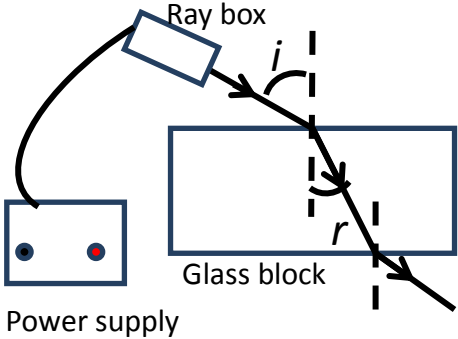
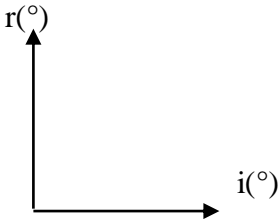
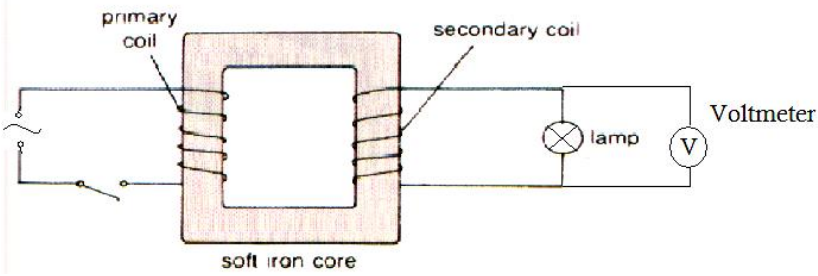
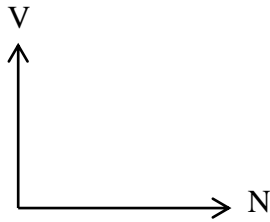


Physics Paper 3 2017 TRIAL EXAMS
SMJK YU HUA
Marking Scheme

Question	Marking Scheme	Marks																		
1(a)(i)	State the manipulated variable correctly ; Height of inclined plane from the surface, h	1																		
(ii)	State the responding variable correctly ; Velocity of the trolley, v	1																		
(iii)	State one fixed variable; Mass of trolley // No. of trolley // frequency of power supply, f	1																		
(b)	<p>Tabulate h, s and v correctly in the table.</p> <p>A Shows a table which have h, s and v. B State the correct unit of h/cm, s/cm and v/cms⁻¹. C All values of h are correct . D Values of s are correct. E Values of v are correct. F All the values are consistent in 1 d.p or 2 d.p.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">h/cm</th> <th style="text-align: center;">s/cm</th> <th style="text-align: center;">v/cms⁻¹</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">20.0</td> <td style="text-align: center;">5.7</td> <td style="text-align: center;">28.5</td> </tr> <tr> <td style="text-align: center;">30.0</td> <td style="text-align: center;">7.9</td> <td style="text-align: center;">39.5</td> </tr> <tr> <td style="text-align: center;">40.0</td> <td style="text-align: center;">10.1</td> <td style="text-align: center;">50.5</td> </tr> <tr> <td style="text-align: center;">50.0</td> <td style="text-align: center;">12.4</td> <td style="text-align: center;">62.0</td> </tr> <tr> <td style="text-align: center;">60.0</td> <td style="text-align: center;">14.7</td> <td style="text-align: center;">73.5</td> </tr> </tbody> </table>	h/cm	s/cm	v/cms ⁻¹	20.0	5.7	28.5	30.0	7.9	39.5	40.0	10.1	50.5	50.0	12.4	62.0	60.0	14.7	73.5	<p>1 1 1 1 1 1</p>
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(c)	<p>Draw the graph of v against h.</p> <p>A - Label y-axis and x-axis correctly B - States the unit at both axis correctly C - Both axes with the even and uniform scale D E - 5 points correctly plotted 2 $\sqrt{\quad}$, 3-4 points correctly plotted 1 $\sqrt{\quad}$ E - a smooth best straight line F - minimum size of the graph is 5 x 4 (Squares of 2 x 2 cm)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Number of $\sqrt{\quad}$</th> <th style="text-align: center;">Score</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">7</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">5-6</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">3-4</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>	Number of $\sqrt{\quad}$	Score	7	5	5-6	4	3-4	3	2	2	1	1	5						
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7	5																			
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1	1																			
d	State the correct relationship based on the candidate's graph v increases linearly to h	1																		
e	State ONE correct precaution so as to produce an accurate result of the experiment The position of the eye perpendicular to the scale when takes the reading to avoid parallax error.	1																		
Total		16 Marks																		

Question	Marking Scheme	Marks
2		
(a)(i)	I decreases	1
(ii)	Extrapolation	1
	Correct answer and unit, 1 Ω	1
(b)	Triangle on the line of graph (<i>at least half of the original line of graph</i>)	1
	Substitution from the coordinates	1
	Correct answer with unit, 5 Ω A or 5 V	1
(c)	E = gradient	1
	= 5 V	1
(d)	Intrapolation	1
	$\frac{1}{I} = 1.3$	1
	I = 0.77 A	1
(e)	State the correct relationship based on the candidate's graph	
	v increases linearly to h	1
	Total	12 Marks

Question	Marking Scheme	Marks												
3	<p>(a) Refracted angle depends on incident angle</p> <p>(b) The bigger the incident angle, the bigger the refracted angle.</p> <p>(c) (i) To study the relationship between the incident angle and refracted angle.</p> <p>(ii) MV – incident angle, i RV - refracted angle, r CV - refractive index</p> <p>(iii) Glass block, white paper, ray box, protractor</p> <p>(iv)</p>  <p>(v) 1. Start the experiment with the incident angle = 10° 2. Placed the ray box at the angle of incidence. Mark the ray that come out from the glass block. Measure the angle of refracted by using the protractor. 3. Repeat the experiment with different angle of incident = 20°, 30°, 40° and 50°</p> <p>(vi)</p> <table border="1" data-bbox="516 1283 1089 1535"> <thead> <tr> <th>i ($^\circ$)</th> <th>r ($^\circ$)</th> </tr> </thead> <tbody> <tr> <td>10</td> <td></td> </tr> <tr> <td>20</td> <td></td> </tr> <tr> <td>30</td> <td></td> </tr> <tr> <td>40</td> <td></td> </tr> <tr> <td>50</td> <td></td> </tr> </tbody> </table> <p>(vii)</p> 	i ($^\circ$)	r ($^\circ$)	10		20		30		40		50		<p>1</p> <p>1</p> <p>1</p> <p>1(both MV & RV)</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
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10														
20														
30														
40														
50														
	Total	12 Marks												

4														
(a)	The number of turns of wire in the secondary coil affects the output voltage	1												
(b)	The greater the number of turns of wire in the secondary coil, the greater the output voltage	1												
(c)	To investigate the relationship between number of turns of wire in the secondary coil and the output voltage	1												
	State the manipulated variable and the responding variable Manipulated : number of turns of wire in secondary coil, N Responding : output voltage, V	1												
	State ONE variable that kept constant The number of turns of wire in the primary coil // voltage of ac supply	1												
	Complete list of apparatus and materials Coil, voltmeter, soft iron core, ac supply	1												
	Arrangement of apparatus : 	1												
	State the method of controlling the manipulated variable 1. The set up of the apparatus is as shown in figure above. 2. 100 turns of wire is wound on the secondary coil of a transformer.	1												
	State the method of measuring the responding variable 3. The switch is on and the output voltage is measured by using a voltmeter.	1												
	Repeat the experiment at least 4 times The experiment is repeated by winding the wire on secondary coil with 200 turns, 300 turns, 400 turns and 500 turns	1												
	Tabulation of data: <table border="1" data-bbox="300 1312 1112 1585"> <thead> <tr> <th>Number of turns of wire in secondary coil, N</th> <th>Output voltage, V / V</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	Number of turns of wire in secondary coil, N	Output voltage, V / V											1
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	Analysis of data . 	1												
	Total	12 marks												