# 2023 Health and Food Technology 

## Higher

## Finalised Marking Instructions

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## General marking principles for Higher Health and Food Technology

Always apply these general principles. Use them in conjunction with the detailed marking instructions, which identify the key features required in candidates' responses.
(a) Always use positive marking. This means candidates accumulate marks for the demonstration of relevant skills, knowledge and understanding; marks are not deducted for errors or omissions.
(b) If a candidate response does not seem to be covered by either the principles or detailed marking instructions, and you are uncertain how to assess it, you must seek guidance from your team leader.
(c) Award marks only where responses relate to the question asked. If candidates give points of knowledge without specifying the context, these should be awarded marks unless it is clear that they do not relate to the context of the question.

For explain questions candidates should make a number of points that relate to the cause and effect and/or make the relationship between things clear in the context of the question. They may provide a number of straightforward explanations or a smaller number of developed explanations, or a combination of these.

Up to the total mark allocation for this question:

- award 1 mark for each accurate relevant point of reason
- award a further mark for any accurate relevant point that is developed from the same reason.

Example question: Explain factors that could influence a teenager's choice of food.
Example answer: Teenagers tend to have a lower income therefore they are more likely to choose foods that are cheaper in price. ( 1 mark for explanation linked to budget) However, cheaper food products are often higher in sugar, fat or salt, so can cause problems such as tooth decay.
( 1 additional mark for developed explanation linked to the choice of cheaper foods)
For evaluate questions candidates should make a number of comments that make a judgement and determine the value of something based on the criteria provided in the question. They may provide a number of straightforward comments or a smaller number of developed comments, or a combination of these.

Up to the total mark allocation for this question:

- award 1 mark for each accurate, relevant evaluative comment linked to the context of the question
- award a further mark for any accurate, relevant evaluative comment that is developed from the same point of information.

Example question: Evaluate the impact of using organic ingredients in a café.
Example answer: Organic produce may have a shorter shelf life, which may be less beneficial as there may be more waste in the café ( 1 mark for evaluative comment) and if this happened regularly this could contribute to a loss of profits for the café. (1 additional mark for developed answer)

For analyse questions candidates should make a number of comments related to the context of the question. They should identify appropriate information from the given sources, the relationship between the identified information, and their significance when taken together.

Up to the total mark allocation for this question:

- award 1 mark for each explanation of the impact of one piece of information linked to the context of the question
- award a further mark for an explanation that is developed, to include the impact of a piece of information from a second source linked to the same identified piece of information

OR

- award 2 further marks for an explanation that is developed to include the impact of further information from two further sources linked to the same identified piece of information.

Example question: A 35-year-old man is training for a marathon. Analyse aspects of his diet in relation to the Dietary Reference Values for 19-50-year-old males.

Example answer: His energy intake is higher than he requires, this could help him when he is training. (1 mark for explanation of the impact of the nutrient intake linked to the DRV)
This will prevent him from getting tired. ( 1 mark for possible consequence of the nutrient intake on health) The wholemeal pasta will provide carbohydrates that will contribute to his energy intake.
(1 mark for conclusion about the contribution made by his lunch)

Marking instructions for each question

| Question |  | Expected response | Max mark | Additional guidance |
| :---: | :---: | :---: | :---: | :---: |
| 1. | (a) | Possible responses could include: <br> - sodium is needed in the diet to regulate water balance. This is good as it prevents us from becoming dehydrated <br> - sodium is required by the cell walls so that nutrients can flow into body cells. This is good as it allows waste products to flow out ( 1 mark for evaluative comment). Therefore, preventing constipation (additional mark for developed answer) <br> - sodium is required for correct muscle/nerve activity. This is bad as if not enough sodium is consumed it can result in muscle cramps <br> - sodium in the diet can lead to hypertension. This is bad as it may eventually lead to stroke/coronary heart disease <br> - sodium can cause damage/thickening of artery walls. This is bad as it will lead to coronary heart disease <br> - the current dietary advice for salt is to reduce intake to 6grams per day. This is good as it can help consumers to reduce their risk of strokes/coronary heart disease <br> - sodium can take away calcium from your bones this is unsuitable because this will result in weak bones ( 1 mark for evaluative comment) which can lead to osteoporosis in later life. (additional mark for developed answer) <br> Or any other valid response. | 3 | Candidates should make a number of evaluative comments related to the contribution of sodium in the diet. <br> Award marks for each response that: <br> - shows a clear understanding of the contribution of sodium in the diet <br> - includes a judgement on the contribution made by sodium in the diet <br> - comments on the impact of including sodium in the diet. <br> Candidates may provide a number of straightforward evaluations or a smaller number of developed evaluations, or a combination of these: <br> - award 1 mark for each relevant evaluation <br> - award a further mark for any evaluation that is developed <br> - a maximum of 2 marks may be awarded for developed evaluations linked to the same identified aspect of the contribution of sodium in the diet. <br> (up to a maximum of 3 marks) |


| Questi | Expected response | Max mark | Additional guidance |
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| (b) | Possible responses could include: <br> - high sugar foods require insulin to break these down so may lead to an increased risk of type 2 diabetes <br> - a high intake of sugar causes spikes in blood sugar levels which over time reduces the body's ability to produce insulin so increasing the risk of type 2 diabetes <br> - a lack of fibre makes maintaining lower blood sugar levels difficult so increases the risk of type 2 diabetes <br> - a high intake of fat/energy leads to weight gain therefore causing insulin resistance/more insulin being required so increasing the risk of type 2 diabetes. <br> Or any other valid response. | 2 | Candidates should make two points that make the issue plain or clear for example by showing connections between the factor given and the contribution to type 2 diabetes. <br> Up to the mark allocation for this question. <br> - award 1 mark for each accurate and relevant explanation. <br> (up to a maximum of 2 marks) |


| Quest | Expected response | Max mark | Additional guidance |
| :---: | :---: | :---: | :---: |
| (c) | Possible responses could include: <br> Aspect of the diet: Energy <br> - the energy intake is low for the girl, this could lead to the girl not having enough energy for activities at playgroup (1 mark for explanation of the impact of her energy intake linked to the DRV) <br> - if this was to continue, this could lead to weight loss for the girl/result in the girl being tired after taking part in activities at playgroup (1 mark for possible consequence of her energy intake on her health) <br> - the carbohydrate in the noodles is contributing to her energy intake. (1 mark for conclusion about the contribution made by the lunch) <br> Aspect of the diet: Vitamin A <br> - the vitamin A intake is low for the girl; this could reduce growth of cells within the body ( 1 mark for explanation of the impact of her vitamin A intake linked to the DRV) <br> - this could lead to the girl's growth being stunted during a time of rapid body development, which will may have an impact later on in the girls life ( 1 mark for possible consequence of her vitamin A intake on her health) <br> - the carrot sticks contribute to the girls' intake of vitamin A (1 mark for conclusion about the contribution made by the lunch) <br> Aspect of the diet: Calcium <br> - the calcium intake is higher than the 3 -year-old girl requires. This will help with the development of healthy bones and teeth as she is growing ( 1 mark for explanation of the impact of her calcium intake linked to the DRV) <br> - this intake means her bones and teeth will be stronger and she is at less risk of osteoporosis in later life ( 1 mark for possible consequence of her calcium intake on her health) | 9 | Candidates should make a number of comments related to the 3 -year-old female toddler. <br> Candidates should identify appropriate information from table 1, table 2 and the meal, the relationship between this information and their significance when taken together. <br> For each of three identified aspects of the girl's diet in relation to the DRVs: <br> - 1 mark is available for explaining the impact of different aspects of the girl's diet in relation to the DRVs <br> - 1 mark is available for explaining the possible consequences for the girl's health <br> - 1 mark available for reaching a conclusion about the contribution made by the lunch to the girl's diet. <br> (up to a maximum of 9 marks) |


| Question | Expected response | Max mark | Additional guidance |
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|  | - the milk in the strawberry milk will help to contribute to her good calcium intake. (1 mark for conclusion about the contribution made by the lunch) <br> Aspect of the diet: Protein <br> - the protein intake is high for the 3 -year-old girl. This will benefit the girl with the growth of body cells/tissues (1 mark for explanation of the impact of her protein intake linked to the DRV) <br> - this higher intake means that if she injures herself playing at nursery she will grow and develop normally as she is actively growing (1 mark for possible consequence of her protein intake on her health) <br> - the chicken in the chicken noodle soup will contribute to her high protein intake (1 mark for conclusion about the contribution made by the lunch) <br> - the protein intake is high for 3-year-old girl. The protein could provide a secondary source of energy since energy levels are low ( 1 mark for explanation of the impact of her protein intake linked to the DRV) <br> - as additional protein can be used for energy this will reduce chances of weight loss, therefore, the girl will have enough energy to participate within activities at playgroup (1 mark for possible consequence of her protein intake on her health) <br> - the milk in the strawberry milk will contribute to her high protein intake. (1 mark for conclusion about the contribution made by the lunch) <br> Aspect of the diet: Vitamin C <br> - the vitamin C intake is too low for the girl. The vitamin C could be used to absorb iron. As the intake is low, the iron in the diet may not be absorbed (1 mark for explanation of the impact of her vitamin C intake linked to the DRV) |  |  |


| Question |  | Expected response | Max <br> mark | Additional guidance |
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| Q | this low intake could increase the risk of the girl becoming <br> anaemic, meaning the girl may feel lethargic, therefore she may <br> tired during the day to day activities involved at nursery (1 mark <br> for possible consequence of her vitamin C intake on her <br> health) <br> the pepper sticks contribute to her vitamin C intake. (1 mark <br> for conclusion about the contribution made by the lunch) <br> Or any other valid response. |  |  |  |


| Questi | Expected response | Max mark | Additional guidance |
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| (d) | Possible responses could include: <br> Crunchiness 4 (High): <br> - the soup has been rated $4 /$ high for crunchiness; this suggests that there may be crunchy/undercooked pieces of vegetables in the soup. This would not be suitable for toddlers, as they may prefer smoother textures therefore, they may not be encouraged to try the soup. <br> Aroma 2 (Low): <br> - the soup been rated 2 /low for aroma, this suggests that there is not much smell to the product. This is bad as toddlers would be attracted to sweet/spicy smells so may not be tempted to try this product if there is little aroma to it (1 mark for evaluative comment) increasing the risk of waste. (1 mark for developed response). <br> Thickness 2 (Low): <br> - the soup has been rated 2 /low rating of thickness, this suggests that the soup is thin. This would be unsuitable for toddlers as the soup may be too runny therefore slipping off the spoon making it hard for the toddler to self-feed. <br> Spiciness 4 (High): <br> - the soup has been rated $4 /$ high for spiciness, this suggests that chillies/spices have been used within the soup as seasoning. This would not be suitable as the toddler may not like spicy food, therefore they may not enjoy the flavour. <br> Colour 1 (Very low): <br> - the soup has been rated a 1 /very low rating for colour, this suggests that there are no food colourings added which will be good for toddlers as it will reduce the risk of allergic reactions to the additives (1-mark evaluative comment) therefore increasing choice in their diet (1 mark developed response). <br> - the soup has been rated a 1 /very low for colour, this suggests that colourful vegetables have not been added which will not appeal to toddlers so they may not eat it. <br> Or any other valid response. | 4 | Candidates should make a number of evaluative comments on the suitability of the chicken noodle soup for toddlers. <br> Award marks for each response that: <br> - shows a clear understanding of the rating relating to the chicken noodle soup <br> - includes an appropriate judgement on the suitability of the chicken noodle soup for toddlers <br> - comments on the impact of appeal to toddlers. <br> Candidates may provide a number of straightforward evaluations or a smaller number of developed evaluations, or a combination of these. <br> - award 1 mark for each relevant evaluation <br> - award a further mark for any evaluation that is developed <br> - award a maximum of 2 marks for developed evaluations linked to the same attribute. <br> (up to a maximum of 4 marks) |



| Question |  | Expected response | Max mark | Additional guidance |
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| 2. | (a) | Possible responses could include: <br> Spicy mince wrap: <br> - the mince from the spicy mince wrap will contain red meat. This would not be good for adults to meet the current dietary advice of consuming no more than $70 \mathrm{~g} / 90 \mathrm{~g}$ of red meat/processed met per day <br> - the mince from the spicy mince wrap could contain a meat alternative/Quorn/plant-based meat. This would be good for adults to meet the current dietary advice of consuming no more than $70 \mathrm{~g} / 90 \mathrm{~g}$ of red meat/processed met per day <br> - the spice for the spicy mince wrap suggests that seasoning such as spices was used. This would be good for adults to meet the current dietary advice of reducing salt intake to 6 g . <br> Brown rice: <br> - the brown rice will contain fibre, this is good as it will help the adult to meet the current dietary advice of increasing fibre for adults (16+) to 30 g per day <br> - the brown rice is low in saturated fat, this is good as it will help the adult to meet the current dietary advice of reducing saturated fat intake to no more than $11 \%$ of food energy. <br> Fruit smoothie: <br> - the fruit smoothie will contain a portion of fruit. This is good for the adult to help meet the current dietary advice of increasing fruit and vegetable intake to at least 400 g per day/at least five portions per day <br> - the fruit smoothie may contain added sugar. This is not good for the adult to help meet the current dietary advice of making sure that their intake of free sugars does not exceed $5 \%$ of total energy. <br> Or any other valid response. | 5 | Candidates should make a number of evaluative comments related to the adult and the suitability of the meal in relation to five different pieces of current dietary advice. <br> Award marks for any response that: <br> - shows a clear understanding of the ingredients in relation to current dietary advice <br> - includes an appropriate judgement on the suitability of the meal for adults <br> - comments on the suitability of the meal for meeting the current dietary advice <br> - award 1 mark for each relevant evaluation linked to 5 different pieces of dietary advice. <br> (up to a maximum of 5 marks) |


| Question |  | Expected response | Max <br> mark | Additional guidance |
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| Question |  | Expected response | Max mark | Additional guidance |
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| 3. | (a) | Possible responses could include: <br> Concept generation: <br> - during concept generation, the food manufacturer could have researched the market more thoroughly to ensure they have found a gap in the market before developing the chicken fried rice. <br> Product testing: <br> - the manufacturer could have acted upon the opinions obtained during product testing; therefore, final amendments would have ensured the chicken fried rice product was successful. <br> First production run: <br> - the manufacturer should have taken more time to ensure that the quality/uniformity of the food product was suitable for sale and made changes, to ensure the chicken fried rice product was successful at launch. <br> Product launch: <br> - the manufacturer could have used different promotional techniques to reach the correct target market, therefore, encouraging more sales and improving the chicken fried rice to make it a success. <br> Or any other valid response. | 4 | Candidates should make a number of points that make the issue plain or clear, for example by showing connections between the chicken fried rice product development stage and the way it can be improved by the manufacturer. <br> - award 1 mark for one correct explanation related to each stage. <br> (up to a maximum of 4 marks) |


| Question |  | Expected response | Max <br> mark | Additional guidance |
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| Question |  | Expected response | Max mark | Additional guidance |
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| (c) | (c) | Possible responses could include: <br> Ultra heat-treated products: <br> - ultra heat-treated products do not need to be stored in a fridge. This is good for the consumer as it means the products are more convenient for consumers who may not have a lot of fridge storage space <br> - ultra heat-treated products have a longer shelf-life. This is good for the consumer as it means consumers do not need to constantly go to the shops ( 1 mark evaluative comment) therefore saving them time from repeated shop visits (1 mark developed response) <br> - ultra heat-treated products can be cheap. This is good as it means consumers who are on a budget will still be able to purchase the products (1 mark evaluative comment) therefore being able to save their money and spend it on other products (1 mark developed response). <br> Modified atmosphere packaging: <br> - modified atmosphere packaging uses a lot of plastic packaging. This is bad for the consumer as it means consumers may not want to buy modified atmosphere packaging as it may be an environmental concern for the consumer <br> - modified atmosphere packaging allows products to be easily seen through before purchasing. This is good for the consumer as it means the consumer will not be wasting their money on the product they do not like the appearance of (1 mark evaluative comment) therefore, preventing food waste (1 mark developed response) <br> - modified atmosphere packaging production can be costly. This is bad for consumers as it means the end product selling price will be increase ( 1 mark evaluative comment) so for consumers who are on a budget may not be able to access modified atmosphere packaging food products therefore limiting choice (1 mark developed response). <br> Or any other valid response. | 4 | Candidates should be able to make several evaluative points related to each of the technological developments in relation to a consumer. <br> Award marks for any response that: <br> - shows a clear understanding of the technological development <br> - includes an appropriate judgement on the suitability for the consumer <br> - comments on the impact on the consumer. <br> Up to the mark allocation for this question: <br> - 1 mark should be awarded for each relevant evaluation- minimum one evaluative comment per technological development <br> - a further mark should be awarded for any evaluation that is developed <br> - a maximum of 3 marks may be awarded for evaluations linked to any one technological development. <br> (up to a maximum of 4 marks) |


| Question |  | Expected response | Max mark | Additional guidance |
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| 4. | (a) | Possible responses could include: <br> Lack of vitamin C: <br> - if vitamin $C$ is lacking in the diet, the iron in food will not be absorbed therefore causing greater risk of anaemia. <br> - if vitamin $C$ is lacking in the diet iron will not be able to be converted from its ferric state to ferrous state the unavailable to the body <br> Fibre: <br> - too much fibre can bind with iron and therefore not allow it to be absorbed into the bloodstream/removes iron from the body. <br> Phytic acid: <br> - phytates form insoluble complexes with iron in the small intestine, therefore, inhibiting iron absorption <br> - phytic acid in wholegrain cereals binds with iron therefore preventing iron absorption. <br> Or any other valid response. | 2 | Candidates should make a number of points that make the issue plain or clear, for example by showing connections between the factor identified and how it hinders the absorption of iron. <br> Up to the mark allocation for this question: <br> - 1 mark should be given for each accurate relevant explanation. <br> (up to a maximum of 2 marks) |


| Questi | Expected response | Max mark | Additional guidance |
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| (b) | Possible responses could include: <br> - Fair Trade products guarantees a decent income for the workers who produce the products. This is good for the restaurant as it may appeal to ethically minded consumers therefore increasing sales and profit for restaurant <br> - Fair Trade products helps to support low-income workers/developing countries. This is good as consumers will feel happy as they are contributing to the workers' wages therefore increasing sales and profit for restaurant <br> - there is an increasing range of Fair Trade products. This is good for the restaurant so the customers who are eating there will have a wider choice of produce to choose from <br> - Fair Trade products may be transported from far-off countries. This is bad for the restaurant as some consumers may have concerns around the impact on the environment ( 1 mark evaluative comment) therefore, decreasing sales/profit for the restaurant. (additional mark for developed response) <br> - Fair Trade products may be more expensive. This will be less beneficial as costs would increase for the consumer and may put people off going to the restaurant therefore decreasing sales/profit for the restaurant. <br> Or any other valid response. | 3 | Candidates should make a number of evaluative comments related to the impact of using Fair Trade ingredients in a restaurant/consumer. <br> Award marks for any response that: <br> - shows a clear understanding of using Fair Trade ingredients/produce <br> - includes a judgement on the suitability <br> - comments on the impact of the needs for the restaurant/consumer. <br> Candidates may provide a number of straightforward evaluations or a smaller number of developed evaluations, or a combination of these. <br> Up to the mark allocation for this question: <br> - 1 mark should be awarded for each relevant evaluation <br> - a further mark should be awarded for any evaluation that is developed <br> - a maximum of 2 marks can be awarded for developed evaluations linked to the same identified aspect of using Fair Trade in a restaurant. <br> (up to a maximum of 3 marks) |


| Question |  | Expected response | Max <br> mark | Additional guidance |
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| Question |  | Expected response | Max <br> mark | Additional guidance |
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| Question |  | Expected response | Max <br> mark | Additional guidance |
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|  |  | Colourings: <br> elourings can be added to the baked goods which would be <br> colous <br> good as they could make them look attractive and encourage <br> consumers to try them <br> some people are sensitive to some colourings so adding <br> colourings to baked goods makes them unsuitable for groups <br> such as children. (1 mark for evaluative comment) This would <br> reduce choice for children. (additional mark for developed <br> answer). <br> Or any other valid response. |  |  |

