Commentary on candidate 3 evidence

Finding 'g' by various methods

The evidence for this candidate has achieved the following marks for each section of this course assessment component.

Section		Mark available	Mark awarded	Comments
4 Results (including uncertainties)	a	1	1	The candidate has included results which are both relevant and sufficient.
	b	4	2	The candidate has used graphical analysis for the first procedure but the labelling on the y-axis of the graph on page 2 is incorrect. The graph on page 6 lacks minor gridlines, data points are excessively large, and a single smooth curve has not been drawn. Given the scale used and the thickness of trend lines, it is difficult to confirm the estimated values of ABCDE. The candidate has analysed data from the Kater pendulum only by a single calculation. The candidate's analysis of data is reasonable, but was judged to fall just below the quality required to be awarded 3 marks.
	c	3	2	The candidate has made a good attempt at an uncertainties treatment, showing awareness and combinations with sample calculations and few slips. There are a number of significant figure issues. The candidate has attempted to use the parallelogram method to estimate the uncertainty in the gradient of the graph on page 2, but has used incorrect coordinates for the vertices of parallelogram. There is a significant incorrect calculation of uncertainties in length on page 7 (1/5 =20% should be 0.1/5=2%). The candidate's uncertainties treatment is basically sound.

Section	Mark available		Mark awarded	Comments
5 Discussion (conclusion(s) and evaluation)	b	3	1	The candidate's evaluative comments cover the limitations of the equipment and comments on the number of repeats, but lacks insight and quality. The candidate did not mention the lack of symmetry of the curves in the graph on page 6, which could be a significant source of uncertainty.
	c	3	1	The candidate's overall evaluation is not high quality. A number of loose statements were made, for example, light gates as a measuring tool for time, and possible confusion between accuracy and precision. In addition, there are few comments on the planning of the project, the selection of procedures, problems encountered during planning or any required modifications to planned procedures.
Total	**14**		**7**	

Commentary on candidate 4 evidence

Viscosity and Temperature

The evidence for this candidate has achieved the following marks for each section of this course assessment component.

Section	Mark available		Mark awarded	Comments
4 Results (including uncertainties)	a	1	1	The candidate has included results which are both relevant and sufficient.
	b	4	3	The candidate has given an analysis using both calculations and graphs. The graphs on page 21 are too small and the data points too large to check the fine detail of the accuracy of plotting. On page 24, the candidate has presented a bar graph. Candidates are instructed to present and process data with appropriate use of tables, scatter graphs and calculations. Overall, the candidate gave a good analysis with few slips in plotting and in calculations.
	c	3	3	The candidate has given a very full analysis of uncertainties, showing awareness of random, scale reading and calibration uncertainties and combinations. Sample calculations are shown with few slips.
5 Discussion (conclusion(s) and evaluation)	b	3	2	The candidate's evaluation of procedures covers sources of uncertainty and changes to procedures, showing some quality reflection.
	c	3	1	The candidate has included very limited comments on the planning of the project, reasons for the selection of the procedures used and problems encountered during planning. Although not of high quality, the candidate's overall evaluation does cover some

Section	Mark available		Mark awarded	Comments
				suggested modifications to procedures and problems which were overcome.
Total	**14**		**10**	