

Paper 3

Question	Mark Scheme	Score
1(a)	Able to state three observations correctly	3
	<u>Sample answer</u> Set I : Ammeter needle not deflect. Set II : Ammeter needle deflected. Set III : Ammeter needle not deflect.	
	Able to state any two observations correctly	2
	Able to state any one observation correctly	1
	No response or wrong response	0

Question	Mark Scheme	Score
1(b)	Able to state the inference for the experiment correctly.	3
	<u>Sample answer</u> Molten lead(II) bromide can conduct electricity Molten naphthalene and sulphur cannot conduct electricity	
	Able to state any one inference above	2
	Able to give idea on electrical conductivity	1
	<u>Sample answer</u> Electrical conductivity depends on type of compound.	
	No response or wrong response	0

Question	Mark Scheme	Score
1(c)	Able to state the operational definition correctly.	3
	<u>Sample answer</u> Ammeter needle deflected when the circuit is completed.	
	Able to state the operational definition	2
	<u>Sample answer</u>	

SULIT

4541

	Ammeter needle deflected.	
	Able to give an idea of the operational definition <u>Sample answer</u> The flow of current.	1
	No response or wrong response	0

Question	Mark Scheme	Score
1(d)	Able to state the hypothesis correctly. <u>Sample answer</u> Electrolyte can conduct electricity while non-electrolyte cannot conduct electricity.	3
	Able to state a hypothesis. <u>Sample answer</u> Electrolyte can conduct electricity // Non-electrolyte cannot conduct electricity.	2
	Able to give an idea of hypothesis. <u>Sample answer</u> Electrical conductivity depends on the type of substances.	1
	No response given / wrong response	0

Question	Mark Scheme	Score
1(e)	Able to state the three variables correctly. <u>Sample answer</u> 1. Manipulated variable : Electrolyte and non-electrolyte 2. Responding variable : Ammeter reading 3. Constant variable: Mass of substance	3
	Able to state any two variables correctly.	2
	Able to state any one variable correctly.	1

4541

Lihat sebelah
SULIT

SULIT

4541

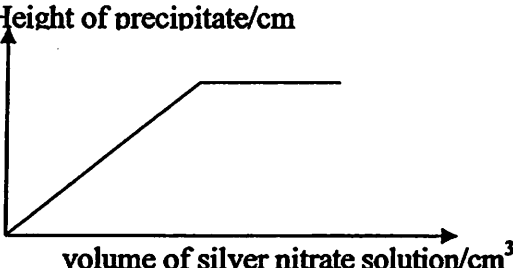
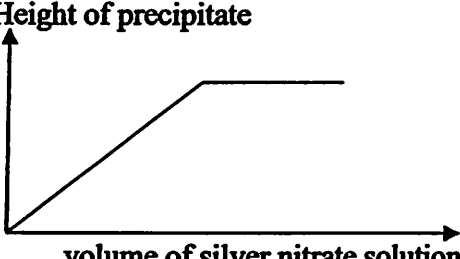
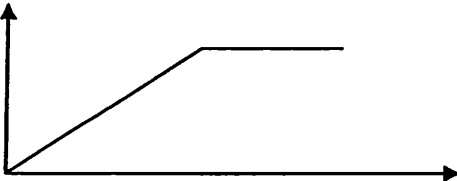
	No response given / wrong response	0
--	------------------------------------	---

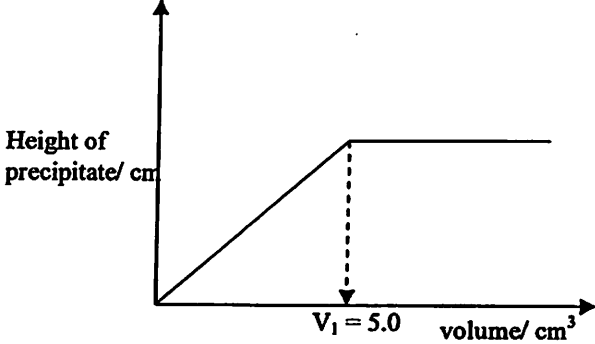
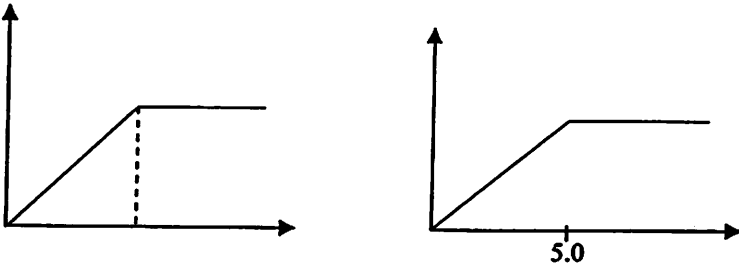
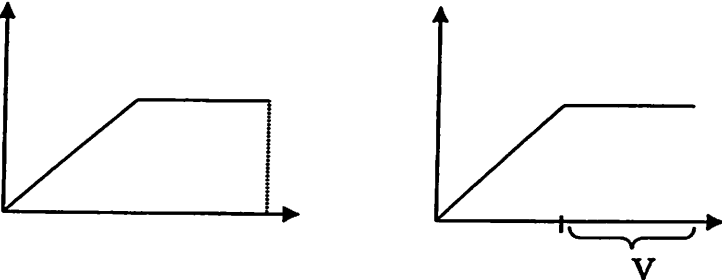
Question	Mark Scheme	Score
1(f)	Able to classify ionic compounds and covalent compound into their group correctly <u>Answer</u> <i>Ionic compounds:</i> Lead(II) bromide <i>Covalent compounds:</i> naphthalene, glucose	3
	Able to classify any two compounds correctly	2
	Able to classify any one compound correctly	1
	No response given / wrong response	0

Question	Mark Scheme	Score
2(a)	Able to record the burette readings and the volume of silver nitrate accurately. <u>Answer:</u> Final burette reading = 40.20 Initial burette reading = 47.20 Volume of silver nitrate(X) = 7.00	3
	Able to record the burette readings and the volume of silver nitrate correctly. <u>Sample answer:</u> Final burette reading = 40.2 Initial burette reading = 47.2 Volume of silver nitrate(X) = 7	2
	Able to record the burette reading or the volume of silver nitrate correctly.	1
	No response or wrong response	0

4541

Lihat sebelah
SULIT

Question	Mark Scheme	Score
2(b)	<p>Able to draw the graph of height of precipitate against volume of silver nitrate solution by showing the following information.</p> <ol style="list-style-type: none"> 1. The axes are labelled with unit correctly. 2. Constant scale and graph size more than 50%. 3. All the points are transferred correctly. 4. Correct and smooth graph <p><u>Sample answer:</u></p> 	3
	<p>Able to draw the graph of height of precipitate against volume of silver nitrate solution by showing the following information.</p> <ol style="list-style-type: none"> 1. The axes are labelled or unit correctly. 2. Constant scale . 3. All the points are transferred correctly. 4. Correct and smooth graph <p><u>Sample answer:</u></p> 	2
	<p>Able to draw the graph of height of precipitate against volume of silver nitrate solution by showing the following information.</p> <ol style="list-style-type: none"> 1. Correct graph <p><u>Sample answer:</u></p> 	1
	No response or wrong response	0

Question	Mark Scheme	Score
2(c)(i)	Able to draw a line on the graph and state/mark the volume correctly.	3
	<p><u>Answer:</u></p> 	
	<p>Able to draw a line on the graph or state the volume correctly // 5.0 without line // draw a line without 5.0</p>	2
	<p>Sample answer:</p> 	
	<p>Able to give an idea to mark the volume of silver nitrate needed.</p>	1
	<p>Sample answer:</p> 	
	<p>No response or wrong response</p>	0

Question	Mark Scheme	Score
2(c)(ii)	Able to show the calculation number of mole Ag^+ , number of mole Cl^- and ratio number of mole . <u>Answer:</u> Number of mole $\text{Ag}^+ = 5.0 \times 1.0/1000 = 0.005 \text{ mol}$ Number of mole $\text{Cl}^- = 5.0 \times 1.0/1000 = 0.005 \text{ mol}$ No. of mole Cl^- react with 1 mol of $\text{Ag}^+ = \#0.005/0.005\# = 1 \text{ mol}$	3
	Able to show the calculation/ number of mole Ag^+ and number of mole Cl^- // ratio number of mole . <u>Sample answer:</u> Number of mole $\text{Ag}^+ = 5.0 \times 1.0/1000 = 0.005 \text{ mol}$ Number of mole $\text{Cl}^- = 5.0 \times 1.0/1000 = 0.005 \text{ mol}$ OR $\text{Ag}^+ : \text{Cl}^- = 5.0 \times 1/1000 : 5.0 \times 1/1000 // 1 : 1$	2
	Able to show the calculation [number of mole Ag^+] // [number of mole Cl^-]. <u>Sample answer:</u> Number of mole $\text{Ag}^+ = 5.0 \times 1.0/1000 = 0.005 \text{ mol}$ OR Number of mole $\text{Cl}^- = 5.0 \times 1.0/1000 = 0.005 \text{ mol}$	1
	No response or wrong response	0

Question	Mark Scheme	Score
2(d)	Able to predict the height of precipitate with unit correctly <u>Answer:</u> 3.5 cm	3
	Able to predict the height of precipitate without unit. <u>Answer:</u> 3.5	2
	Able to give an idea of predicting the height of precipitate <u>Sample answer:</u> More than 3 and less than 4.	1
	No response or wrong response	0

Score	Explanation/Rubric	Maximum score
3(a)	<p><i>Able to give the aim of the experiment by relating the following 4 information correctly:</i></p> <ol style="list-style-type: none"> 1. <i>different metals</i> 2. <i>contact</i> 3. <i>rusting</i> 4. <i>arrange the position</i> <p><u>Sample answer:</u> To investigate the effect of different type of metals/ (metals P and Q) which is in contact with iron on the rusting of iron and arrange the position of metals P, Q and iron in electrochemical series.</p>	3
	<p><i>Able to give the aim of the experiment by relating the following 3 information correctly:</i></p> <ol style="list-style-type: none"> 1. <i>different metals</i> 2. <i>contact</i> 3. <i>rusting</i> <p><u>Sample answer:</u> To investigate the effect of different type of metals/ (metals P and Q/) in contact with iron affect rusting of iron. a: problem statement</p>	2
	<p><i>Able to give an idea of aim of experiment.</i></p> <p><u>Sample answer:</u> To investigate the effect of different type of metals on rusting//Does metal P/Q metal affect iron rusting?</p>	1
	<i>No response or wrong response.</i>	0

[KK051202-To state all variables]

Score	Explanation/Rubric	Maximum score
3(b)	<p><i>Able to state all variables correctly:</i></p> <p><u>Sample answer:</u> <i>Manipulated variable:</i> metal P and metal Q // stating 2 metals which one metal is less electropositive and one metal is more electropositive than iron.// pairs of P-Fe and Q-Fe</p> <p><i>Responding variable:</i> the rusting of iron // iron rusts or does not rust // [any</p>	3

SULIT

4541

	suitable observations: e.g. the formation of blue spot// the formation of pink colour // the formation of brown solid] <i>Fixed variable:</i> iron nail// electrolyte // agar/jelly solution //temperature// potassium hexacyanoferrate(III) solution// phenolphthaein solution	
	<i>Able to state any two variables correctly.</i>	2
	<i>Able to state any one variable correctly.</i>	1
	<i>No response or wrong response.</i>	0

[KK051202-To state a hypothesis]

Score	Explanation/Rubric	Maximum score
3(c)	<i>Able to state the relationship between the manipulated variable and the responding variable with direction correctly.</i> Sample answer: Metal Q causes iron nail rusting while metal P does not.// A more electropositive metal/(metal P) will prevent iron from rusting while a less electropositive metal (metal Q) will be rusting iron.	3
	<i>Able to state the relationship between the manipulated variable and the responding variable:</i> Sample answer: Metal Q speeds up iron nail rusting while metal P slows down rusting.	2
	<i>Able to state an idea of hypothesis:</i> Sample answer: Metal P / Q affect the rusting of iron.	1
	<i>No response or wrong response.</i>	0

[KK051203-list of materials and apparatus]

Score	Explanation/Rubric	Maximum score
3(d)	<i>Able to give a complete list of materials and apparatus that involves the following:</i>	3

4541

Lihat sebelah
SULIT

SULIT

4541

	<ol style="list-style-type: none"> 1. iron nails 2. 1 metal above iron in electrochemical series 3. 1 metal below iron in electrochemical series 4. A suitable electrolyte, test-tubes, sand paper, test tube rack <p><u>Sample answer:</u> Iron nails, magnesium/zinc/aluminium strip, tin/copper/lead/silver strip, [agar-agar solution + potassium hexacyanoferrate(III) solution+phenolphthalein indicator]/[any suitable electrolyte]/[water], test-tubes/boiling-tubes, sand paper</p>	
	<p><i>Able to give a list of materials and apparatus that involves the following:</i></p> <ol style="list-style-type: none"> 1. 1 metal above iron in electrochemical series 2. 1 metal below iron in electrochemical series 3. Any suitable electrolyte, any suitable container 	2
	<p><i>Able to give a list of materials and apparatus that involves the following:</i></p> <ol style="list-style-type: none"> 1. 1 metal above/below iron in electrochemical series// any suitable electrolyte. 2. any container 	1
	<i>No response or wrong response.</i>	0

[KK051203-procedure of the experiment]

Score	Explanation/Rubric	Maximum score
3(e)	<p><i>Able to state the following 6 steps:</i></p> <ol style="list-style-type: none"> 1. [Clean the iron nails and metals strip with sand paper] 2. [Coil iron nails with the metals] 3. [Place iron nails in separate container] 4. [Pour/add/fill the [named electrolyte] into the container] 5. [Leave them aside for several days] 6. [Record your observation] <p><u>Sample answer:</u></p> <ol style="list-style-type: none"> 1. Clean iron nails, magnesium ribbon and copper strip with sand paper. 2. Coil two iron nails tightly with magnesium ribbon and copper strip. 3. Place all the iron nails in separate test tubes. 4. Pour the hot agar containing potassium hexacyanoferrate(III) solution and phenolphthalein indicator into the test tubes. 5. Keep the test tubes in a test tube rack and leave them aside for 3 days. 6. Record your observations. 	3

4541

Lihat sebelah
SULIT

SULIT

4541

	Steps 2,4,6	2
	Step 2[coil iron nail with Mg/Cu], 4	1
	<i>No response or wrong response.</i>	0

[KK051202-To make tabulation of data]

Score	Explanation/Rubric	Maximum score						
3(f)	<p><i>Able to exhibit the tabulation of data that includes the following four information.</i></p> <p>1. <i>Heading for the manipulated variables</i> <i>Set//pair of metals</i> 2. <i>Examples of Sets//pair of metals</i> <i>I, II//Mg-Fe, Cu-Fe</i> 3. <i>Heading for responding variable</i> <i>observation</i> 4. <i>2x3 or 3x2 table</i></p> <p><u>Sample answer:</u></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Set//Pair of metals</th> <th>Observation</th> </tr> </thead> <tbody> <tr> <td>I//Mg-Fe</td> <td></td> </tr> <tr> <td>II//Cu-Fe</td> <td></td> </tr> </tbody> </table>	Set//Pair of metals	Observation	I//Mg-Fe		II//Cu-Fe		2
Set//Pair of metals	Observation							
I//Mg-Fe								
II//Cu-Fe								
	<p><i>Able to exhibit the tabulation of data that includes the following two information.</i></p> <p>1. <i>1/3 from score 2</i> 2. <i>2x2 table</i></p> <p><u>Sample answer:</u></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Set//Pair of metals</th> <th>Observation</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Set//Pair of metals	Observation			1		
Set//Pair of metals	Observation							
	<i>No response or wrong response.</i>	0						

END OF MARKING
SKEMA PEMARKAHAN TAMAT

4541

Lihat sebelah
SULIT