

4541/3
Kimia
Kertas 3
Peraturan
Pemarkahan
2007

**LOGO DAN
NAMA SEKOLAH**

**PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA 2007**

KIMIA

KERTAS 3

PERATURAN PEMARKAHAN

UNTUK KEGUNAAN PEMERIKSA SAHAJA

AMARAN

Peraturan pemarkahan ini **SULIT** dan **Hak Cipta Jabatan Pelajaran Pahang**. Kegunaannya khusus untuk pemerikasa berkenaan sahaja

Peraturan Pemarkahan ini mengandungi 11 halaman bercetak

**MARKING SCHEME
TRIAL EXAM 2007**

PAPER 3

Question Number	Rubric	Score
1(a)	[Able to write the initial reading, the final reading and the volume of hydrochloride acid used for experiment I in two decimal points accurately] Answer: 1. The initial burette reading = 5.55 cm ³ 2. The final burette reading = 31.55 cm ³ 3. The volume of hydrochloride acid used = 26.00 cm ³	3
	[Able to write any two of the initial reading, the final reading and the volume of hydrochloride acid used for experiment I in accurately]	2
	[Able to write any one of the initial reading, the final reading and the volume of hydrochloride acid used for experiment I accurately]	1
	No response or wrong response	0

Question	Rubric	Score
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Number														
1(b)	<p>[Able to construct a table that consists of the following three aspects with unit correctlt] Msnipulsted variable Experiment I and Experiment II Responding variable Initial burette reading,the final burette raeding and Constant variable: the volume of acid used</p> <p>Sample Answer:</p> <table border="1" data-bbox="396 527 1130 716"> <thead> <tr> <th>Experiment</th> <th>Initial burette reading/ cm³</th> <th>Final Burette reading / cm³</th> <th>Volume of acid / cm³</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>5.55</td> <td>31.55</td> <td>26.00</td> </tr> <tr> <td>II</td> <td>2.55</td> <td>X</td> <td>X – 2.55</td> </tr> </tbody> </table>	Experiment	Initial burette reading/ cm ³	Final Burette reading / cm ³	Volume of acid / cm ³	I	5.55	31.55	26.00	II	2.55	X	X – 2.55	3
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5.55	31.55													
2.55	X													
	No response or wrong response	0												

Question	Rubric	Score
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Number		
1(c)	[able to state the three variable correctly] Manipulated variable: Type of acids / monoprotic and diprotic acids/ hydrochloride acid and sulfuric acid Responding variable: The volume of acid used Constant variable: Volume of acid / volume and concentration of sodium hydroxide	3
	[able to state any two variable correctly]	2
	[able to state any one variable correctly]	1
	No response or wrong response	0

Question Number	Rubric	Score
1(d)	[able to give the hypothesis correctly by stating the following three aspects] Manipulated variable: Type of acids / monoprotic and diprotic acids/ hydrochloride acid and sulfuric acid Effect that is related to the responding variable: The volume of acid used Direction of effect Different Sample answer: <u>The volume of acid</u> used was <u>different</u> when different <u>type of acid</u> used.	3
	[able to give the hypothesis correctly by stating any two of the following three aspects]	2
	[able to give the hypothesis correctly by stating any one of the following three aspects]	1
	No response or wrong response	0

Question Number	Rubric	Score
1(e)	[able to show all steps how to predict a value for X with two decimal point and unit correctly] Answer: 1. The volume of acid used in Experiment I = 26.00 cm ³ 2. The volume of acid used in Experiment II = $\frac{26.00}{2} / 13.00$ cm ³ 3. The value of X = 15.55 cm ³	3
	[able to show two steps how to predict a value for X with two decimal point and unit correctly]	2
	[able to show one step how to predict a value for X with two decimal point and unit correctly]	1
	No response or wrong response	0

Question Number	Rubric	Score
1(f)	[able to state the direct purpose accurately of why the initial reading and the final reading of burette must be recorded] Sample answer: To determine the molarity of acid used.	3
	[able to state the direct purpose correctly of why the initial reading and the final reading of burette must be recorded] Sample answer: To determine the volume of acid used.	2
	[able to state indirect purpose correctly of why the initial reading and the final reading of burette must be recorded] Sample answer: state the volume of acid	1
	No response or wrong response	0

Question Number	Rubric	Score
1(g)	[able to give the meaning of the end point accurately] Sample answer: 1. When all hydroxide ions have reacted completely with hydrogen ion.	3
	[able to give the meaning of the end point correctly] Sample answer: 1. hydroxide ions ,reacted completely with hydrogen ion.	2
	[able to give the meaning of the end point] Sample answer: 1. hydroxide ions reacted / hydrogen ion reacted	1
	No response or wrong response	0

Question Number	Rubric	Score
1(h)	[able to state three observations correctly] Sample answer: 1. the pink colour of the solution turned to colourless 2. the final volume of the solution increases. 3. the initial reading of burette in experiment I is 5.55 cm ³ 4. the final reading of burette in experiment I is 31.55 cm ³ 5. the initial reading of burette in experiment II is 2.55 cm ³ 6. The burette reading increases. 7. The volume of acid in the burette decrease.	3
	[able to state two observations correctly]	2
	[able to state one observations correctly]	1
	No response or wrong response	0

Question	Rubric	Score
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Number		
1(i)	[able to show all steps to calculate the molarity of hydrochloride acid in experiment I correctly] Sample answer: 1. ratio of mol HCl: NaOH is 1:1 2. mol of NaOH = $\frac{2.0(25)}{1000}$ /0.05 mol. 3. molarity of HCl = $\frac{0.05(1000)}{26}$ /1.92 mol .dm ⁻³ /1.9 mol dm ⁻³ . /2.0 mol dm ⁻³ .	3
	[able to show two steps to calculate the molarity of hydrochloride acid in experiment I correctly]	2
	[able to show one step to calculate the molarity of hydrochloride acid in experiment I correctly]	1
	No response or wrong response	0

Question Number	Rubric	Score								
1(j)	[able to make classifying of all three acids correctly] Sample answer: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Name of acid</th> <th>Type of acid</th> </tr> </thead> <tbody> <tr> <td>Ethanoic acid</td> <td>Monoprotic</td> </tr> <tr> <td>Hydrochloric acid</td> <td>Monoprotic</td> </tr> <tr> <td>Sulphuric acid</td> <td>diprotic</td> </tr> </tbody> </table>	Name of acid	Type of acid	Ethanoic acid	Monoprotic	Hydrochloric acid	Monoprotic	Sulphuric acid	diprotic	3
Name of acid	Type of acid									
Ethanoic acid	Monoprotic									
Hydrochloric acid	Monoprotic									
Sulphuric acid	diprotic									
	[able to make classifying of any two acids accurately]	2								
	[able to make classifying of any one acids accurately]	1								
	No response or wrong response	0								

Question	Rubric	Score
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Number		
2(a)	<p>[able to give the aim of the experiment accurately by stating] Manipulated variable based on Diagram 2.1 Pairs of metals The accurate characteristic that can be detected from the responding variable based on Diagram 2.1 Potential difference / voltmeter reading.</p> <p>Sample answer: To construct the electrochemical series based on the potential difference between pairs of metals</p>	3
	<p>[able to give the aim of the experiment correctly by stating] General statement of the manipulated variable Two metals The accurate characteristic that can be detected from the responding variable based on Diagram 2.1 voltmeter reading.</p> <p>Sample answer: To construct the electrochemical series based on the voltmeter reading between two metal.</p>	2
	<p>[able to give a relevant idea with the aim of the experiment by stating] The correct manipulated variable. The correct characteristic but not relevant to the responding variable Sample answer: To compare/to study/defferentiate between pairs of metal</p>	1
	No response or wrong response	0

Question	Rubric	Score
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Number		
2(b)	[able to state three variable correctly] Manipulated variable Pairs of metals Responding variable Potential difference / voltmeter reading Constant variable concentration of electrolyte, copper electrode	3
	[able to state any two variable correctly]	2
	[able to state any one variable correctly]	1
	No response or wrong response	0

Question Number	Rubric	Score
2(c)	[able to give the hypothesis correctly by stating;] The manipulated variable accurately Pairs of metals Comparison of the possibility of the accurate effect of the responding variable Potential difference/ voltmeter reading Sample answer: The further apart the pair of metals in the electrochemical series, the greater is their potential difference/voltmeter reading	3
	[able to give the hypothesis correctly by stating;] The manipulated variable accurately Pairs of metals Comparison of the possibility of the accurate effect of the responding variable voltmeter reading Sample answer: Difference the pair of metals in the electrochemical series, difference voltmeter reading	2
	[able to give the hypothesis correctly by stating;] The manipulated variable accurately Type of metals Idea of the comparison of the possibility of the correct effect of the responding variable The voltage Sample answer: Difference type of metals, difference voltage	1
	No response or wrong response	0

Question	Rubric	Score
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Number		
2(d)	[Able to state complete material and apparatus to obtain the information about the following three variables.] Manipulated variable Metal P,metal Q, metal R, metal S , metal T, metal U Responding variable Voltmeter Constant variable #0.1 mol. dm ⁻³ # sulphate solution of U , beaker ,wires	3
	[Able to state complete material and apparatus to obtain any two of the information about the following three variables.]	2
	[Able to state complete material and apparatus to obtain any one of the information about the following three variables.]	1
	No response or wrong response	0

Question Number	Rubric	Score
2(e)	[Able to state all procedures correctly] 1. Add/put in sulphate solution of U/ copper(II) sulphate into a beaker. 2. Dip the pair on metals electrodes into the solution in the beaker. 3. The electrodes are connected to the voltmeter . 4. The reading of the voltmeter is recorded. 5. steps 1 to 5 are repeated using other metal to replaces negative electrode.	3
	[Able to state procedures 1-5 correctly]	2
	[Able to state procedures 1-3 correctly]	1
	No response or wrong response	0

Question Number	Rubric	Score																					
2(f)	<p>Able to make labeled tabulation of data with suitable unit that can give information about the three following variables: Manipulated variable Manipulated variable Pairs of metals Responding variable Potential difference / voltmeter reading Constant variable U electrode/copper electrode</p> <p>Sample answer:</p> <table border="1" data-bbox="396 621 1154 873"> <thead> <tr> <th>Pair of metals</th> <th>Potential difference/ voltmeter reading (V)</th> <th>Negative terminal of the cell</th> </tr> </thead> <tbody> <tr> <td>P/U</td> <td>2.7</td> <td>P</td> </tr> <tr> <td>Q/U</td> <td>2.0</td> <td>Q</td> </tr> <tr> <td>R/U</td> <td>1.1</td> <td>R</td> </tr> <tr> <td>S/U</td> <td>0.8</td> <td>S</td> </tr> <tr> <td>T/U</td> <td>0.5</td> <td>T</td> </tr> <tr> <td>U/U</td> <td>0.0</td> <td>-</td> </tr> </tbody> </table>	Pair of metals	Potential difference/ voltmeter reading (V)	Negative terminal of the cell	P/U	2.7	P	Q/U	2.0	Q	R/U	1.1	R	S/U	0.8	S	T/U	0.5	T	U/U	0.0	-	3
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