

Peraturan pemarkahan Kertas 3

Modul Kecemerlangan Tingkatan 5

Question	Answer	Marks												
1 (a) (i)	Depth of immersion/ <i>d</i> /Kedalaman rendaman (reject : D)	1												
1 (a) (ii)	Bouyant force/ F_B /Daya apung	1												
1 (a) (iii)	Density of rod/Density of water/ Ketumpatan rod/Ketumpatan air	1												
1 (b) (i)	<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 2px 5px;"><i>d/cm</i></th> <th style="padding: 2px 5px;"><i>m /g</i></th> </tr> </thead> <tbody> <tr><td style="padding: 2px 5px;">2.0</td><td style="padding: 2px 5px;">66.1</td></tr> <tr><td style="padding: 2px 5px;">3.0</td><td style="padding: 2px 5px;">69.7</td></tr> <tr><td style="padding: 2px 5px;">4.0</td><td style="padding: 2px 5px;">73.8</td></tr> <tr><td style="padding: 2px 5px;">5.0</td><td style="padding: 2px 5px;">77.6</td></tr> <tr><td style="padding: 2px 5px;">6.0</td><td style="padding: 2px 5px;">81.4</td></tr> </tbody> </table> <p style="margin-left: 40px; margin-top: 10px;"> → All 5 values of <i>m</i> correct with 1 decimal place – 2 marks → All 5 values of <i>m</i> correct without 1 decimal place – 1 mark → 3 or 4 values of <i>m</i> correct with 1 decimal place – 1 mark → 3 or 4 values of <i>m</i> correct without 1 decimal place – 0 mark (Mark in spaces provided) </p>	<i>d/cm</i>	<i>m /g</i>	2.0	66.1	3.0	69.7	4.0	73.8	5.0	77.6	6.0	81.4	2
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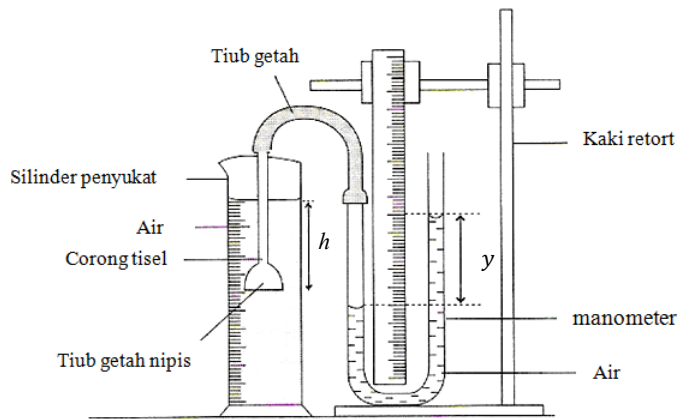
<p><i>I(b)(iv)</i></p>	<p>Table for d, m, M and F_B Jadual d, m, M dan F_B</p> <table border="1" data-bbox="378 264 976 495"> <thead> <tr> <th>d/cm</th> <th>m/g</th> <th>M/g</th> <th>F_B/N</th> </tr> </thead> <tbody> <tr><td>2.0</td><td>66.1</td><td>7.5</td><td>0.08</td></tr> <tr><td>3.0</td><td>69.7</td><td>11.1</td><td>0.11</td></tr> <tr><td>4.0</td><td>73.8</td><td>15.2</td><td>0.15</td></tr> <tr><td>5.0</td><td>77.6</td><td>19.0</td><td>0.19</td></tr> <tr><td>6.0</td><td>81.4</td><td>22.8</td><td>0.23</td></tr> </tbody> </table> <p>atau</p> <table border="1" data-bbox="378 604 976 835"> <thead> <tr> <th>d/cm</th> <th>m/g</th> <th>M/g</th> <th>F_B/N</th> </tr> </thead> <tbody> <tr><td>2.0</td><td>66.1</td><td>7.5</td><td>0.075</td></tr> <tr><td>3.0</td><td>69.7</td><td>11.1</td><td>0.111</td></tr> <tr><td>4.0</td><td>73.8</td><td>15.2</td><td>0.152</td></tr> <tr><td>5.0</td><td>77.6</td><td>19.0</td><td>0.190</td></tr> <tr><td>6.0</td><td>81.4</td><td>22.8</td><td>0.228</td></tr> </tbody> </table> <table border="1" data-bbox="1065 604 1222 835"> <thead> <tr> <th>F_B/N</th> </tr> </thead> <tbody> <tr><td>0.07</td></tr> <tr><td>0.11</td></tr> <tr><td>0.15</td></tr> <tr><td>0.19</td></tr> <tr><td>0.23</td></tr> </tbody> </table> <p>or</p> <p>Give a tick (✓) based on the following: <i>Beri tanda(✓)berdasarkan yang berikut;</i></p> <p>A • Columns H, S and v ✓A <i>Lajur H, S dan v</i></p> <p>B • Correct units for H, S and v ✓B <i>Unit untuk H, S dan v</i></p>	d/cm	m/g	M/g	F_B/N	2.0	66.1	7.5	0.08	3.0	69.7	11.1	0.11	4.0	73.8	15.2	0.15	5.0	77.6	19.0	0.19	6.0	81.4	22.8	0.23	d/cm	m/g	M/g	F_B/N	2.0	66.1	7.5	0.075	3.0	69.7	11.1	0.111	4.0	73.8	15.2	0.152	5.0	77.6	19.0	0.190	6.0	81.4	22.8	0.228	F_B/N	0.07	0.11	0.15	0.19	0.23	<p>2</p>
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<p>1 (c)</p>	<p>Graph of F_B against d Give a tick (✓) based on the following:</p> <p>A • F_B at the y-axis and d at the x-axis ✓1 <i>F_B pada paksi-y dan d pada paksi-x</i></p> <p>B • Quantity at both axes labelled with correct unit. ✓2 <i>Kuantiti di kedua-dua paksi dilabel dengan unit unit.</i></p> <p>C • Uniform and even scale at both axes ✓3 <i>Skala pada paksi seragam dan genap</i></p> <p>D • 5 points plotted correctly ✓4✓5 <i>5 titik diplot dengan betul</i> [Note : 3-4 points plotted correctly ✓4] <i>[Catatan : 3-4 titik titik diplot dengan betul ✓4]</i></p> <p>E • Draw a line of best fit ✓6 <i>Lukis satu garis lurus terbaik</i></p> <p>F • Minimum size of graph 5 x 4 larger squares ✓7 <i>Saiz minima graf 5 x 4 petak besar</i> (larger square / petak besar : 2 cm x 2 cm) (From the origin to the last point / daripada titik asalan ke titik akhir)</p>	<p>5</p>																																																						

	Marks awarded / markah diberi:		
	Number of ✓	Marks	
	7 ✓	5	
	5-6 ✓	4	
	3-4 ✓	3	
	2 ✓	2	
1 ✓	1		
1 (d)	<i>F_B directly proportional to d</i>		1
TOTAL MARKS			16

Skema No. 2

No. Soalan	Peraturan Pemarkahan	Markah
(a)(i)	- Mengekstrapolasikan graf sehingga suhu = 0 °C. - Menyatakan nilai Panjang turun udara, L = 6.2 cm	1 1
(a)(ii)	- Menyatakan hubungan L dan θ : L bertambah secara linear dengan θ . - Menyatakan alasan: Graf garis lurus dengan kecerunan positif dan melalui pintasan paksi-L bukan sifar/ Graf garis lurus dengan kecerunan positif dan melalui titik bukan asalan	1 1
(a)(iii)	- Melukis satu segitiga di bawah graf yang merangkumi sebahagian besar graf - Membuat gantian nilai dengan betul ke dalam formula kecerunan Kecerunan = $\frac{7.5-6.2}{65-0}$ - Menulis jawapan akhir dengan nilai dan unit yang betul Kecerunan = 0.02 cm°C ⁻¹	1 1 1 1
(b)(i)	Menggantikan nilai kecerunan dan nilai pintasan-L ke dalam persamaan am graf garis lurus : $y = mx + c$ Menulis persamaan linear: $L = 0.02\theta + 6.2$	1 1
(b)(ii)	Menggantikan nilai $\theta = 90^\circ\text{C}$ ke dalam persamaan linear $L = 0.02(90) + 6.2$ Menulis jawapan akhir dengan nilai yang betul $L = 8.0 \text{ cm}$	1 1
(c)	Mengelak ralat paralaks dengan memastikan mata berserenjang dengan skala bacaan pembaris dan termometer.	1

- INFERENS** : Tekanan dipengaruhi oleh ketumpatan
- HIPOTESIS** : Jika ketumpatan bertambah, maka tekanan bertambah
- TUJUAN** : Untuk mengkaji hubungan antara ketumpatan dan tekanan
- PEMBOLEHUBAH** : Manipulasi : Ketumpatan, ρ
 Bergerakbalas : Tekanan, P // Beza ketinggian paras air di dalam manometer, y
 Dimalarkan : Kedalaman, h
- RADAS DAN BAHAN** : Corong tisel, manometer, silinder penyukat, air, garam, penimbang elektronik, tiub getah, pembaris meter, tiub getah nipis, kaki retort

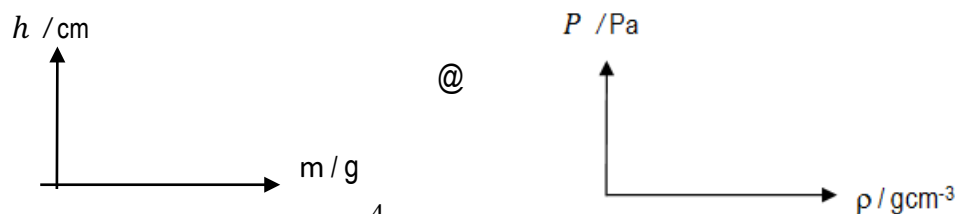


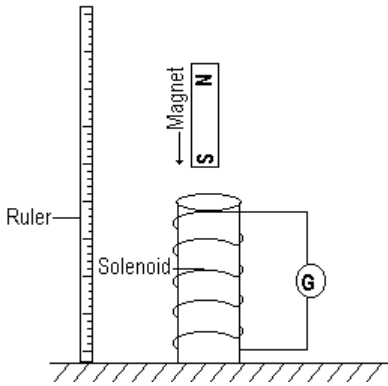
- PROSEDUR** :
1. Silinder penyukat dipenuhkan dengan isi padu air, $V = 250$ ml dan dicampurka dengan garam berjisis, $m = 10$ g. Rendamkan corong tisel secara menegak pada kedalaman air, $h = 30.0$ cm
 2. Ukur beza ketinggian paras air di dalam manometer, y dengan menggunakan pembaris meter
(Beza ketinggian paras air di dalam manometer, $y =$ Tekanan air)
 4. Ulang eksperimen dengan melarutkan garam berjisis, $m = 20$ g, 30 g, 40 g dan 50 ke dalam air berisi padu, $V = 250$ ml.

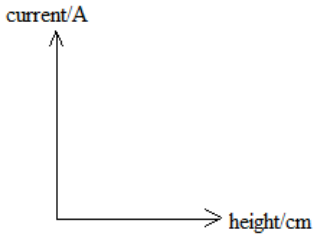
PENJADUALAN DATA :

Jisim garam, m / g	Beza ketinggian paras air di dalam manometer, y / cm	@	Ketumpatan, ρ / gcm^{-3}	Tekanan, P / Pa
10			ρ_1	
20			ρ_2	
30			ρ_3	
40			ρ_4	
50			ρ_5	

ANALISA DATA :



No.	Mark	Answer
4 (a)	1	Inference : The brightness of the bulb depend on the speed of wheel rotation// The brightness of the bulb depend on the speed of magnet
(b)	1	Hypothesis: If the speed increases (magnet), the (induced) current increase.// If the height of magnet increases, the (induced) current increases.
(c)(i)		Aim: To investigate the relationship between height (of magnet released) and the (induced) current
(ii)	1 <i>(kedua-dua betul)</i>	Variables: Manipulated : height of magnet released Responding : induced current
	1	Constant Variable : number of turn/strength of magnet/
(iii)	1	List of apparatus : miliammeter/galvanometer, meter ruler, connection wire, bar magnet, and coils/solenoid, retort stand
(iv)	1	Arrangement of apparatus: 
(v)	1	Control of manipulated variable: Set up the apparatus as shown in the diagram Measure the height of magnet, X_1 cm
	1	Measurement of responding variable: Released the bar magnet into solenoid. Record the reading of miliammeter/Galvanometer while the bar magnet is moving into the solenoid./Record the maximum reading of miliammeter/Galvanometer
	1	Repeat the experiment 4 times with the difference height of magnet bar released X_2 cm, X_3 cm, X_4 cm and X_5 cm.

(vi)		<p>Tabulation of data : (<i>Terima jika tak tulis unit</i>)</p> <table border="1" data-bbox="505 239 1370 470"> <thead> <tr> <th data-bbox="505 239 935 275">Height of magnet released/ cm</th> <th data-bbox="935 239 1370 275">Induced current/ mA</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>	Height of magnet released/ cm	Induced current/ mA										
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(vii)	1	<p>Analysis of data. Plot the graph of current against height</p> 												
	12													