

SEPTEMBER 2006

FINAL MARK SCHEME AoN-L3-S6_A-P47-MS-v7.0-URN:558

(Units in brackets are optional)

NB Gaps between 100s and 1 000s will appear on mark schemes as whole or half spaces

Question	Marks	For	Responses
Part A			
1a	1 mark	1	(£)67 Accept (£)67.00
1b	1 mark	1	(£)12.3 billion or equivalent
1c	2 marks	2	(£)959 Accept (£)959.29 or (£)959.28
		1	For (£)11.4155 billion or (£)1.14155 × 10 ¹⁰ or equivalent seen for the total sales to households or complete correct method with one calculation error
2a	2 marks	2	35° Accept 35 .0419294° rounded or unrounded
		1	For 0.701298701 rounded or unrounded seen for tan A or correct use of tan seen
2b	1 mark	1	Correct check of angle size eg height = 77 ÷ tan 55° = 53.4(mm) Accept reverse calculation. Follow through from 2a
2c	2 marks	2	1.72(m) Accept 1.718 (m) or 1.716(m) Follow through from part a
		1	For 34.31016937(mm) rounded, unrounded or truncated or 34.36363636(mm) seen for unscaled height or correct answer in mm or correct use of tan or 1.718181817 (m) rounded or unrounded or equivalent in mm or complete correct method with one calculation error
2d	3 marks	3	278 (bricks) or 279 (bricks) Accept 280 (bricks) or 330(bricks) Follow through from part c
		2	For number of bricks in range 252 to 252.84 seen with no allowance for wastage or 300(bricks) or 4.623(m ²) to 4.636(m ²) seen or 5(m ²) seen or complete correct method with one calculation error
		1	For area between 4.202995749(m ²) and 4.214(m ²) seen for the gable end
3a	1 mark	1	(£)12.38 Accept (£)12.37
3b	2 marks	2	3 579 800 (more women) Accept 3.58 million
		1	For 17 462 900 (women) or 13 883 100 (men) seen for the numbers who gave to charity Accept 1.74629 × 10 ⁷ (women) or 1.38831 × 10 ⁷ (men) rounded as far as 3dp or complete correct method with one calc error
3c	1 mark	1	W + M = 591.534 or equivalent AND W - M = 84.258 or equivalent
3d	2 marks	2	Women gave (£)337.896 million or equivalent AND Men gave (£)253.638 million or equivalent. FT from 3c
		1	For Women gave (£)337.896 (million) or equivalent or Men gave (£)253.638 (million) or equivalent
3e	1 mark	1	Each woman gave (£)13.68 OR each man gave (£)10.98 Follow through from part d

4a	2 marks OR 1 + 1	2	Appropriate comment with numbers eg Decrease in market price/Ugandan coffee is more than 8x the decrease in supermarket/instant coffee OR
		1	Market price/Ugandan coffee 67.37089202 (% decrease) seen rounded or unrounded or truncated OR Supermarket/Instant coffee 8.205128205 (% decrease) seen rounded or unrounded or truncated
		1	Appropriate comment based on 'their' results
4b	2 marks	1	$\frac{1}{5}$ or $\frac{2}{11}$ for Fair-trade ground/roasted market share OR $\frac{1}{40}$, $\frac{1}{42}$, $\frac{1}{45}$, $\frac{1}{50}$ for Fair-trade instant market share
		1	Appropriate comment based on 'their' results
4c	2 marks	2	2007 Accept after 4 years
		1	For (£)74.8853952 (million) seen rounded or unrounded for sales in 2005 or (£) 110.8303849 (million) seen or (£) 164.0289696 (million) seen
5a	2 marks	2	7.2(%) Accept 7(%) or 7.236842105 (%) seen rounded, unrounded or truncated
		1	For 3.3 (gigawatts) or equivalent seen for the power output from 5 000 wind turbines or complete correct method with one calculation error
5b	1 mark	1	Acceptable check by estimation using a non-calculator method eg $(5\ 000 \times 2 \times 0.3 \times 100) \div (50 \times 1\ 000) = 6\%$ Accept follow through
5c	2 marks	2	10 357 000 (tonnes) or equivalent in standard form
		1	For 10 356 811.2 (tonnes per year for all cars) or equivalent seen rounded or unrounded or 2.39741 (tonnes per year for one car) or equivalent seen rounded or unrounded or 6.95088×10^{10} (kilometres per year for all cars) or equivalent seen rounded or unrounded or complete correct method with one calculation error

Part B			
6a	1 mark	1	100(miles) Accept any value in range 100 – 101(miles)
6b	2 marks	2	33.4(miles per hour) Accept 33.36(miles per hour) or 33(miles per hour or 34(miles per hour) or 33.35558(000) (miles per hour) rounded or unrounded or truncated
		1	For 1.2008333 (hours) rounded or unrounded seen or complete correct method with one calculation error
6c	1 mark	1	7.3(%) Accept 7.322580645(%) rounded or unrounded or truncated
6d	2 marks	2	1 : 10
		1	For 3 088.1(km) seen or 3 100(km) or 3 000(km) for distance covered over the remainder of the race or 0.099381496 rounded or unrounded seen or 306.9 : 3088.1 seen or complete correct method with one calculation error
6e	3 marks	3	45.8 (minutes) or 45 minutes 47 seconds. Accept 45.78 (minutes)
		2	For $\Sigma fx = 7\ 096$ or complete correct method with one calculation error or complete correct method using incorrect but consistent mid-points
		1	For at least 6 fx values correct (from 80, 588, 1 760, 2 346, 1 920, 350 and 52)
6f	1 mark	1	Title and axis labels correct
	1 mark	1	Acceptable continuous linear scales eg 2cm to 20cf on the vertical axis and 1cm to 1 minute on the horizontal axis
	2 marks	2	Correct plots for all 7 points on linear scale at upper boundaries
		1	Correct plots for 5 or 6 points on a linear scale at upper boundaries or 7 correct cumulative frequency heights
	1 mark	1	A clear curve or polygon drawn
6g	1 mark	1	45.9 ± 0.5 (minutes) OR valid follow through from their cumulative frequency graph
6h	2 marks	2	3.3 ± 1.0 (minutes) OR valid follow through from their cumulative frequency graph
		1	For 47.5 ± 0.5 (minutes) and 44.2 ± 0.5 (minutes) seen or follow through from their cumulative frequency graph
6i	1 mark	1	Correct explanation eg 'The finishing times for the middle 50% of riders are spread over 3.3 minutes' Follow through from e,g,h
6j	1 mark	1	A sensible correct comparison eg 'Median (or mean) values show that the riders finished Stage 16 in shorter times than in Stage 19' Follow through from parts e, g and h
6k	1 mark	1	Sensible correct reason eg 'IQR not affected by fastest or slowest times'

Part A	30		
Part B	20		
Total	50		