Question number	Answer	Accept	Reject	Marks
4 (a) (i)	Anomaly clearly identified (20.44 mm);			1
(ii)	Averaging seen /162.7÷8 /142.26 ÷7; Anomaly excluded/ ÷7 seen ; Final answer rounded to 2 decimal places; e.g.: 20.32 (mm)	Ignore sig figs in working Allow full marks for correct answer, no working, i.e.: 20.32 (mm) = 3 marks If no working accept these other bald answers: 20.3228.. etc (mm)= 2 marks 20.34 (mm) = 2 marks 20.3375.. (mm) = 1 mark 20.33 (mm) = 1 mark		3

Question number	Answer	Accept	Reject	Marks
4 (b)	Any two of: Yes / No (no mark) MP1 Good way of measuring small values / Measures a larger value; MP2 Taking a larger measurement might reduce (%) errors; MP3 Not actually measuring what is required (a particular coin); MP4 Possible to make a maths error e.g. when dividing / counting /rounding; MP5 Not all coins are necessarily the same / idea of anomalous coin / bent / worn;	Accept reverse arguments Ignore comments about human error Ignore reference to caliper precision Ignore comments about gaps		2

Question number	Answer	Accept	Reject	Marks
4 (c)	Any three of: MP1Measure/find <u>mass</u>; MP2 Using a named instrument - e.g. (top pan) balance, scale(s); MP3 A sensible experimental precaution: e.g. Repeat readings / measure mass of several of coins and divide/ check balance zero; MP4 Formula to use (density = mass ÷ volume); MP5 A correct <u>density</u> unit mentioned (e.g. kg/m^3);	Ignore information about calculating or finding volume Accept “Weighing” to find <u>mass</u> Ignore measuring weight Ignore volume = $\pi r^2 h$		3

Total 9 marks