

**MARKING SCHEME PAPER 3 SET 2 CHEMISTRY JUJ PAHANG 2019**

<b>Question Number</b>	<b>Rubric</b>	<b>Score</b>
<b>1(a)</b>	Able to state all the ammeter readings accurately with correct unit and 1 decimal place  <b><u>Sample answer:</u></b> Substance P : 0.2 A Substance Q : 0.0 A Substance R : 0.5 A Substance S : 0.0 A	<b>3</b>
	Able to state all the ammeter readings accurately without unit// . // more than 1 decimal place  <b><u>Sample answer:</u></b> Substance P : 0.2/0.20 A Substance Q : 0.0/0.00 A Substance R : 0.5/0.50 A Substance S : 0.0 /0.00 A  // <b>any 3</b> accurate reading	<b>2</b>
	Able to record at least <b>2 reading</b>	<b>1</b>
	<i>No response or wrong response</i>	<b>0</b>

Question Number	Rubric	Score										
1(b)	Able to construct a table consist of:  1. Manipulated variables 2. Responding variable (with unit)  <u>Sample answer:</u> <table><tr><th>Substance</th><th>Ammeter Reading / A</th></tr><tr><td>P</td><td>0.2//0.2 A</td></tr><tr><td>Q</td><td>0.0//0.0A</td></tr><tr><td>R</td><td>0.5//0.5 A</td></tr><tr><td>S</td><td>0.0 //0.0 A</td></tr></table>	Substance	Ammeter Reading / A	P	0.2//0.2 A	Q	0.0//0.0A	R	0.5//0.5 A	S	0.0 //0.0 A	3
	Substance	Ammeter Reading / A										
	P	0.2//0.2 A										
	Q	0.0//0.0A										
R	0.5//0.5 A											
S	0.0 //0.0 A											
Able to construct a table consist of: 1. Manipulated variable 2. Responding variable(without unit)  <table><tr><th>Substance</th><th>Ammeter reading</th></tr><tr><td>P</td><td>0.2</td></tr><tr><td>Q</td><td>0.0</td></tr><tr><td>R</td><td>0.5</td></tr><tr><td>S</td><td>0.0</td></tr></table>	Substance	Ammeter reading	P	0.2	Q	0.0	R	0.5	S	0.0	2	
Substance	Ammeter reading											
P	0.2											
Q	0.0											
R	0.5											
S	0.0											
Able to give an idea of tabulation of data Sample answer: <table><tr><td>P</td><td>0.2</td></tr><tr><td>Q</td><td>0.0</td></tr><tr><td>R</td><td>0.5</td></tr><tr><td>S</td><td>0.0</td></tr></table>	P	0.2	Q	0.0	R	0.5	S	0.0	1			
P	0.2											
Q	0.0											
R	0.5											
S	0.0											
No response or wrong response	0											

Question Number	Rubric	Score
1(c)	Able to state all the three variables correctly  <u>Sample answer:</u>  <b>Manipulated variable:</b> Type of substance // substance P, Q,R and S <b>Responding variable :</b> Ammeter reading <b>Constant variable :</b> carbon electrode	3
	Able to state <b>any two</b> variables correctly OR One variable correctly and idea of two variables	2
	Able to state <b>any one</b> variable correctly OR idea of all three variables	1
	No response or wrong response	0

Question Number	Rubric	Score
1(d)	Able to state the relationship between the <b>manipulated variable</b> and the <b>responding variable</b> with <b>direction</b> .  <u>Sample answer:</u> Ionic compounds conduct electricity in molten state // Covalent compound cannot conduct electricity in molten state If opposite - score 2	3
	Able to state the relationship between the <b>manipulated variable</b> and the <b>responding variable</b> without <b>direction</b> .  <u>Sample answer:</u> Different type of compound affect the electrical conductivity// Different type of compounds shows different ammeter reading (ammeter change)	2
	Able to state the idea of hypothesis <u>Sample answer:</u>  Different ammeter reading // voltage	1
	No response or wrong response	0

Question Number	Rubric	Score
<b>1(e) (i)</b>	Able to state one observation correctly based on substance P and substance R <b>Sample answer:</b> The needle of ammeter deflects and shows a reading	<b>3</b>
	Able to state one observation <b>Sample answer:</b> Needle of Ammeter change// ammeter reading increase(decrease)	<b>2</b>
	Able to give an idea of the observation <b>Sample answer:</b> <b>Ammeter change</b>	<b>1</b>
	No response or wrong response	<b>0</b>

Question Number	Rubric	Score
<b>1(e)(ii)</b>	Able to state the inference correctly Sample answer: Substance P and substance R conduct electricity// Substance P and substance R is an ionic compound//	<b>3</b>
	Able to state the inference Sample answer:	<b>2</b>
	Able to give an idea of the inference Sample answer:	<b>1</b>
	No response or wrong response	<b>0</b>

Question Number	Rubric	Score
1(f)	Able to explain correctly Sample answer: Substance Q and substance S exist as molecules. It has no free moving ion which conduct electricity	3
	Able to explain Sample answer: Substance Q and substance S has no ion	2
	Able to give an idea Sample answer: Substance Q and Substance R are covalent compound.	1
	No response or wrong response	0

Question Number	Rubric	Score				
1(g)	Able to classify <b>all</b> the substance correctly Sample answer:	3				
	<table><tr><td>Electrolyte</td><td>Non-electrolyte</td></tr><tr><td>Substance P Substance R</td><td>Substance Q Substance S</td></tr></table>		Electrolyte	Non-electrolyte	Substance P Substance R	Substance Q Substance S
	Electrolyte		Non-electrolyte			
	Substance P Substance R	Substance Q Substance S				
	Able to classify any three substance correctly	2				
	Able to classify any two substance correctly or reverse classification	1				
No response or wrong response	0					

Question Number	Rubric	Score
1(h)	<b>Able to state the correct operational definition that fulfills the following criteria</b> 1. What must be done 1. What to observe <b>Sample answer</b> 1. When two carbon electrodes is dip into substance P or substance R and then heated the needle of ammeter deflects	3
	<b>Able to state the correct operational definition that fulfills any one of criteria</b> <b>Sample answer</b> 1. Two carbon electrodes is dip into substance P or substance Q and then heated 2. Ammeter needle is deflects	2
	<b>Able to state an idea of operational definition</b> <b>Sample answer</b> 1. Substance P /(substance R) heated 2. Ammeter change	1
	No response or wrong response	0

Number	Rubric	Score	
1(i)	Able to predict all of substance correctly Answer :	3	
	Compound		Needle of ammeter deflects
	Lead (II) bromide		√
	Acetamide		X
	Naphthalein		X
	Able to predict two substaces correctly	2	
	Able to predict one substance correctly	1	
No response or wrong response	0		

Number	Rubric	Score
1(j)	Able to state the relationship between intensity of blue colour and time correctly Sample answer :When the time increase, the intensity of blue colour decrease	3
	Able to state the relationship between intensity of blue colour and time Sample answer; Blue colour decrease	2
	Able to give an idea of the relationship Blue colour change	1
	No response or wrong response	0

Question No.	Rubric	Score
2(a)	<i>Able to state the problem statement correctly.</i>  <u>Sample answer:</u> What is the effect on the rusting of iron when it is in contact with zinc/magnesium/aluminium and copper/tin/stannum ? //How does zinc/magnesium/aluminium and copper/tin/stannum in contact with iron affect rusting?	3
	<i>Able to state the problem statement less correctly or state the aim of the experiment.</i>  <u>Sample answer:</u> How do/does metal zinc/magnesium/copper/argentum affect rusting?// What is the effect on the rusting of iron when it is in contact with metal.// How do/does different types of metals in contact with iron affect rusting?	2
	<i>Able to give an idea of the problem statement.</i>  <u>Sample answer</u> Metal /P/Q affects rusting.	1
	No response or wrong response	0

Question No.	Rubric	Score
2(b)	<p><i>Able to state all variables correctly:</i></p> <p><u>Sample answer:</u>  <i>Manipulated variable:</i> different metals//types of metal//zinc and copper//            (one metal is more electropositive and less 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 suitable observations: e.g. the formation of blue spot// the formation of pink colour // the formation of brown solid]</p> <p><i>Fixed variable:</i> iron nail// electrolyte // agar/jelly solution //temperature// potassium hexacyanoferrate(III) solution</p>	3
	Able to state <b>any two</b> variables correctly <b>or</b> able to state any one variables correctly and two ideas of variable	2
	Able to state <b>any one</b> variable correctly <b>or</b> able to state 3 ideas of variable	1
	No response or wrong response	0
2(c)	<p><i>Able to state the hypothesis correctly:</i></p> <p><u>Sample answer:</u>            When more /less electropositive metal in contact with iron, rusting occur/does not occur// prevented//blue colour form.</p> <p>Metal Q causes iron nail rusting while metal P does not.//</p>	3
	<p><i>Able to state the hypothesis:</i></p> <p><u>Sample answer:</u>            Copper metal/stannum metal/argentum /metal Q causes iron nail rusting //            Metal P prevents iron rusting.</p>	2
	<p><i>Able to state an idea of hypothesis:</i></p> <p><u>Sample answer:</u>            Metal P / Q affect the rusting of iron.</p>	1



Question No.	Rubric	Score
	<i>No response or wrong response.</i>	0
2(d)	<p><i>Able to list all the materials and apparatus.</i></p> <p><u>Sample answer:</u>            Materials :            1. Iron //nails            2. Magnesium/zinc/aluminium strip,            3. tin/copper/lead/silver strip,            4. jelly//agar-agar solution            5. potassium hexacyanoferrate(III)/(II) solution            Apparatus:            1. Test-tubes//boiling tubes            2. Test tube rack            3. Sand paper</p>	3
	<p><i>Able to give a list the following materials and apparatus.</i></p> <p><u>Sample answer:</u>  <u>Sample answer:</u>            Materials :            1. Iron (nail)            2. Magnesium/zinc/aluminium strip,            3. tin/copper/lead/silver strip,            4. potassium hexacyanoferrate(III)/(II) solution            Apparatus:            1. Test-tubes//boiling tubes</p>	2
	<p><i>Able to list the materials and apparatus.</i></p> <p><u>Sample answer:</u>            Materials :            1. Iron (nail)            Apparatus :            1. Any container</p>	1
2 (e)	<p><i>Able to state all the steps of procedure correctly.</i></p> <p><u>Sample answer:</u>            1. Clean iron nails, magnesium /zinc/aluminium ribbon ,lead/tin/copper strip with sand paper.            2. Coil iron nail with magnesium/zinc/aluminium and another iron nail</p>	3

Question No.	Rubric	Score
	with lead/tin/copper. 3. Place the iron nail in separate test tubes. 4. Pour the hot agar/(jelly) containing potassium hexacyanoferrate(III)/(II) solution and phenolphthalein into each test tube. 5. Keep the test tubes in a test tube rack and leave them aside for one day. 6. Record the observation.	
	Able to list steps 2,3,4 and 6 correctly	2
	Able to state idea for corrosion/rusting	1
	No response or wrong response.	0

Question	Rubric	Score						
2 (f)	<p><i>Able to tabulate the data with the following aspects :</i></p> <p><i>1. correct headings</i> <i>2. List all metals</i></p> <p><u>Sample answer:</u></p> <table><tr><td>Set// Experiments //Pair of metals</td><td>Observation//Colouration// Presence of blue colour</td></tr><tr><td>I//Mg/Zn/Al-Fe</td><td></td></tr><tr><td>II//Pb/Sn/Cu-Fe</td><td></td></tr></table>	Set// Experiments //Pair of metals	Observation//Colouration// Presence of blue colour	I//Mg/Zn/Al-Fe		II//Pb/Sn/Cu-Fe		2
Set// Experiments //Pair of metals	Observation//Colouration// Presence of blue colour							
I//Mg/Zn/Al-Fe								
II//Pb/Sn/Cu-Fe								
	<p><i>Able to tabulate the data.</i></p> <p><i>1. one correct headings or list of metal</i> <i>2. incomplete list of metal</i></p> <p><u>Sample answer:</u></p> <table><tr><td>Metals</td><td>Observation</td></tr><tr><td></td><td></td></tr></table>	Metals	Observation			1		
Metals	Observation							
	No response or wrong response	0						

**END OF MARKING SCHEME**

