



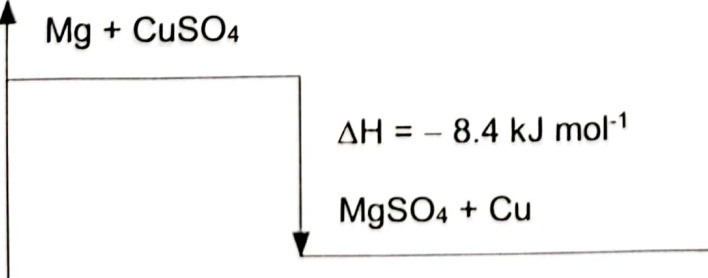
MODUL GEMILANG SPM 2024

KIMIA

PERATURAN PEMARKAHAN KERTAS 3

Kertas jawapan ini mengandungi 4 halaman bercetak

Soalan		Peraturan Pemarkahan	Sub markah	Jumlah markah
1	(a)	<p>1. Sukat 25 cm³ larutan kuprum(II) sulfat, CuSO₄, 2.0 mol dm⁻³ dengan menggunakan silinder penyukat dan tuang ke dalam cawan plastik. <i>Measure 25 cm³ of copper(II) sulphate solution, CuSO₄, 2.0 mol dm⁻³ using a measuring cylinder and pour into a plastic cup.</i></p> <p>2. Masukkan termometer ke dalam larutan itu dan biarkan selama dua minit. <i>Dip a thermometer into the solution and leave it aside for two minutes.</i></p> <p>3. Catatkan suhu awal larutan dalam Jadual 2. <i>Record the initial temperature of the solution in Table 2.</i></p> <p>4. Masukkan dengan cepat pita magnesium, Mg ke dalam larutan kuprum(II) sulfat, CuSO₄. <i>Quickly add magnesium ribbon, Mg into the copper(II) sulphate solution, CuSO₄.</i></p> <p>5. Tutup cawan plastik dengan kertas turas dan kacau campuran dengan termometer. <i>Cover the plastic cup with a filter paper and stir the mixture using the thermometer.</i></p> <p>6. Catatkan suhu tertinggi campuran. <i>Record the highest temperature of the mixture.</i></p> <p>7. Ulangi Langkah 1 hingga 6 dengan menggunakan jalur zink bagi menggantikan pita magnesium. <i>Repeat steps 1 to 6 by using zink strip to replace magnesium ribbon.</i></p>		3
	(b)	<p>Suhu meningkat // <i>Temperature increases</i></p> <p>Pepejal berwarna perang terendap // <i>Brown solid deposited</i></p> <p>Warna biru larutan kuprum(II) sulfat menjadi biru pudar // <i>The blue colour of copper(II) sulphate become pale blue</i></p> <p>(Mana-mana 1) (Any 1)</p>	1	1

Soalan	Peraturan Pemarkahan	Sub markah	Jumlah markah												
(c)	<p><i>Contoh jawapan :</i></p> <table border="1" data-bbox="284 300 1134 651"> <thead> <tr> <th data-bbox="284 300 453 510">Logam Metal</th> <th data-bbox="458 300 724 510">Suhu awal larutan kuprum(II) sulfat ($^{\circ}\text{C}$) <i>Initial temperature of copper(II) sulphate solution ($^{\circ}\text{C}$)</i></th> <th data-bbox="729 300 948 510">Suhu tertinggi campuran ($^{\circ}\text{C}$) <i>Highest temperature of the mixture ($^{\circ}\text{C}$)</i></th> <th data-bbox="952 300 1134 510">Perubahan suhu ($^{\circ}\text{C}$) <i>Change in temperature ($^{\circ}\text{C}$)</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="284 517 453 577">Magnesium</td> <td data-bbox="458 517 724 577"></td> <td data-bbox="729 517 948 577"></td> <td data-bbox="952 517 1134 577"></td> </tr> <tr> <td data-bbox="284 584 453 651">Zink</td> <td data-bbox="458 584 724 651"></td> <td data-bbox="729 584 948 651"></td> <td data-bbox="952 584 1134 651"></td> </tr> </tbody> </table> <p>1 markah – suhu awal 1 markah – suhu tertinggi 1 markah – perubahan suhu</p>	Logam Metal	Suhu awal larutan kuprum(II) sulfat ($^{\circ}\text{C}$) <i>Initial temperature of copper(II) sulphate solution ($^{\circ}\text{C}$)</i>	Suhu tertinggi campuran ($^{\circ}\text{C}$) <i>Highest temperature of the mixture ($^{\circ}\text{C}$)</i>	Perubahan suhu ($^{\circ}\text{C}$) <i>Change in temperature ($^{\circ}\text{C}$)</i>	Magnesium				Zink				<p>1 1 1</p>	<p>3</p>
Logam Metal	Suhu awal larutan kuprum(II) sulfat ($^{\circ}\text{C}$) <i>Initial temperature of copper(II) sulphate solution ($^{\circ}\text{C}$)</i>	Suhu tertinggi campuran ($^{\circ}\text{C}$) <i>Highest temperature of the mixture ($^{\circ}\text{C}$)</i>	Perubahan suhu ($^{\circ}\text{C}$) <i>Change in temperature ($^{\circ}\text{C}$)</i>												
Magnesium															
Zink															
(d)	<p>Bilangan mol larutan CuSO_4, n = $\frac{MV}{1000}$ <i>Number of moles of CuSO_4 solution, n</i> = $\frac{(2)(25)}{1000}$ = 0.05 mol</p> <p>Perubahan haba, $Q = mc\theta$ <i>Heat change, Q</i> = $25 \times 4.2 \times 4$ = 420J // 0.42kJ</p> <p>Haba tindak balas, $\Delta H = \frac{Q}{n}$ <i>Heat of reaction, ΔH</i> = $\frac{0.42 \text{ kJ}}{0.05 \text{ mol}}$ = -8.4 kJ mol^{-1}</p>	<p>1 1 1</p>	<p>3</p>												
(e)	<p>Tenaga <i>Energy</i></p>  <p>1 markah – rajah betul 1 markah – label betul</p>	<p>1 1</p>	<p>2</p>												

Soalan	Peraturan Pemarkahan		Sub markah	Jumlah markah
(f)	Suhu tertinggi campuran sama // tidak berubah // (menyatakan suhu tertinggi campuran sama seperti dalam (d)) <i>Highest temperature of the mixture is the same // unchanged // (express the value of highest temperature of the mixture same as in (d))</i>		1	1
(g)	Agen pengoksidaan <i>Oxidising agent</i>	Agen penurunan <i>Reducing agent</i>	2	2
	Kuprum(II) sulfat <i>Copper(II) sulphate</i>	Magnesium <i>Magnesium</i> Zink <i>Zinc</i>		
3 jawapan betul – 2 m 2 jawapan betul – 1 m 1 jawapan betul – 0 m				
			JUMLAH	15

– PERATURAN PEMARKAHAN TAMAT –