**P3 S6 Mock 1July 2015 Guide**

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| **QUESTION 1** | | |
| **Code** | **Points to score** | **Marks** |
| A1  A2  A3  A4  A5  A6  A7  A8 | Position of G is 49.5 ≤ G ≤ 50.5 cm recorded to 1 decimal place in cm 1 + ½  For m at 98cm mark a = 17.0 – 19.5 cm and b = 28.0 – 31.0 cm (½ + ½) + (½ + ½)  M correctly calculated and is 0.074 – 0.900 kg, to 3 dp in kg ½ + ½  For m at 93cm mark a = 15.0 – 17.5 cm and b = 25.0 – 27.5 cm (½ + ½) + (½ + ½)  M correctly calculated and is 0.074 – 0.900 kg, to 3 dp in kg ½ + ½  For m at 88cm mark a = 13.5 – 15.5 cm and b = 22.5 – 24.5 cm (½ + ½) + (½ + ½)  M correctly calculated and is 0.074 – 0.900 kg, to 3 dp in kg ½ + ½  Mocorrectly calculated and is 0.074 – 0.900 kg, to 3 dp in kg1 + ½ | 1½  2  1  2  1  2  1  1½ |
|  |  | **12** |
| B1  B2  B3  B4  B5  B6  B7 | Columnar table of: *x*, y, Y, ,  and β @¼  Correct units: (cm), (m), (m), (m-1), (m-1), (m-1) @¼  Values of y increasing between 0.100 and 0.240m, recorded to 3 dp in m @½  Values of Y greater than corresponding y, increasing and recorded to3 dp in m @½  Values of  correctly calculated to2 decimal places @¼  Values of  correctly calculated to2 decimal places @¼  Values of β correctly calculated to 2 decimal places | 1½  1½  3  3  1½  1½  1½ |
|  |  | **13½** |
| C1  C2  C3  C4  C5  C6  C7  C8 | Title of the graph: *A graph of  against β*  Axes: Each drawn with an arrow in the increasing direction, each labeled with quantity and unit ……….. ½ + ½  Scales: Uniform, each spanning at least ½ pg, demarcations marked, starting values  indicated ………... ½ + ½  Points correctly plotted: no shading ……….@½  Best fit : awarded if at least 4 points were correctly plotted  Indication of triangle or equivalent for calculating s, covering all points  Coordinates for calculating s correctly read  s correctly calculated, if the coordinates were correctly read and  1.80 ≤ s ≤ 2.20 recorded to 1 or 2 decimal places …….. 1 + ½ | ½  1  1  3  ½  ½  ½  1½ |
|  |  | **8½** |
| ***Total = 34*** | | |

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| **QUESTION 2** | | |
| **Code** | **Points to score** | **Marks** |
| A1  A2  A3 | h recorded to 1 decimal place in cm and 9.0 ≤h≤ 12.0 cm 2 + ½  a recorded to 1 decimal place in cm and 9.0 ≤a≤ 12.0 cm 2 + ½  f1 correctly calculated to 1 decimal place in cm and 9.0 ≤ f1≤ 12.0 cm 1 + ½ | 2½  2½  1½ |
|  |  | **6½** |
| B1  B2  B3  B4  B5  B6  B7 | Columnar table of: *x*, f1 + x, v, y, log*x* and log y @¼  Correct units: (cm), (cm), (cm),(cm), -, - @¼  Values of f1 + *x* correctly calculated to 1 decimal place in cm @¼  Values of v decreasing from 70.0 to 14.0 cm recorded to 1 decimal place @1  Values of y correctly calculated to 1 decimal place in cm @¼  Values of *l*og *x*: 0.398, 0.699, 0.875, 1.000, 1.079, 1.176 @¼  Values of*l*og y correctly read to 2 or 3 decimal places consistently @¼ | 1½  1½  1½  6  1½  1½  1½ |
|  |  | **15** |
| C1  C2  C3  C4  C5  C6  C7  C8  C9 | Title of the graph: *A graph of logy against logx*  Axes: Each drawn with an arrow in the increasing direction, each labeled with quantity and unit ……….. ½ + ½  Scales: Uniform, each spanning at least ½ page, demarcations marked, starting values  indicated ………... ½ + ½  Points correctly plotted: no shading ……….@½  Best fit : awarded if at least 4 points were correctly plotted  Intercept C1 correctly read to 1 or 2 decimal places and 1.91 ≤ C1≤ 2.17 ½ + ½  Intercept C2 correctly read to 1 or 2 decimal places and 1.91 ≤ C1≤ 2.17 ½ + ½  C correctly calculated to 1 or 2 decimal places and 1.91 ≤ C ≤ 2.17 ½ + ½  f correctly calculated if the substitution is correct and 9.0 ≤ f ≤ 12.0 cm, recorded to 1 decimal place in cm…….. 2 + ½ | ½  1  1  3  ½  1  1  1  2½ |
|  |  | **11½** |
| ***Total = 33*** | | |

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| **QUESTION 3** | | |
| **Code** | **Points to score** | **Marks** |
| A1  A2  A3  A4  A5  A6  A7  A8  A9  A10 | For y = 0.600 m I = 0.18 – 0.20 A, recorded to 2 decimal places1 + ½  For y = 0.600 m, V = 1.39 – 1.41 V, recorded to 2 decimal places 1 + ½  k correctly calculated and is 10.5 – 14.0 Ω , recorded to1 or 2 decimal places ½ + ½  For y = 0.750 m I = 0.15 – 0.17 A, recorded to 2 decimal places 1 + ½  For y = 0.750 m, V = 1.41 – 1.43 V, recorded to 2 decimal places 1 + ½  k correctly calculated and is 10.5 – 14.0 Ω , recorded to1 or 2 decimal places ½ + ½  For y = 0.900 m I = 0.12 – 0.14 A, recorded to 2 decimal places 1 + ½  For y = 0.900 m, V = 1.43 – 1.45 V, recorded to 2 decimal places 1 + ½  k correctly calculated and is 10.5 – 14.0 Ω , recorded to1 or 2 decimal places ½ + ½  μ correctly calculated and is 10.5 – 14.0 Ω , recorded to1 or 2 decimal places ½ + ½ | 1½  1½  1  1½  1½  1  1½  1½  1  1 |
|  |  | **13** |
| B1  B2  B3  B4  B5 | Columnar table of: *x*, *l*1,*l*2, and  @¼  Correct units: (m), (m or cm), (m or cm), - @¼  Values of *l*1 increasing between 0.500 and 0.750 m, recorded to 3 dp in m (or 1 dp in cm) @1  Values of *l*2 = 1.00 – *l*1 recorded to 3 decimal places in m (or 1 dp in cm) @¼  Values of correctly calculated to 2 decimal places @¼ | 1  1  6  1½  1½ |
|  |  | **11** |
| C1  C2  C3  C4  C5  C6  C7  C8 | Title of the graph: *A graph of  against x*  Axes: Each drawn with an arrow in the increasing direction, each labeled with quantity and unit ……….. ½ + ½  Scales: Uniform, each spanning at least ½ page, demarcations marked, starting values  indicated ………... ½ + ½  Points correctly plotted: no shading ……….@½  Best fit : awarded if at least 4 points were correctly plotted  Indication of triangle or equivalent for calculating s, covering all points  s correctly calculated, if the coordinates were correctly read and 2.00 ≤ s ≤ 2.60 recorded to 1 or 2 decimal places …….. 1 + ½ …….. | ½  1  1  3  ½  ½  1½ |
|  |  | **8** |
| D1  D2 | μ correctly calculated and is 10.5 – 14.0 Ω recorded to 1 or 2 decimal places 1 + ½  Working out the average value of μ from the two methods½ + ½ | 1½  ½ |
|  |  | **2** |
| ***Total = 33*** | | |