **which** may confuse/mislead the **consumer**.
- N 7. Some organic produce is transported and **so some consumers** may find this bad because of the carbon footprint concerns/environmental impact **so** will not purchase them.
- N 8. Limited range of organic foods may be bad for **consumers as** it will restrict their food choice.

### Fair Trade Foods

#### Positive

- P 1. **Fair Trade products** guarantees a decent income for the produce this is good **as** reassures ethical **consumers** they are helping support low income workers/developing countries.
- P 2. In some cases the quality of the food is higher in **fair trade products** which is good **because** the **consumer** may receive a better quality product.
- P 3. The **Fair Trade foods** are clearly marked so this is good **as consumers** can easily identify these products when shopping.
- P 4. There is an increasing range of **Fair Trade products** which is good **so consumers** now have a wider choice of produce.
- P 5. Most **Fair Trade products** generally do not cost more than other products which is good **as** the **consumer** is not out of pocket if they wish to choose Fair Trade.
- P 6. 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**).
- P 7. Fair Trade producers use environmentally friendly practices which is good so ethical **consumers** know they are helping support the environment.

### Fair Trade Foods

#### Negative

- N 1. Some **Fair Trade foods** are expensive to buy this is bad for the **consumer as** they will pay more for the food product.
- N 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/limit choice.
- N 3. Many **Fair Trade products** are transported countries and this is bad for the environmentally friendly **consumers** because of the carbon footprint concerns/air miles/environmental impact **so** will not purchase them.
- N 4. There is a limited range of **Fair Trade products** available this is not good **therefore** giving less choice for **consumers**.

|   |  |                 |          |                                       |
|---|--|-----------------|----------|---------------------------------------|
|   |  | <b>Context:</b> | <b>x</b> | <b>Health and Food Technology</b>     |
| <b>Higher Home Economics. Analysis of the 2012 Question Paper</b> |  |                 |          | <b>Fashion and Textile Technology</b> |
| <b>Section A</b>  |  |                 |          |                                       |

| <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> |               |
| 1               | Functions and resources of the nutrients. | 1           |   |             | 1                    |                   | 1             |
| 2               | Functions and sources of the nutrients.   | 1           |   |             | 1                    |                   | 1             |
| 3               | Causes of food poisoning.                 | 1           |   |             | 1                    |                   | 1             |
| 4               |   |             | Current statutory food labelling requirements.                      | 1           | 1                    |                   | 1             |
| 5               | Functional properties of foods.           | 1           |   |             | 1                    |                   | 1             |
| 6               |   |             | Influence of technological developments on consumer choice of food. | 1           | 1                    |                   | 1             |
| 7               | Functional properties of foods.           | 1           |   |             | 1                    |                   | 1             |
| <b>Totals</b>   |   | <b>5</b>    |   | <b>2</b>    | <b>7</b>             |                   | <b>7</b>      |

|   |          |                                       |
|---|----------|---------------------------------------|
| <b>Context:</b>   | <b>x</b> | <b>Health and Food Technology</b>     |
| <b>Higher Home Economics. Analysis of the 2012 Question Paper</b> |          | <b>Fashion and Textile Technology</b> |
| <b>Section A (continued)</b>                                      |          |                                       |

| Question               | Resource Management Unit      |      | Consumer Studies Unit  |      | Course Skills |            | Totals |
|------------------------|-------------------------------|------|--|------|---------------|------------|--------|
|                        | Course content                | Mark | Course content   | Mark | Knowledge     | Evaluation |        |
| 8                      |                               |      | Responsibilities of the Food Standards Agency (FSA).             | 1    | 1             |            | 1      |
| 9                      | Scottish Dietary targets.     | 2    |  |      | 2             |            | 2      |
| 10                     | Dietary needs of vegetarians. | 2    |  |      | 2             |            | 2      |
| 11                     |                               |      | Food politics.   | 2    | 2             |            | 2      |
| 12                     | Current dietary advice.       | 2    |  |      | 2             |            | 2      |
| 13                     |                               |      | Impact of technological developments on consumer choice of food. | 2    | 2             |            | 2      |
| 14                     | Market research.              | 2    |  |      |               | 2          | 2      |
| <b>Carried forward</b> |                               | 5    |  | 2    | 7             | 0          | 7      |
| <b>Totals</b>          |                               | 13   |  | 7    | 18            | 2          | 20     |

|   |  |                 |          |                                       |
|---|--|-----------------|----------|---------------------------------------|
|   |  | <b>Context:</b> | <b>x</b> | <b>Health and Food Technology</b>     |
| <b>Higher Home Economics. Analysis of the 2012 Question Paper</b> |  |                 |          | <b>Fashion and Textile Technology</b> |
| <b>Section B Question 1</b>                                       |  |                 |          |                                       |

| Question      | Resource Management Unit                                  |      | Consumer Studies Unit |      | Course Skills |            | Totals    |
|---------------|---|------|-----------------------|------|---------------|------------|-----------|
|               | Course content  | Mark | Course content        | Mark | Knowledge     | Evaluation |           |
| 1a            | Use of DRVs – 40 year old male.                           | 6    |                       |      |               | 6          | 6         |
| b             | Inter relationship of nutrients.                          | 3    |                       |      | 3             |            | 3         |
| c             | Effects of storage, preparation and cooking on vitamin C. | 3    |                       |      | 3             |            | 3         |
| d             | Current dietary advice.                                   | 4    |                       |      |               | 4          | 4         |
| e             | Prevention of dietary diseases.                           | 4    |                       |      | 4             |            | 4         |
| <b>Totals</b> |   | 20   |                       | 0    | 10            | 10         | <b>20</b> |

|   |  |                 |          |                                       |
|---|--|-----------------|----------|---------------------------------------|
|   |  | <b>Context:</b> | <b>x</b> | <b>Health and Food Technology</b>     |
| <b>Higher Home Economics. Analysis of the 2012 Question Paper</b> |  |                 |          | <b>Fashion and Textile Technology</b> |
| <b>Section B Question 2</b>                                       |  |                 |          |                                       |

| <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)              | Product development strategy.   | 4           |   |             | 4                    |                   | 4             |
| b)              | Sensory testing.                | 5           |   |             |                      | 5                 | 5             |
| c)              | Prevention of dietary diseases. | 6           |   |             | 6                    |                   | 6             |
| d)              |                                 |             | Technological developments influencing consumer choice of food. | 3           |                      | 3                 | 3             |
| e)              |                                 |             | Food Safety Act 1990.   | 2           | 2                    |                   | 2             |
| <b>Totals</b>   |                                 | 15          |   | 5           | 12                   | 8                 | <b>20</b>     |

## Section B Question 3

| Question      | Resource Management Unit                               |      | Consumer Studies Unit                        |      | Course Skills |            | Totals    |
|---------------|--|------|--|------|---------------|------------|-----------|
|               | Course content   | Mark | Course content                               | Mark | Knowledge     | Evaluation |           |
| a)            |  |      | Factors influencing consumer choice of food. | 6    | 6             |            | 6         |
| b)            | Contribution of food manufacturers to dietary targets. | 4    |  |      |               | 4          | 4         |
| c)            | Dietary needs of children.                             | 4    |  |      |               | 4          | 4         |
| d)            | Functional properties of food.                         | 6    |  |      | 6             |            | 6         |
| e)            |  |      | Food politics.                               | 4    |               | 4          | 4         |
| <b>Totals</b> |  | 12   |  | 8    | 12            | 8          | <b>20</b> |

|   |  |                 |          |                                       |
|---|--|-----------------|----------|---------------------------------------|
|   |  | <b>Context:</b> | <b>x</b> | <b>Health and Food Technology</b>     |
| <b>Higher Home Economics. Analysis of the 2012 Question Paper</b> |  |                 |          | <b>Fashion and Textile Technology</b> |
| <b>Question Paper Summary: Mark Allocation</b>                    |  |                 |          |                                       |

| <b>Question</b>     | <b>Unit title</b>          |                         | <b>Course Skills</b> |                      | <b>Totals</b> |
|---------------------|----------------------------|-------------------------|----------------------|----------------------|---------------|
|                     | <b>Resource Management</b> | <b>Consumer Studies</b> | <b>Knowledge</b>     | <b>Evaluation</b>    |               |
| Section A           | 13                         | 7                       | 18                   | 2                    | <b>20</b>     |
| Section B           |                            |                         |                      |                      |               |
| 1                   | 20                         |                         | 10                   | 10                   | <b>20</b>     |
| 2                   | 15                         | 5                       | 12                   | 8                    | <b>20</b>     |
| 3                   | 12                         | 8                       | 12                   | 8                    | <b>20</b>     |
| 4                   | 12                         | 8                       | 12                   | 8                    | <b>20</b>     |
| <b>Totals</b>       | <b>57-60</b>               | <b>20-23</b>            | <b>52</b>            | <b>28</b>            |               |
| <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]