P3 S6 Mock 1July 2015 Guide

QUESTION 1		
Code	**Points to score**	**Marks**
A_1	Position of G is $49.5 \le G \le 50.5$ cm recorded to 1 decimal place in cm 1 + ½	1½
A_2	For m at 98cm mark a = 17.0 – 19.5 cm and b = 28.0 – 31.0 cm (½ + ½) + (½ + ½)	2
A_3	M correctly calculated and is 0.074 – 0.900 kg, to 3 dp in kg ½ + ½	1
A_4	For m at 93cm mark a = 15.0 – 17.5 cm and b = 25.0 – 27.5 cm (½ + ½) + (½ + ½)	2
A_5	M correctly calculated and is 0.074 – 0.900 kg, to 3 dp in kg ½ + ½	1
A_6	For m at 88cm mark a = 13.5 – 15.5 cm and b = 22.5 – 24.5 cm (½ + ½) + (½ + ½)	2
A_7	M correctly calculated and is 0.074 – 0.900 kg, to 3 dp in kg ½ + ½	1
A_8	$M_o$correctly calculated and is 0.074 – 0.900 kg, to 3 dp in kg1 + ½	1½
		12
B_1	Columnar table of: *x*, y, Y, $\frac{1}{y}$, $\frac{1}{Y}$ and β @¼	1½
B_2	Correct units: (cm), (m), (m), (m^{-1}), (m^{-1}), (m^{-1}) @¼	1½
B_3	Values of y increasing between 0.100 and 0.240m, recorded to 3 dp in m @½	3
B_4	Values of Y greater than corresponding y, increasing and recorded to3 dp in m @½	3
B_5	Values of $\frac{1}{y}$ correctly calculated to2 decimal places @¼	1½
B_6	Values of $\frac{1}{Y}$ correctly calculated to2 decimal places @¼	1½
B_7	Values of β correctly calculated to 2 decimal places	1½
		13½
C_1	Title of the graph: *A graph of* $\frac{1}{y}$ *against* β	½
C_2	Axes: Each drawn with an arrow in the increasing direction, each labeled with quantity and unit …….. ½ + ½	1
C_3	Scales: Uniform, each spanning at least ½ pg, demarcations marked, starting values indicated ……... ½ + ½	1
C_4	Points correctly plotted: no shading …….@½	3
C_5	Best fit : awarded if at least 4 points were correctly plotted	½
C_6	Indication of triangle or equivalent for calculating s, covering all points	½
C_7	Coordinates for calculating s correctly read	½
C_8	s correctly calculated, if the coordinates were correctly read and $1.80 \le s \le 2.20$ recorded to 1 or 2 decimal places …….. 1 + ½	1½
		8½
Total = 34		

QUESTION 2		
Code	**Points to score**	**Marks**
A_1	h recorded to 1 decimal place in cm and 9.0 ≤h≤ 12.0 cm 2 + ½	2½
A_2	a recorded to 1 decimal place in cm and 9.0 ≤a≤ 12.0 cm 2 + ½	2½
A_3	f_1 correctly calculated to 1 decimal place in cm and 9.0 ≤ f_1≤ 12.0 cm 1 + ½	1½
		6½
B_1	Columnar table of: *x*, f_1 + x, v, y, log*x* and log y @¼	1½
B_2	Correct units: (cm), (cm), (cm),(cm), -, - @¼	1½
B_3	Values of f_1 + *x* correctly calculated to 1 decimal place in cm @¼	1½
B_4	Values of v decreasing from 70.0 to 14.0 cm recorded to 1 decimal place @1	6
B_5	Values of y correctly calculated to 1 decimal place in cm @¼	1½
B_6	Values of *l*og *x*: 0.398, 0.699, 0.875, 1.000, 1.079, 1.176 @¼	1½
B_7	Values of*l*og y correctly read to 2 or 3 decimal places consistently @¼	1½
		15
C_1	Title of the graph: *A graph of logy against logx*	½
C_2	Axes: Each drawn with an arrow in the increasing direction, each labeled with quantity and unit …….. ½ + ½	1
C_3	Scales: Uniform, each spanning at least ½ page, demarcations marked, starting values indicated ……... ½ + ½	1
C_4	Points correctly plotted: no shading …….@½	3
C_5	Best fit : awarded if at least 4 points were correctly plotted	½
C_6	Intercept C_1 correctly read to 1 or 2 decimal places and 1.91 ≤ C_1≤ 2.17 ½ + ½	1
C_7	Intercept C_2 correctly read to 1 or 2 decimal places and 1.91 ≤ C_1≤ 2.17 ½ + ½	1
C_8	C correctly calculated to 1 or 2 decimal places and 1.91 ≤ C ≤ 2.17 ½ + ½	1
C_9	f correctly calculated if the substitution is correct and 9.0 ≤ f ≤ 12.0 cm, recorded to 1 decimal place in cm…….. 2 + ½	2½
		11½
Total = 33		

QUESTION 3		
Code	**Points to score**	**Marks**
A_1	For y = 0.600 m I = 0.18 – 0.20 A, recorded to 2 decimal places1 + ½	1½
A_2	For y = 0.600 m, V = 1.39 – 1.41 V, recorded to 2 decimal places 1 + ½	1½
A_3	k correctly calculated and is 10.5 – 14.0 Ω , recorded to1 or 2 decimal places ½ + ½	1
A_4	For y = 0.750 m I = 0.15 – 0.17 A, recorded to 2 decimal places 1 + ½	1½
A_5	For y = 0.750 m, V = 1.41 – 1.43 V, recorded to 2 decimal places 1 + ½	1½
A_6	k correctly calculated and is 10.5 – 14.0 Ω , recorded to1 or 2 decimal places ½ + ½	1
A_7	For y = 0.900 m I = 0.12 – 0.14 A, recorded to 2 decimal places 1 + ½	1½
A_8	For y = 0.900 m, V = 1.43 – 1.45 V, recorded to 2 decimal places 1 + ½	1½
A_9	k correctly calculated and is 10.5 – 14.0 Ω , recorded to1 or 2 decimal places ½ + ½	1
A_{10}	μ correctly calculated and is 10.5 – 14.0 Ω , recorded to1 or 2 decimal places ½ + ½	1
		13
B_1	Columnar table of: x, l_1,l_2, and $\frac{l_1}{l_2}$ @¼	1
B_2	Correct units: (m), (m or cm), (m or cm), - @¼	1
B_3	Values of l_1 increasing between 0.500 and 0.750 m, recorded to 3 dp in m (or 1 dp in cm) @1	6
B_4	Values of $l_2 = 1.00 - l_1$ recorded to 3 decimal places in m (or 1 dp in cm) @¼	1½
B_5	Values of $\frac{l_1}{l_2}$ correctly calculated to 2 decimal places @¼	1½
		11
C_1	Title of the graph: *A graph of* $\frac{l_1}{l_2}$ *against* x	½
C_2	Axes: Each drawn with an arrow in the increasing direction, each labeled with quantity and unit …….. ½ + ½	1
C_3	Scales: Uniform, each spanning at least ½ page, demarcations marked, starting values indicated …….. ½ + ½	1
C_4	Points correctly plotted: no shading ……@½	3
C_5	Best fit : awarded if at least 4 points were correctly plotted	½
C_6	Indication of triangle or equivalent for calculating s, covering all points	½
C_7	s correctly calculated, if the coordinates were correctly read and 2.00 ≤ s ≤ 2.60	
C_8	recorded to 1 or 2 decimal places …….. 1 + ½ ……..	1½

		8
D_1	μ correctly calculated and is 10.5 – 14.0 Ω recorded to 1 or 2 decimal places 1 + ½	1½
D_2	Working out the average value of μ from the two methods½ + ½	½
		2
Total = 33		