UNIT 3: PRACTICAL ASSESSMENT

INVESTIGATING THE SUGAR CONTENT OF BISCUITS

MARK SCHEME

GENERAL INSTRUCTIONS

Recording of marks

Examiners must mark in red ink.

One tick must equate to one mark (apart from the questions where a level of response mark scheme is applied).

Question totals should be written in the box at the end of the question.

Question totals should be entered onto the grid on the front cover and these should be added to give the script total for each candidate.

Marking rules

All work should be seen to have been marked.

Marking schemes will indicate when explicit working is deemed to be a necessary part of a correct answer.

Crossed out responses not replaced should be marked.

Credit will be given for correct and relevant alternative responses which are not recorded in the mark scheme.

Marking abbreviations

The following may be used in marking schemes or in the marking of scripts to indicate reasons for the marks awarded.

cao = correct answer only
ecf = error carried forward
bod = benefit of doubt

SECTION A

Question				Marking details	Marks Available					
					AO1	**AO2**	**AO3**	**Total**	**Maths**	**Prac**
1	(a)			Benedict's risk: sensible risk e.g. chemical splashing into eyes, risk of spitting if heat tubes directly **and** Benedict's control measure: wear goggles, heat tubes indirectly/using a water bath (1) Boiling water risk: sensible risk e.g. can cause burns to skin/eyes when carrying the beaker/water bath **and** Boiling water control measure: wear goggles, avoid spillages, care when handling (1)	2			2		2
	(b)			Ordered layout into columns (1) Suitable column headings (1) Appropriate units (1) Correct calculation of mean scores from two repeat sets of results (1)	1 1	1 1		4	1	4
				Section A total	**4**	**2**	**0**	**6**	**1**	**6**

SECTION B

Question			Marking details	Marks Available					
				AO1	**AO2**	**AO3**	**Total**	**Maths**	**Prac**
2	(a)	(i)	The type of biscuit (1)	1			1		1
		(ii)	The time taken for the (Benedict's reagent) colour change (1)	1			1		1
		(iii)	**Any 2 (x1) from:** • Control variable - mass of biscuit • Explanation - used a balance to weigh to 2 • Control variable - volume of cold/tap water • Explanation - used a measuring cylinder/ syringe to measure to 5 cm^3 • Control variable - volume of Benedict's reagent • Explanation - used a measuring cylinder/ syringe to measure to 5 cm^3	2	2		4		4
	(b)		Use 2 g of a food that does not contain sugar (1) Same volume of Benedict's reagent (1) Other reference to same conditions e.g. same volume of water, use of boiling water in the beaker (1)		3		3		3
	(c)		Axes labelled correctly with units (1) Scales & use of at least ½ of graph paper (1) All plots correctly plotted with ± ½ small square tolerance (2) 1 error (1) >1 error (0)	1 1	2		4	4	4

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
(d)			Correct statement regarding which biscuit contained the most <u>or</u> the least sugar- check against candidates own results (1) All biscuits mean results considered (1) The faster/quicker/less time taken for the Benedict's reagent to change colour, the higher/greater/more sugar content of the biscuit (1)			3	3		3
(e)			Random error stated as difficulty in judging when the Benedict's reagent had (fully) changed colour (1) Sensible suggestion of how to reduce the error e.g. sensor to detect colour change/ using the same person to make the judgement/ having agreement between two group members in making the judgement/ colour standard to compare (1)	2			2		2
(f)			There is a delay of more than one tenth of a second between seeing the Benedict's colour change and stopping the stopwatch/difficulty in pinpointing the exact time of the colour change		1		1		1
(g)	(i)		398.6 s is correctly circled (1) Anomalous results are not clustered to/do not fit the pattern/are not within the range of the other results (1)			2	2		2
	(ii)		Angharad included the anomalous result in her mean for C, otherwise that result would have been the lowest			1	1		1
	(iii)		Repeat trial 3 for C/ repeat all biscuits more times to assess repeatability (1) Compare with other groups for reproducibility (1)		2		2		2
			Section B total	**8**	**10**	**6**	**24**	**4**	**24**