



MODUL PINTAS TINGKATAN 5

Peperiksaan Percubaan Tahun 2019

Skema Jawapan Chemistry

Kertas 3 4541/3

PEPERIKSAAN PERCUBAAN SPM 2019
TINGKATAN 5
KIMIA
Kertas 3
Ogos

4541/3

SKEMA JAWAPAN MODUL PINTAS

KIMIA 3

Tingkatan 5

Kertas jawapan ini mengandungi 14 halaman bercetak

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
1 (a)	Able to state ALL THREE reading accurately, WITH correct decimal point, WITH unit <u>Sample answer</u> 0.0 A 3.6 A 2.6 A	3
	Able to state at least TWO reading accurately WITHOUT unit 0.0 / OR 3.6 2.6	2
	Able to record any one reading /state three reading without decimal place 0 3 2	1
	No response or wrong response	0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
1(b)	<p>Able to state ALL the variables correctly</p> <p><u>Sample answer</u></p> <p><u>Manipulated Variable:</u> Covalent or Ionic compounds// ethanol, plumbum (II) nitrate, natrium klorida //Type of solution// Type of compounds <i>Sebatian kovalen atau ionik// etanol, plumbum (II) nitrat, natrium klorida</i> <i>//jenis sebatian //jenis larutan</i></p> <p><u>Responding Variable:</u> Electrical conductivity// ammeter reading // bubble produced // deflection of ammeter needle / <i>kekonduksian electricity // bacaan ammeter // gelembung gas yang terhasil</i> <i>//Pesongan jarum ammeter</i></p> <p><u>Fixed Variable:</u> Concentration of solution // Carbon electrode // number of battery // voltage / <i>Kepekatan larutan // jenis elektrod // elektrod karbon // bilangan bateri // voltan</i></p>	3
	Able to state any TWO variables correctly	2
	Able to state any ONE variables correctly	1
	No response or wrong response	0

No	Mark Scheme <i>Skema markah</i>			Mark <i>Markah</i>
1(c)	Able to state all 3 observations and corresponding inferences correctly			
	Experiment <i>Eksperimen</i>	Observation <i>Pemerhatian</i>	Inference <i>Inferens</i>	
	I	<p>The ammeter needle does not deflects// No bubble produced</p> <p><i>Jarum ammeter tidak terpesong// Tiada gelembung gas terbentuk</i></p>	<p>Alcohol cannot conducts electricity // no free moving ion // Exist as molecules</p> <p><i>Alkohol tidak mengkonduksikan arus elektrik // tiada ion bergerak bebas // wujud sebagai molekul</i></p> <p>No reaction//electrolysis does not occur// no hydrogen or oxygen produced</p> <p><i>Tiada hasil tindakbalas// elelctrolisis tidak berlaku // tiada gas hidrogen atau oksigen terhasil</i></p>	
II	<p>Ammeter needle deflects// Bubbles produced</p> <p><i>Jarum ammeter terpesong// Gelembung gas terhasil</i></p>	<p>Lead (II) nitrate solution conducts electricity//the presence of free moving ions // current flow</p> <p><i>Larutan Plumbum (II) nitrat mengkonduksi elektrik// kehadiran ion-ion bebas bergerak// arus mengalir</i></p> <p>Electrolisis occur // Reaction occur // gas oksigen dan hidrogen terbebas//</p> <p><i>Tindakbalas berlaku // elektrolisis berlaku// gas hidrogen dan oksigen terbebas</i></p>		

3+3

	III	<p>Ammeter needle deflects// Bubbles produced</p> <p><i>Jarum ammeter terpesong// Gelembung gas terhasil</i></p>	<p>Pottasium chloride solution conducts electricity//the presence of free moving ions // current flow</p> <p><i>Larutan Kalium klorida mengkonduksi elektrik// kehadiran ion2 bebas bergerak// arus mengalir</i></p> <p>Electrolisis occur // Reaction occur // gas oksigen dan hidrogen terbebas// <i>Tindakbalas berlaku // elektrolisis berlaku// gas hidrogen dan oksigen terbebas</i></p>		
Able to state					
3 observations + 2 corresponding inference					5
3 observations + 1 corresponding inference					4
2 observations + 2 corresponding inference					4
2 observations + 1 corresponding inference					3
1 observations + 1 corresponding inference					2
1 observations + 0 corresponding inference					1
No response or wrong response					0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
1(d)	<p>Able to state one hypothesis correctly</p> <p>(MANIPULATED VARIABLE then RESPONDING VARIABLE)</p> <p><u>Sample answer</u></p> <p>Ionic compounds can conduct electricity where else covalent compounds cannot conduct electricity in any state.// Lead (II) nitrate solution and sodium chloride solution can conduct electricity while ethanol cannot <i>Sebatian ion dalam keadaan leburan atau akues dapat mengkonduksikan elektrik, tetapi sebatian kovalen tidak dapat mengkonduksikan elektrik// larutan plumbum (II) nitrat dan larutan natrium klorida boleh mengkonduksikan arus elektrik, tetapi alkohol tidak</i></p>	3
	<p>Able to state one hypothesis</p> <p>REVERSE between manipulated variable and responding variable</p> <p><u>Sample answer</u></p> <p>Lead (II) nitrate // sodium chloride can conduct electricity // ethanol cannot / Plumbum (II) nitrat // natrium klorida boleh mengalirkan arus // etanol tidak boleh mengalirkan arus</p> <p>Ionic compounds conduct electricity // covalent compound cannot conduct electricity / <i>Sebatian ion dapat mengalirkan arus elektrik // sebatian kovalen tidak dapat mengalirkan arus elektrik</i></p>	2
	<p>Able to give an idea of hypothesis</p> <p><u>Sample answer</u></p> <p>Type of compounds affects electrical conductivity <i>Jenis sebatian mempengaruhi kekonduksian elektriknya</i></p>	1
	<p>No response or wrong response</p> <p>Manipulated variable- Manipulated variable</p> <p>Responding variable-Responding variable</p>	0

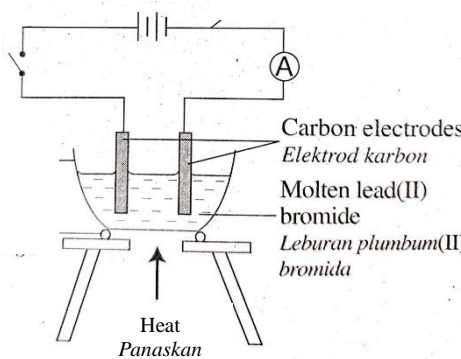
No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
1(e)	<p>Able to state the operational definition for electrical conductivity with the following criteria: (i) What should be done (ii) What should be observed</p> <p>Sample answer</p> <p>When anode and cathode dipped/immersed into the electrolyte solution, ammeter needle deflects/ ammeter gives reading <i>Apabila anod dan katod dicelupkan ke dalam larutan tersebut, jarum ammeter terpesong/ ammeter memberi bacaan</i></p>	3
	<p>Able to fullfill any one criteroen</p> <p><u>Sample answer</u></p> <p>Ammeter needle deflects/ ammeter gives reading <i>Jarum ammeter terpesong/ ammeter memberi bacaan</i></p>	2
	<p>Able to give an idea the operational definition for electrical conductivity</p> <p><u>Sample answer</u></p> <p>Ammeter needle moved / current flow <i>Jarum ammeter bergerak / arus mengalir</i></p>	1
	<p>No response or wrong response</p>	0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
1(f)	<p>Able to state the relationship between total volume of gas bubbles produced with time.</p> <p><u>Sample answer</u> Total volume of gas bubble increase with time <i>Jumlah Isipadu gelembung gas bertambah dengan masa</i></p>	3
	<p>Able to state the relationship of total volume of gas bubbles produced with time.</p> <p>Total volume of gas bubble increase <i>Jumlah isipadu gelembung gas bertambah</i></p>	2
	<p>Able to give idea of the relationship</p> <p>Change // increase <i>Berubah // bertambah</i></p>	1
	<p>No response or wrong answer</p>	0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>						
1(g)	Able to classify all four substances correctly Answer	3						
	<table border="1"> <tr> <td>Electrolyte <i>Elektrolit</i></td> <td>Non electrolyte <i>Bukan elektrolit</i></td> </tr> <tr> <td>Vinegar <i>Cuka</i></td> <td>Salt table <i>Garam dapur</i></td> </tr> <tr> <td>Carbonated drinks <i>Minuman berkarbonat</i></td> <td>Transparent Soap <i>Sabun lutsinar</i></td> </tr> </table>		Electrolyte <i>Elektrolit</i>	Non electrolyte <i>Bukan elektrolit</i>	Vinegar <i>Cuka</i>	Salt table <i>Garam dapur</i>	Carbonated drinks <i>Minuman berkarbonat</i>	Transparent Soap <i>Sabun lutsinar</i>
	Electrolyte <i>Elektrolit</i>		Non electrolyte <i>Bukan elektrolit</i>					
	Vinegar <i>Cuka</i>		Salt table <i>Garam dapur</i>					
Carbonated drinks <i>Minuman berkarbonat</i>	Transparent Soap <i>Sabun lutsinar</i>							
# garam dapur dalam keadaan pepejal, bukan elektrolit								
Able to classify any three substances correctly	2							
Able to classify any two or less substances correctly / All classified reversely	1							
No response or wrong response	0							

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>						
1(h)(i)	Able to write ALL the products correctly	3						
	<table border="1"> <tr> <td>Electrode <i>Elektrod</i></td> <td>Name of gas produced <i>Nama gas yang terhasil</i></td> </tr> <tr> <td>Anode <i>Anod</i></td> <td>Oxygen gas <i>Gas oksigen</i></td> </tr> <tr> <td>Cathode <i>Katod</i></td> <td>Hydrogen gas <i>Gas hidrogen</i></td> </tr> </table>		Electrode <i>Elektrod</i>	Name of gas produced <i>Nama gas yang terhasil</i>	Anode <i>Anod</i>	Oxygen gas <i>Gas oksigen</i>	Cathode <i>Katod</i>	Hydrogen gas <i>Gas hidrogen</i>
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	Anode <i>Anod</i>		Oxygen gas <i>Gas oksigen</i>					
Cathode <i>Katod</i>	Hydrogen gas <i>Gas hidrogen</i>							
Able to write one of the products correctly	2							
OR								
<table border="1"> <tr> <td>Electrode <i>Elektrod</i></td> <td>Name of gas produced <i>Nama gas yang terhasil</i></td> </tr> <tr> <td>Anode <i>Anod</i></td> <td>O₂</td> </tr> <tr> <td>Cathode <i>Katod</i></td> <td>H₂</td> </tr> </table>		Electrode <i>Elektrod</i>	Name of gas produced <i>Nama gas yang terhasil</i>	Anode <i>Anod</i>	O ₂	Cathode <i>Katod</i>	H ₂	
Electrode <i>Elektrod</i>	Name of gas produced <i>Nama gas yang terhasil</i>							
Anode <i>Anod</i>	O ₂							
Cathode <i>Katod</i>	H ₂							
Able to write the idea of products	1							
<u>Sample answer</u>								
Gas produced <i>Gas terhasil</i>								
No response or wrong response	0							

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
1(i)	Able to write TWO half equations correctly Anode : $4\text{OH}^- \rightarrow 2\text{H}_2\text{O} + \text{O}_2 + 4\text{e}^-$ Cathode : $2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$	3
	Able to write TWO half equations without balancing Able to write any ONE half equations correctly	2
	Able to write any one half equation without balancing// idea of writing any one half equation	1
	No response or wrong response	

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
1(j)	Able to draw functional and labelled diagram correctly 	3
	Able to draw less functional diagram and labelled correctly	2
	Able to give idea of drawing a diagram	1
	No response or wrong response	0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
2 (a)	Able to state the problem statement of experiment correctly <u>Sample answer</u> Is alloy harder than pure metal? // Is brass harder than copper ? <i>Adakah aloi lebih keras daripada logam tulen? // Adakah Loyang lebih keras daripada kuprum ?</i>	3
	Able to state the problem statement <u>Sample answer</u> Is alloy / brass harder? <i>Adakah aloi / loyang lebih keras?</i>	2
	Able give an idea of problem statement <u>Sample answer</u> <i>To study hardness of alloy and pure metal</i> Untuk mengkaji kekerasan aloi dan logam tulen	1
	No response or wrong response	0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
2 (b)	Able to state the all the variables correctly <u>Sample answer</u> Manipulated variables: Type of blocks// Alloy and pure metal <i>Jenis bongkah // Aloi dan logam tulen</i> Responding variable Diameter of dent // <i>Diameter lekuk</i> Fixed variable Mass of weight // height of weight // steel ball bearing/ <i>jisim pemberat // ketinggian pemberat // bebola keluli</i>	3
	Able to state any two variables correctly	2
	Able to state any one variable	1
	No response or wrong response	0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
2 (c)	<p>Able to state the relationship between the manipulated variable and the responding variable with directly correctly</p> <p><u>Sample answer</u></p> <p>Alloy / Brass is harder than copper / pure metal Alloy / Brass has smaller dent than copper / pure metal</p> <p><i>Aloi / Loyang lebih keras daripada kuprum / logam tulen</i> <i>Aloi/ Loyang mempunyai lekuk yang lebih kecil berbanding kuprum / logam tulen</i></p>	3
	<p>Able to state the relationship between the manipulated variable and the responding variable less correctly</p> <p><u>Sample answer</u></p> <p>Alloy / brass is hard // Copper is hard // Aloi / Loyang adalah keras /</p>	2
	<p>Able to state an idea of hypothesis</p> <p><u>Sample answer</u></p> <p>Different diameter of dent // Pure metal has different diameter of dent/ <i>Perbezaan diameter lekuk// Logam tulen mempunyai diameter lekuk berbeza</i></p>	1
	No response or wrong response	0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
2 (d)	<p>Able to list all the materials and apparatus</p> <p><u>Sample answers</u> <u>Materials // Bahan</u></p> <p>1. Brass block // <i>Blok Loyang</i> 2. Copper / Zinc block // <i>Block kuprum/ block zink</i></p> <p><u>Apparatus // Radas</u></p> <p>1. Steel ball bearing // <i>bebola keluli</i> 2. 1 kg weight // <i>pemberat 1 kg</i> 3. clamp // <i>pengapit</i> 4. ruler // <i>pembaris</i> 5. cellophane tape // <i>pita cellophane</i> 6. thread // <i>benang</i></p>	3
	<p>Able to list the following materials and apparatus</p> <p><u>Materials // Bahan</u></p> <p>1. Brass block // <i>Blok Loyang</i> 2. Copper / Zinc block // <i>Block kuprum/ block zink</i></p> <p><u>Apparatus // Radas</u></p> <p>1. Steel ball bearing // <i>bebola keluli</i> 2. 1 kg weight // <i>pemberat 1 kg</i> 3. Ruler // <i>pembaris</i></p>	2
	<p>Able to list the following materials and apparatus</p> <p><u>Materials // Bahan</u></p> <p>1. Brass block // <i>Blok Loyang</i> 2. Copper / Zinc block // <i>Block kuprum/ block zink</i></p> <p><u>Apparatus // Radas</u></p> <p>1. Steel ball bearing // <i>bebola keluli</i> 2. 1 kg weight // <i>pemberat 1 kg</i></p>	1
	No response or wrong response	0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>
2 (e)	<p>Able to list all the steps of procedure correctly</p> <p><u>Sample answers</u></p> <ol style="list-style-type: none"> 1. A steel ball bearing is fixed onto the surface of a copper block by using a cellophane tape 2. A weight of mass 1 kg is held 1 metre above the surface of the copper block by using a thread and a ruler 3. The weight is released so that it hits the steel ball bearing 4. The diameter of the dent formed on the copper surface is measured with a ruler 5. Record the observation 6. Repeat steps 1-5 using brass <p><i>1. Bebola keluli dilekatkan pada permukaan satu blok kuprum dengan menggunakan pita selofan</i></p> <p><i>2. Satu pemberat 1 kg ditetapkan 1 meter di atas permukaan blok kaca dengan menggunakan seutas benang dan sebatang pembaris</i></p> <p><i>3. Pemberat dilepaskan untuk dan menghentam bebola keluli</i></p> <p><i>4. Diameter lekuk yang terhasil diukur dengan sebatang pembaris</i></p> <p><i>5. Rekodkan pemerhatian</i></p> <p><i>6. Ulang langkah 1-5 menggunakan loyang</i></p>	3
	Able to list steps 1,3, 4, 5 and 6 correctly	2
	Able to list steps 1,3, and 4 only	1
	No response or wrong response	0

No	Mark Scheme <i>Skema markah</i>	Mark <i>Markah</i>						
2 (f)	<p>Able to tabulate the data with the consists of</p> <p>1. Manipulated variable 2. Responding variable</p> <p>Sample answer</p> <table border="1" data-bbox="343 465 1066 728"> <tr> <td>Type of blocks <i>Jenis blok</i></td> <td>Diameter of the dent / cm <i>Diameter lekuk / cm</i></td> </tr> <tr> <td>Copper/ Zinc // <i>Kuprum / Zinc</i></td> <td></td> </tr> <tr> <td>Brass // <i>Loyang</i></td> <td></td> </tr> </table>	Type of blocks <i>Jenis blok</i>	Diameter of the dent / cm <i>Diameter lekuk / cm</i>	Copper/ Zinc // <i>Kuprum / Zinc</i>		Brass // <i>Loyang</i>		2
Type of blocks <i>Jenis blok</i>	Diameter of the dent / cm <i>Diameter lekuk / cm</i>							
Copper/ Zinc // <i>Kuprum / Zinc</i>								
Brass // <i>Loyang</i>								
	<p>Able to give an idea of tabulation of data</p> <table border="1" data-bbox="343 835 1066 1021"> <tr> <td>Type of blocks <i>Jenis blok</i></td> <td>Diameter of the dent <i>Diameter lekuk</i></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Type of blocks <i>Jenis blok</i>	Diameter of the dent <i>Diameter lekuk</i>			1		
Type of blocks <i>Jenis blok</i>	Diameter of the dent <i>Diameter lekuk</i>							
	No response or wrong response or empty table	0						

**END OF ANSWER SCHEME
SKEMA JAWAPAN TAMAT**