

PERATURAN PEMARKAHAN KIMIA KERTAS 3
PENILAIAN PERCUBAAN SPM NEGERI PAHANG 2017

Question	Rubric	Score
1(a)	<i>Able to state the colour change correctly</i> Answer: Pink colour change to colourless	3
	<i>Able to state the colour change less correctly</i> Sample answer: Purple to colourless	2
	Able to state an idea of colour Sample Answer: Pink // Colourless// Purple	1
	<i>No response or wrong response</i>	0

Question	Rubric	Score												
1(b)	<i>Able to record all burette readings accurately to 2 decimal places</i> Answer: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Titration</td> <td style="width: 35%;">Initial reading (cm³)</td> <td style="width: 50%;">Final reading (cm³)</td> </tr> <tr> <td>I</td> <td style="text-align: center;">0.00</td> <td style="text-align: center;">26.00</td> </tr> <tr> <td>II</td> <td style="text-align: center;">0.50</td> <td style="text-align: center;">24.50</td> </tr> <tr> <td>III</td> <td style="text-align: center;">5.50</td> <td style="text-align: center;">30.50</td> </tr> </table>	Titration	Initial reading (cm ³)	Final reading (cm ³)	I	0.00	26.00	II	0.50	24.50	III	5.50	30.50	3
	Titration	Initial reading (cm ³)	Final reading (cm ³)											
	I	0.00	26.00											
	II	0.50	24.50											
III	5.50	30.50												
<i>Able to record all the burette readings correctly to 1 decimal places or able to record at least 4 reading correctly // ununiform decimal places</i>	2													
<i>Able to record at least 3 burette reading correctly without decimal places</i>	1													
<i>No response or wrong response</i>	0													

Question	Rubric	Score																
1(c)	<p><i>Able to construct a table that contains the following information.</i></p> <ol style="list-style-type: none"> Hading in the table : Set, Inital reading/cm³, Final reading/cm³, Volume of acid/cm³ Transfer all the burette readings from 1(b) correctly With unit at the heading <p>Sample answer:</p> <table border="1" data-bbox="354 615 1190 961"> <thead> <tr> <th>Titration</th> <th>Initil reading/cm³ <i>Bacaan awal/cm³</i></th> <th>Final reading/cm³ <i>Bacaan akhir/cm³</i></th> <th>Volume of acid/cm³ <i>Isipadu asid/cm³</i></th> </tr> </thead> <tbody> <tr> <td>I</td> <td>0.00</td> <td>26.00</td> <td>26.00</td> </tr> <tr> <td>II</td> <td>0.50</td> <td>24.50</td> <td>24.00</td> </tr> <tr> <td>III</td> <td>5.50</td> <td>30.50</td> <td>25.00</td> </tr> </tbody> </table>	Titration	Initil reading/cm ³ <i>Bacaan awal/cm³</i>	Final reading/cm ³ <i>Bacaan akhir/cm³</i>	Volume of acid/cm ³ <i>Isipadu asid/cm³</i>	I	0.00	26.00	26.00	II	0.50	24.50	24.00	III	5.50	30.50	25.00	3
	Titration	Initil reading/cm ³ <i>Bacaan awal/cm³</i>	Final reading/cm ³ <i>Bacaan akhir/cm³</i>	Volume of acid/cm ³ <i>Isipadu asid/cm³</i>														
	I	0.00	26.00	26.00														
	II	0.50	24.50	24.00														
III	5.50	30.50	25.00															
<p><i>Able to construct a table less correctly</i></p>	2																	
<p><i>Able to construct a table that contains the following information</i></p> <ol style="list-style-type: none"> Headings in the table : suitable heading 2 column with heading without data/ 2 column only <p>Sample answer:</p> <table border="1" data-bbox="354 1360 1101 1476"> <thead> <tr> <th>Initial reading</th> <th>Final reading</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	Initial reading	Final reading			1													
Initial reading	Final reading																	
<p><i>No response or wrong response</i></p>	0																	

Question	Rubric	Score
1(d)	<p data-bbox="354 306 1109 369"><i>Able to calculate the average volume and concentration of hydrochloric acid with unit correctly</i></p> <p data-bbox="354 415 472 443">Answer:</p> <p data-bbox="354 449 834 476">Average volume of hydrochloric acid</p> $= \frac{26.00 + 24.00 + 25.00}{3} = 25.00 \text{ cm}^3$ <p data-bbox="354 632 802 659">Concentration of hydrochloric acid</p> $\frac{M_{\text{HCl}} V_{\text{HCl}}}{M_{\text{NaOH}} V_{\text{NaOH}}} = \frac{1}{1}$ $\frac{M_{\text{HCl}} \times 25.00}{1.0 \times 50.00} = \frac{1}{1}$ <p data-bbox="354 890 607 917">25.00 $M_{\text{HCl}} = 50.00$</p> $M_{\text{HCl}} = \frac{50.00}{25.00}$ $= 2.0 \text{ mol dm}^{-3}$	3
	<p data-bbox="354 1150 1109 1213"><i>Able to calculate the average volume and concentration of hydrochloric acid correctly without unit</i></p>	2
	<p data-bbox="354 1224 1109 1287"><i>Able to calculate volume of acid OR concentration of acid correctly</i></p>	1
	<p data-bbox="354 1297 760 1325"><i>No response or wrong response</i></p>	0

Question	Rubric	Score			
1(e)	<i>Able to classify all the acids into monoprotic and diprotic acid correctly</i>	3			
	<table border="1"> <tr> <td>Monoprotic acids <i>Asid monobes</i></td> <td>Diprotic acids <i>Asid dwibes</i></td> </tr> <tr> <td>Hydrochloric acid Ethanoic acid</td> <td>Sulfuric acid Carbonic acid</td> </tr> </table>		Monoprotic acids <i>Asid monobes</i>	Diprotic acids <i>Asid dwibes</i>	Hydrochloric acid Ethanoic acid
	Monoprotic acids <i>Asid monobes</i>	Diprotic acids <i>Asid dwibes</i>			
	Hydrochloric acid Ethanoic acid	Sulfuric acid Carbonic acid			
	<i>Able to classify at least 3 acids correctly</i>	2			
<i>Able to classify at least 2 acids correctly/reverse</i>	1				
<i>No response or wrong response</i>	0				

Question	Rubric	Score									
2(a)	<i>Able to state all inferences correctly</i>	3									
	<table border="1"> <thead> <tr> <th>Test tube</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>Inference</td> <td>Iron nail does not rust // Fe²⁺ does not present</td> <td>Iron nail rust // Fe²⁺ Present / formed</td> <td>Iron nail does not rust // Fe²⁺ does not present</td> <td>Iron nail rust // Fe²⁺ Present / formed</td> </tr> </tbody> </table>		Test tube	A	B	C	D	Inference	Iron nail does not rust // Fe ²⁺ does not present	Iron nail rust // Fe ²⁺ Present / formed	Iron nail does not rust // Fe ²⁺ does not present
	Test tube	A	B	C	D						
	Inference	Iron nail does not rust // Fe ²⁺ does not present	Iron nail rust // Fe ²⁺ Present / formed	Iron nail does not rust // Fe ²⁺ does not present	Iron nail rust // Fe ²⁺ Present / formed						
	<i>Able to state 3 inferences correctly</i>	2									
<i>Able to state 2 inferences correctly</i>	1										
<i>No response or wrong response</i>	0										

Question	Rubric	Score
2(b)	<i>Able to state the hypothesis correctly</i>	3
	Sample answer: When a more/less electropositive metal / higher/lower than iron in Electrochemical series is in contact with iron, iron (nail) does not rust/rust	
	<i>Able to state the hypothesis less correctly</i>	2
	Sample answer: The rusting of iron is faster / slower, if a less / more electropositive metal is in contact with iron/Fe	
<i>Able to give an idea of hypothesis</i>	1	
Sample answer: Iron rust when in contact with other metal // other metal affect the rusting of iron.		
	<i>No response or wrong response</i>	0

Question	Rubric	Score
2(c)	<i>Able to state all the variables correctly</i>	3
	Sample answer: Manipulated variable : Type / different metal Responding variable : Rusting // presence of blue spot/colour Constant variable : Type of iron nail // iron //medium in which the iron are kept	
	<i>Able to state any two of variables in this experiment correctly</i>	
	<i>Able to state any two of variables in this experiment correctly</i>	1
	<i>No response or wrong response</i>	0

Question	Rubric	Score
2(d)	<p><i>Able to state all 3 criteria correctly</i></p> <ol style="list-style-type: none"> 1. <i>Observation : blue spot/colour</i> 2. <i>What is done : when iron nail is coiled/in contact with..</i> 3. <i>Direction : less electropositive/below iron in electrochemical series</i> <p>Sample answer:</p> <ol style="list-style-type: none"> 1. Rusting of iron is the formation of blue spot/colour when iron nail is coiled/in contact with a less electropositive metal (copper)/metal located below iron in electrochemical series 	3
	<p><i>Able to state at least two criteria correctly</i></p> <p>Sample answer:</p> <p>Rusting of iron is the formation of blue spot/colour or when iron nail is coiled/in contact with a less electropositive metal</p>	2
	<p><i>Able to state an idea of operational definition</i></p> <p>Sample answer:</p> <p>Blue spot/colour/rusting occur</p>	1
	<p><i>No response or wrong response</i></p>	0

Question	Rubric	Score
2(e)	<p><i>Able to predict the observation correctly</i></p> <p>Answer:</p> <p>The intensity of blue spot/colouration is very high//higher than test tube 3.</p>	3
	<p><i>Able to predict the observation</i></p> <p>Sample answer:</p> <p>The intensity of blue spot/colour is high</p>	2
	<p><i>Able to predict the observation</i></p> <p>Sample answer:</p> <p>Blue spot/colour</p>	1
	<p><i>No response or wrong response</i></p>	0

Question	Rubric	Score
2(f)	<p><i>Able to state the relationship correctly between the time taken and the amount of rust form correctly</i></p> <ol style="list-style-type: none"> 1. Time taken 2. Formation of rust 3. Comparison <p>Sample answer:</p> <p>The longer the time taken, the bigger/greater/larger the rust form //the longer the time taken, more rust is form //the rust form is greater/bigger/larger when the time taken is longer //the rust form in one week is more/bigger/greater/larger than one day</p>	3
	<p><i>Able to state the relationship between the time taken and the amount of rust form less correctly</i></p> <ol style="list-style-type: none"> 1. Time taken/Formation of rust <p>Sample answer:</p> <p>The rust form is bigger/greater/larger //the form is directly proportional to the time taken</p>	2
	<p><i>Able to state any idea of relationship</i></p> <p>Sample answer:</p> <p>The rust is form/change//rust is small/less</p>	1
	<i>No response or wrong response</i>	0

Soalan	Peraturan Pemarkahan	Markah
3(a)	<p>Able to give the problem statement correctly.</p> <p>Sample answer : How to determine/compare the electrical conductivity of (ionic compound /P/ lead(II) bromide) and (covalent compound /Q/ glucose) in molten state?</p>	3
	<p>Able to give the statement of the problem statement incorrectly.</p> <p>Sample answer: 1. To determine/compare the electrical conductivity of (ionic compound /P/ lead(II) bromide) and (covalent compound /Q/ glucose/naphthalene) in molten state. 2. Can (ionic compound /P/ lead(II) bromide) and (covalent compound /Q/glucose/naphthalene) conduct electricity in molten state?</p>	2
	<p>Able to give idea of problem statement.</p> <p>Sample answer: (Ionic compound /P/ lead(II) bromide) can conduct electricity in molten state // (Covalent compound /Q/glucose/ naphthalene) cannot conduct electricity in molten state.</p>	1
	No response or wrong response	0
3(b)	<p>Able to state all variables correctly</p> <p>Sample answer: Manipulated variable : Lead(II) bromide and glucose // Ionic compound and covalent Compound//compound P and compound Q Responding variable : Electrical conductivity// The bulb lights up and bulbs does not lights up//the lighting of the bulbs Constant variable : Carbon electrode</p>	3

	Able to state two variables correctly	2
	Able to state one variable correctly	1
	No response or wrong response	0
3(c)	Able to state the relationship between the manipulated variable and the responding variable correctly. Sample answer : (Ionic compound /P/ lead(II) bromide) can conduct electricity in molten state while (covalent compound/Q/glucose) cannot conduct electricity in molten state.	3
	Able to state the relationship between the manipulated variable but less accurate. Sample answer : (Ionic compound /P/ lead(II) bromide) can conduct electricity in molten state // (Covalent compound /Q/ glucose) cannot conduct electricity in molten state.	2
	Able to state an idea of hypothesis Sample answer : Conduct electricity // cannot conduct electricity	1
	No response or wrong response	0
3(d)	Able to give the list of the apparatus and materials correctly and completely. Sample answer : Apparatus: Battery, carbon electrode, ammeter, Bunsen burner, connecting wire, crucible, tripod stand. Materials: Lead(II) bromide, glucose	3
	Able to list basic apparatus and materials. Sample answer : Apparatus : Battery, carbon electrode, ammeter, Bunsen burner, crucible/beaker/conical flask Material : Lead(II) bromide, glucose/naphthalene	2
	Able to give least of materials and apparatus that involved the following two things: 1. Any container (except plastic) 2. Any substance / material	1
	No response or wrong response	0
3(e)	Able to list all the steps correctly	

	<p>Sample answer :</p> <ol style="list-style-type: none"> 1. A crucible is filled with lead(II) bromide solid. 2. The solid lead(II) bromide is heated strongly until it melts. 3. Two carbon electrodes are dipped in the molten lead(II) bromide and then connected to batteries and ammeter using connecting wires. 4. Deflection of ammeter needle is observed and recorded. 5. Steps 1 to 5 is repeated using glucose. 	3						
	Able to list down steps 2,3 and 4	2						
	Able to give steps 2 and 3	1						
	No response or wrong response	0						
3(f)	<p>Able to tabulate the data with the following aspects</p> <ol style="list-style-type: none"> 1. Correct titles 2. List of substances <p>Sample answer :</p> <table border="1"> <thead> <tr> <th>Type of substances</th> <th>Observation</th> </tr> </thead> <tbody> <tr> <td>Lead(II) bromide</td> <td></td> </tr> <tr> <td>Glucose</td> <td></td> </tr> </tbody> </table>	Type of substances	Observation	Lead(II) bromide		Glucose		2
Type of substances	Observation							
Lead(II) bromide								
Glucose								
	<p>Able to tabulate the data but incomplete.</p> <ol style="list-style-type: none"> 1. Correct titles or list of substances 2. Incorrect titles and one substance <p>Sample answer :</p> <table border="1"> <thead> <tr> <th>Type of substances</th> <th>Observation</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	Type of substances	Observation					1
Type of substances	Observation							
	No response or wrong response.	0						