



T Level Technical Qualification in Science

Occupational specialism assessment (OSA)

Food Sciences

Assignment 4

Mark scheme

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Task 1: collect, analyse and interpret food production data

Band	Mark	Descriptor
4	10–12	<p>The student has:</p> <ul style="list-style-type: none"> extrapolated and interpreted relevant trends using industry standard mathematical processes to justify conclusions presented data clearly and logically using images and other tools (for example, graphs) as appropriate, using technically accurate language supported answers with information that is relevant, specific, and precise
3	7–9	<p>The student has:</p> <ul style="list-style-type: none"> explained relevant trends, giving reasons for them, supported by appropriate mathematical processes presented data clearly with the use of some technically accurate language
2	4–6	<p>The student has:</p> <ul style="list-style-type: none"> identified trends supported by use of some mathematical processes presented the main points of the data clearly
1	1–3	<p>The student has:</p> <ul style="list-style-type: none"> listed some trends that can be identified in the presentation used every day (rather than technical) language
0	0	No creditworthy material as described in bands 4 to 1.

Indicative content:

- the areas which can be represented in graphs, for example, for each area analysed are:
 - cost of recipes – bourbon and/or custard cream recipes
 - processing – trends in measurements over time
 - productivity – sale of each variant x rate of production, money made from 2 weeks of production
 - quality –taste panel data

Criteria	Marks awarded
Identify out of tolerance results	<p>1 mark: correctly identified 2 out of tolerance results that breach the critical limit (hazard analysis and critical control points (HACCP) principles)</p> <p>2 marks: correctly identified 3 or 4 out of tolerance results that breach the critical limit (HACCP principles)</p> <p>3 marks: correctly identified 5 or 6 out of tolerance results that breach the critical limit (HACCP principles)</p> <p>4 marks: correctly identified 7 or 8 out of tolerance results that breach the critical limit (HACCP principles)</p> <p>Please note, each set of taste panel results only counts as 1 for example, 3 for start, middle and end only counts as 1 out of tolerance result.</p> <p>(maximum 4 marks)</p>
Identify corrective actions for out of tolerance results	<p>1 mark: identified relevant and appropriate corrective action for 1 or 2 out of tolerance results that breach the critical limit (HACCP principles)</p> <p>2 marks: identified relevant and appropriate corrective action for 3 or 4 out of tolerance results that breach the critical limit (HACCP principles)</p> <p>3 marks: identified relevant and appropriate corrective action for 5 or 6 out of tolerance results that breach the critical limit (HACCP principles)</p> <p>4 marks: identified relevant and appropriate corrective action for 7 or more out of tolerance results that breach the critical limit (HACCP principles)</p> <p>(maximum 4 marks)</p>
Identify errors or omissions for further investigation	<p>1 mark: correctly identified 1 area in the data for further investigation</p> <p>2 marks: correctly identified 2 areas in the data for further investigation</p> <p>3 marks: correctly identified 3 areas in the data for further investigation</p> <p>4 marks: correctly identified 4 areas in the data for further investigation</p> <p>(maximum 4 marks)</p>
Total marks	12 marks

Content mapping:

K4.1: Where to collect food production data from in relation to:

- food safety
- food quality
- customer requirements

K4.2: How to interpret and analyse food production data

K4.3: How different applications, including spreadsheets, databases and data loggers, can be used to support the interpretation and analysis of food production data

S4.6: Create a spreadsheet to track production trends

S4.7: Input management data to track production trends, demonstrating digital critical literacy by ensuring confidentiality processes are followed to ensure safety, security and privacy (for example, when using screens to input data)

S4.8: Systematically organise data in order to track production trends

S4.9: Critically interpret the data, considering process and scale, and any out of tolerance results that breach the critical limit

Task 2: continuous improvement opportunities

Criteria	Marks awarded
Describe continuous improvement opportunities	<p>2 marks for each relevant description of continuous improvement opportunities. (maximum 6 marks)</p> <p>Guidance: Award 1 mark only for each identified continuous improvement opportunity that does not fully describe the continuous improvement opportunity (for example, product yields could be increased may warrant 1 mark, and product yields could be increased if the efficiency of process X was improved may be 2 marks).</p>
Total marks	6 marks

Indicative content

Continuous improvement opportunities could include:

- Simplify similar recipes (productivity and cost saving)
- Get a better enrober (productivity)
- Premium recipes – reduce number of runs as they are not worth it – lower profit (cost saving)
- Schedule trained/permanent staff to be able to work on weekends therefore rely less on agency staff - issues with quality and run speed and picking up issues with product (productivity)
- Charge more for premium products (increase profit)
- Better stock management – custard cream flavour (productivity)
- Using too much cream – a very expensive part of the product (cost saving)
- Would be good to have an automated system to measure length and width – more measurements would be done per hour and no issues with shift change or breaks (technological)

Band	Mark	Descriptor
4	10–12	The student has produced a valid and comprehensive assessment of technological solutions to reduce errors in data collection. The student systematically and comprehensively compared their advantages and disadvantages, and determined a hierarchy of possible solutions with justification, making realistic recommendations.
3	7–9	The student has produced a credible assessment of technological solutions to reduce errors in data collection. The student described their advantages and disadvantages, and explained the reasons for possible solutions, making realistic recommendations.

Band	Mark	Descriptor
2	4–6	The student has described a technological solution that might reduce errors in data collection. The student identified an advantage and disadvantage, including a recommendation for improvement.
1	1–3	The student has listed a technological solution to reduce errors in data collection. The student made general statements/assertions (rather than occupational knowledge in context) about advantages, disadvantages, and ways of making improvements.
0	0	No creditworthy material as described in bands 4 to 1.

Indicative content

- example solutions
 - data loggers
 - check weighers
 - handheld devices
 - resource planning tools
- example advantages
 - more efficient
 - time saving
 - bespoke
 - secure
 - space saving
 - environmentally sound
 - live and accessible data
- example disadvantages
 - cost
 - user error
 - power could go down
 - resistance to change
 - training
 - less robust (than pen and paper)
 - system interruptions

Content mapping:

K4.4: Why electronic resources planning systems (management information system) are used within the food and drink industry

K4.5: How trends in food production data can be used for continuous improvement within the food and drinks industry

Performance outcome grid

Task	PO1	PO2	PO3	PO4	Total
1	0	0	0	24	24
2	0	0	0	18	18
Total marks	0	0	0	42	42
% Weighting	0%	0%	0%	100%	100%

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