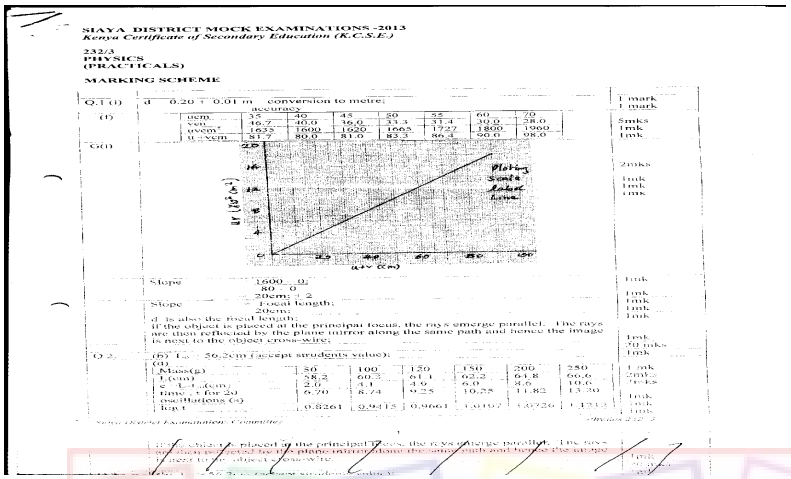
PHYSICS 232/3
MARKING SCHEME

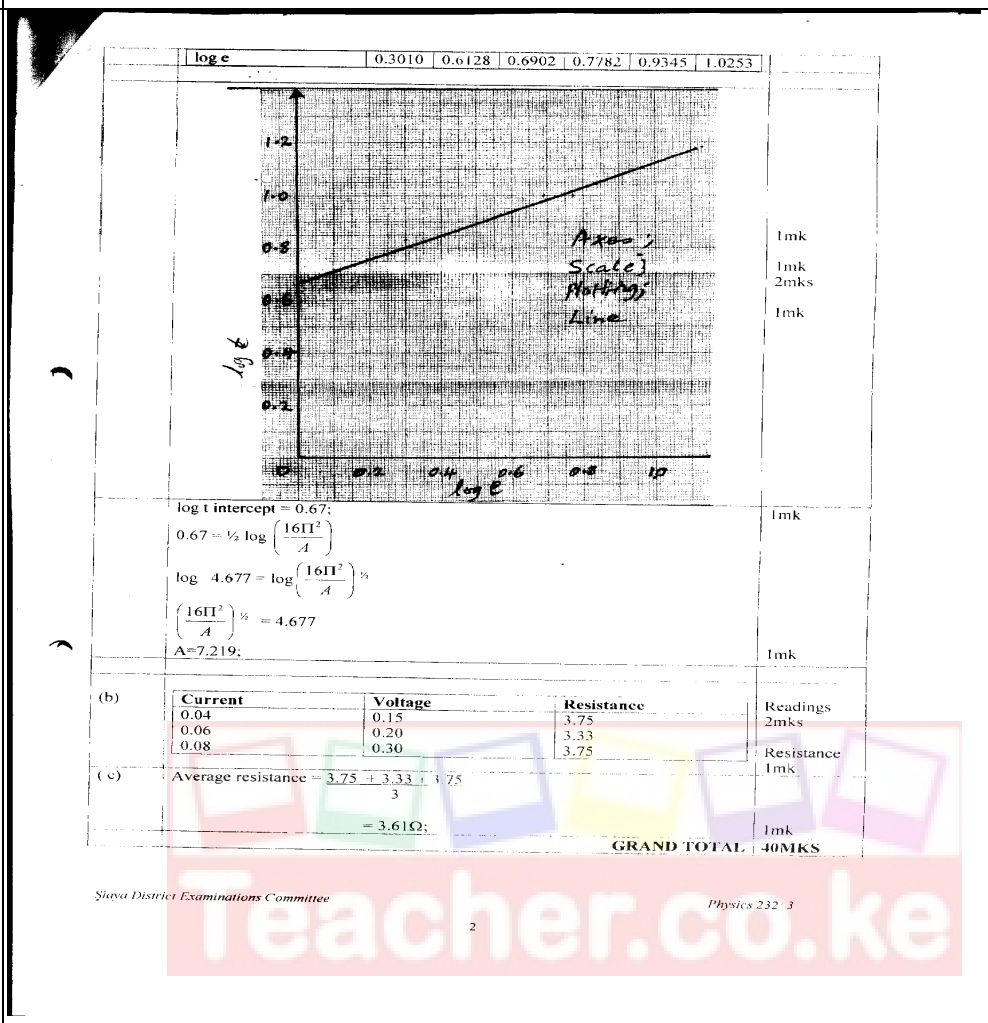
<table>
<tr><td></td><td></td><td></td></tr>
<tr><td>Q1(i)</td><td>d = 0.20 + 0.01m conversion to metre
accuracy</td><td>1mk
1mk</td></tr>
<tr><td>(i)</td><td>
<table>
<tr><td>ucm</td><td>35</td><td>40</td><td>45</td><td>50</td><td>55</td><td>60</td><td>70</td></tr>
<tr><td>vcn</td><td>46.7</td><td>40.0</td><td>36.0</td><td>33.3</td><td>31.4</td><td>30.0</td><td>28.0</td></tr>
<tr><td>uvcm2</td><td>1635</td><td>1600</td><td>1620</td><td>1665</td><td>1727</td><td>1800</td><td>1960</td></tr>
<tr><td>u + vcm</td><td>81.7</td><td>80.0</td><td>81.0</td><td>83.3</td><td>86.4</td><td>90.0</td><td>98.0</td></tr>
</table>
</td><td>5mks
1mk
1mk</td></tr>
<tr><td>G (i)</td><td> 
</td><td>2mks

1mk
1mk
1mk</td></tr>
<tr><td></td><td>Slope = 1600 - 0;
80 - 0
= 20cm; + 2</td><td>1mk

1mk</td></tr>
<tr><td></td><td>Slope = Focal length ;
= 20cm;</td><td>1mk
1mk</td></tr>
<tr><td></td><td>d is also the focal length;
if the object is placed at the principal focus, the rays emerge parallel. The rays are then reflected by the plane mirror along the same path and hence the image is next to the object cross-wire</td><td>1mk

1mk</td></tr>
<tr><td></td><td></td><td>20mks</td></tr>
<tr><td>Q.2</td><td>(b) L_o = 56.2cm (accept strudents value)</td><td>1mk</td></tr>
<tr><td></td><td>(d)
<table>
<tr><td>Mass (g)</td><td>50</td><td>100</td><td>120</td><td>150</td><td>200</td><td>250</td></tr>
<tr><td>L (cm)</td><td>58.2</td><td>60.3</td><td>61.1</td><td>62.2</td><td>64.8</td><td>66.6</td></tr>
<tr><td>E = L-L_o(cm)</td><td>2.0</td><td>4.1</td><td>4.9</td><td>6.0</td><td>8.6</td><td>10.6</td></tr>
<tr><td>Time, t for20 Oscillations (s)</td><td>6.70</td><td>8.74</td><td>9.25</td><td>10.25</td><td>11.82</td><td>13.20</td></tr>
<tr><td>Log t</td><td>0.8261</td><td>0.9415</td><td>0.9661</td><td>1.0107</td><td>1.0726</td><td>1.1212</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td><td>1mk
2mks
3mks

1mk
1mk
1mk</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

	Log e 0.3010 0.6128 0.6902 0.7782 0.9345 1.0253	
	 log e 0.3010 0.6128 0.6902 0.7782 0.9345 1.0253 Axes; Scale; Plotting; Line log t intercept = 0.67; $0.67 = \frac{1}{2} \log \left(\frac{16\Pi^2}{A}\right)$ $\log 4.677 = \log \left(\frac{16\Pi^2}{A}\right)^{\frac{1}{2}}$ $\left(\frac{16\Pi^2}{A}\right)^{\frac{1}{2}} = 4.677$ A=7.219; (b) Current 0.04 0.06 0.08; Voltage 0.15 0.20 0.30; Resistance 3.75 3.33 3.75 (c) Average resistance = 3.75 + 3.33 + 3.75 / 3 = 3.61Ω; GRAND TOTAL 40MKS Siaya District Examinations Committee Physics 232 3 2	1mk 1mk 2mks 1mk 1mk 1mk Readings 2mks Resistance 1mk 1mk
	log t intercept = 0.67; $0.67 = \frac{1}{2} \log \frac{16\pi^2}{A}$ $\log 4.677 = \log \frac{16\pi^2}{A}^{\frac{1}{2}}$ $\frac{16\pi^2}{A}^{\frac{1}{2}} = 4.677$ A = 7.219 ;	1mk 1mk
(b)		

Current	Voltage	Resistance
0.04	0.15	3.75
0.06	0.20	3.33
0.08	0.30	3.75

Reading 2mks

Resistance 1mk

(c)	Average resistance = $\frac{3.75 + 3.33 + 3.75}{3}$ = 3.61Ω;	1mk

		GRAND TOTAL	**40MKS**