

Please read the instructions printed at the end of this form. **One** of these sheets, suitably completed, should be attached to the assessed work of **each** candidate.

Unit Title	The science of production				Unit Code	R078	Session	Jan/June/Nov	Year				
Centre Name							Centre Number						
Candidate Name							Candidate Number						
Criteria							Teacher Comments		Mark	Page No			
LO1: Understand how to produce bulk chemicals by neutralisation													
MB1: 1 – 5 marks		MB2: 6 – 10 marks		MB3: 11 – 15 marks									
<ul style="list-style-type: none"> • Lists commercially important chemicals that can be produced by neutralisation • Basic knowledge of neutralisation including a statement describing the process <p style="text-align: right;">[1 2 3 4 5]</p>		<ul style="list-style-type: none"> • Lists and describes some uses of commercially important chemicals that can be produced by neutralisation • Detailed knowledge of how soluble salts can be made by neutralisation, including use of a word equation <p style="text-align: right;">[6 7 8 9 10]</p>		<ul style="list-style-type: none"> • Lists and describes some uses of commercially important chemicals that can be produced by neutralisation; explains why these chemicals are important • Thorough knowledge of how soluble salts can be made by neutralisation including correct and appropriate use of balanced symbol equations and chemical nomenclature <p style="text-align: right;">[11 12 13 14 15]</p>									
LO2: Be able to produce a bulk chemical by neutralisation and determine its yield													
MB1: 1 – 5 marks		MB2: 6 – 10 marks		MB3: 11 – 15 marks									
<ul style="list-style-type: none"> • When provided with method and equipment, some support needed to set up equipment in order to produce a bulk chemical by neutralisation • Some data collected and recorded on yield and quality of product <p style="text-align: right;">[1 2 3 4 5]</p>		<ul style="list-style-type: none"> • Independent selection of equipment to carry out production of a bulk chemical by neutralisation; little support needed to set up equipment correctly • Measurements on yield and quality of product, recorded using an appropriate format <p style="text-align: right;">[6 7 8 9 10]</p>		<ul style="list-style-type: none"> • Independent selection of equipment to carry out production of a bulk chemical by neutralisation; equipment set up correctly • Measurements taken and recorded to appropriate accuracy and precision using an appropriate format, including use of correct units <p style="text-align: right;">[11 12 13 14 15]</p>									

Criteria			Teacher Comments	Mark	Page No
LO3: Understand the factors that affect the growth of plants for commercial production					
MB1: 1 – 5 marks	MB2: 6 – 10 marks	MB3: 11 – 15 marks			
<ul style="list-style-type: none"> • Lists factors that affect plant growth • Basic understanding of how the factors affecting plant growth can be altered to optimise growth <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> • List the factors that affect plant growth and provides a limited description of the how they affect plant growth • Detailed understanding of how the factors affecting plant growth can be altered to optimise growth <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> • List the factors that affect plant growth and provides a detailed description of how they affect plant growth • Thorough understanding of how the factors affecting plant growth can be altered to optimise growth <p style="text-align: right;">[11 12 13 14 15]</p>			
LO4: Be able to monitor the growth of a plant grown for commercial production					
MB1: 1 – 5 marks	MB2: 6 – 10 marks	MB3: 11 – 15 marks			
<ul style="list-style-type: none"> • When provided with method and equipment, some support needed to set up equipment in order to monitor the growth of a plant grown for commercial production • Some measurements taken and recorded <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> • Independent selection of equipment to monitor the growth of a plant grown for commercial production; little support needed to set up equipment correctly • Measurements taken and recorded using an appropriate format <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> • Independent selection of equipment to monitor the growth of a plant grown for commercial production; equipment set up correctly • Measurements taken and recorded to appropriate accuracy and precision using an appropriate format, including use of correct units <p style="text-align: right;">[11 12 13 14 15]</p>			
LO5: Understand how products are made by microorganisms					
MB1: 1 – 5 marks	MB2: 6 – 10 marks	MB3: 11 – 15 marks			
<ul style="list-style-type: none"> • Lists useful products produced by microorganisms • Lists the conditions required to produce useful products made by microorganisms • Basic understanding of why conditions affect the product production of microorganisms <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> • Lists useful products produced by microorganisms and provides a limited description of how these products are made • Limited description of the conditions required to produce a range of useful products by microorganisms • Detailed understanding of why conditions affect production by microorganisms <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> • Lists useful products produced by microorganisms and provides a detailed description of how these products are made • Detailed description of the conditions required to produce a wide range of useful products by microorganisms • Thorough understanding of why conditions affect production by microorganisms <p style="text-align: right;">[11 12 13 14 15]</p>			

Criteria			Teacher Comments	Mark	Page No
LO6: Be able to determine the optimum conditions for production of a product by a microorganism					
MB1: 1 – 5 marks	MB2: 6 – 10 marks	MB3: 11 – 15 marks			
<ul style="list-style-type: none"> When provided with method and equipment, some support needed to set up equipment in choosing the conditions and to monitor product production Some measurements taken and recorded <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> Independent selection of equipment to monitor product production; little support needed to set up equipment correctly Measurements taken and recorded using an appropriate format <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> Independent selection of equipment and conditions when monitoring product production; equipment set up correctly Measurements taken and recorded to appropriate accuracy and precision using an appropriate format, including use of correct units <p style="text-align: right;">[11 12 13 14 15]</p>			
LO7: Describe the purpose and structure of an organisation related to an organisation that produces products					
MB1: 1 – 5 marks	MB2: 6 – 10 marks	MB3: 11 – 15 marks			
<ul style="list-style-type: none"> Basic description of the purpose and structure of an organisation related to an organisation that produces products Information provided is limited. Tutor guidance may be required to find and select appropriate information <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> Detailed description of the purpose and structure of an organisation related to an organisation that produces products Information provided is detailed. Minimal tutor guidance is required to find and select appropriate information <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> Thorough description of the purpose and structure of an organisation related to an organisation that produces products Information provided is comprehensive. Research is carried out independently <p style="text-align: right;">[11 12 13 14 15]</p>			
LO8: Be able to research career options within an organisation that produces products					
MB1: 1 – 5 marks	MB2: 6 – 10 marks	MB3: 11 – 15 marks			
<ul style="list-style-type: none"> Lists sources of information on career areas within an organisation that works in the production sector Basic information on career areas within an organisation that works in the production sector Basic information about opportunities for career areas within an organisation that works in the production sector <p style="text-align: right;">[1 2 3 4 5]</p>	<ul style="list-style-type: none"> Information provided is detailed. Minimal tutor guidance is required to find and select appropriate information on career areas within an organisation that works in the production sector Detailed information on career areas within an organisation that works in the production sector Detailed information about opportunities for career areas within an organisation that works in the production sector <p style="text-align: right;">[6 7 8 9 10]</p>	<ul style="list-style-type: none"> Information provided is comprehensive. Research is carried out independently on career areas within an organisation that works in the production sector Thorough information on career areas within an organisation that works in the production sector Thorough information about opportunities for career areas within an organisation that works in the production sector <p style="text-align: right;">[11 12 13 14 15]</p>			
Total/120					

If this is a re-sit, please tick		Session and Year of previous submission	Jan / June / Nov	2	0		Please tick to indicate this work has been standardised internally	
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Please note: This form may be updated on an annual basis. The current version of this form will be available on the OCR website (www.ocr.org.uk).

Guidance on Completion of this Form

- 1 **One** sheet should be used for each candidate.
- 2 Please ensure that the appropriate boxes at the top of the form are completed.
- 3 Please enter *specific* page numbers where evidence can be found in the portfolio, and where possible, indicate to which part of the text in the mark band the evidence relates.
- 4 Circle the mark awarded for each strand of the marking criteria in the appropriate box and also enter the circled mark in the final column.
- 5 Add the marks for the strands together to give a total out of 120. Enter this total in the relevant box.