**Measurement of *g* with a pendulum**

|  |  |
| --- | --- |
| Length, *l* / cm | Time for 5 oscillations / s |
| 0.200 | 4.55 |
| 0.400 | 6.20 |
| 0.600 | 7.80 |
| 0.800 | 8.90 |
| 1.000 | 9.95 |

**Investigation of the damping of a spring**

|  |  |
| --- | --- |
| Time / s | Amplitude / cm |
| 0 | 20.1 |
| 12 | 16.9 |
| 24 | 14.4 |
| 36 | 11.9 |
| 48 | 10.0 |
| 60 | 9.0 |
| 72 | 7.5 |

**Estimation of absolute zero by use of the gas laws**

|  |  |
| --- | --- |
| Temperature (oC) | Length of air (cm) |
| Rise | Fall | Mean |
| 10 | 9.10 | 9.05 | 9.08 |
| 20 | 9.25 | 9.35 | 9.30 |
| 30 | 9.55 | 9.70 | 9.63 |
| 40 | 10.10 | 10.25 | 10.18 |
| 50 | 10.30 | 10.60 | 10.45 |
| 60 | 10.50 | 10.80 | 10.65 |
| 70 | 10.85 | 11.10 | 10.98 |
| 80 | 11.25 | 11.25 | 11.25 |

**Measurement of the specific heat capacity for a solid (iron)**

*m* = 0.570 kg, *V* = 12.20 V, *I* = 3.81 A

|  |  |
| --- | --- |
| Time / s | Temperature / oC |
| 0 | 22 |
| 20 | 25 |
| 40 | 29 |
| 60 | 33 |
| 80 | 37 |
| 100 | 41 |
| 120 | 45 |
| 140 | 48 |
| 160 | 51 |
| 180 | 54 |
| 200 | 57 |

**Investigation of radioactive decay – a dice analogy**

|  |  |  |
| --- | --- | --- |
| Throw number | Number of remaining dice | Number of dice removed |
| 0 | 6000 |  |
| 1 | 4991 | 1009 |
| 2 | 4200 | 791 |
| 3 | 3504 | 696 |
| 4 | 2871 | 633 |
| 5 | 2391 | 480 |
| 6 | 2046 | 345 |
| 7 | 1707 | 339 |
| 8 | 1435 | 272 |
| 9 | 1224 | 211 |
| 10 | 1018 | 206 |
| 11 | 858 | 160 |
| 12 | 725 | 133 |

**Investigation of the variation of intensity of gamma radiation with distance**

|  |  |
| --- | --- |
| Distance / mm | Count rate / Bq |
| 13 | 215 |
| 17 | 125 |
| 20 | 94 |
| 25 | 59 |
| 30 | 44 |
| 50 | 19 |

**Investigation of the charging and discharging of a capacitor to determine the time constant**

Capacitor = 100 μF

|  |  |  |
| --- | --- | --- |
| Time / s | pd across capacitor / VCHARGING | pd across capacitor / VDISCHARGING |
| 0 | 0.00 | 8.95 |
| 20 | 1.65 | 7.34 |
| 40 | 3.02 | 6.00 |
| 60 | 4.11 | 4.91 |
| 80 | 4.90 | 4.03 |
| 100 | 5.69 | 3.30 |
| 140 | 6.72 | 2.21 |
| 180 | 7.20 | 1.54 |
| 250 | 8.12 | 0.74 |
| 300 | 8.40 | 0.43 |

**Investigation of the energy stored in a capacitor**

|  |  |
| --- | --- |
| pd, *V* / V | Energy / mJ |
| 4.00 | 1.5 |
| 8.00 | 6.3 |
| 12.00 | 14.2 |
| 16.00 | 25.4 |
| 20.00 | 38.3 |
| 24.00 | 54.6 |

**Investigation of the force on a current in a magnetic field**

Length of wire = 25.0 cm

|  |  |
| --- | --- |
| Current / A | Mass / g |
| 0.0 | 0.0 |
| 1.0 | 0.22 |
| 2.0 | 0.39 |
| 3.0 | 0.61 |
| 4.0 | 0.83 |
| 5.0 | 1.13 |
| 6.0 | 1.32 |

**Investigation of magnetic flux density using a Hall probe**

Current, *I* = 5.00 A

|  |  |
| --- | --- |
| Distance / cm | Magnetic flux density, *B* / mT |
| 1.0 | 0.097 |
| 2.0 | 0.050 |
| 3.0 | 0.033 |
| 4.0 | 0.023 |
| 5.0 | 0.020 |