

Structure {Paper03}

[SPM04-01-P3]

1(a)

Cadangan jawapan		Skor
Observation	Inferences	3
<p>Dapat menyatakan dua pemerhatian dengan tepat:</p> <p>Contoh jawapan lengkap:</p> <ol style="list-style-type: none"> 1. Wasap putih terbebas / white fume released 2. Jisim kandungan mangkuk pijar bertambah / mass increases 3. Pepejal/ serbuk putih terbentuk / white solid produce/ formed 4. Nyalaan putih/ terang/ berkilau // burn brightly 	<p>Dapat menyatakan dua inferens yang lengkap sepadan dengan pemerhatian:</p> <p>Contoh inferens lengkap:</p> <p>Magnesium oksida terbentuk/ MgO formed</p> <p>Magnesium berpadu / bertindak balas dengan oksigen / Magnesium react with oxygen</p> <p>Magnesium teroksida/ dioksidakan</p> <p>Magnesium oxidized</p>	
<p>Dapat menyatakan satu pemerhatian yg lengkap atau dua pemerhatian yg kurang lengkap:</p> <p>Contoh jawapan kurang lengkap:</p> <ol style="list-style-type: none"> 1. Wasap terbebas // asap putih terbentuk 2. Jisim magnesium bertambah 3. Pepejal/ serbuk terbentuk 4. Magnesium menyala 	<p>Dapat menyatakan satu inferens yang lengkap atau dua inferens yang kurang lengkap:</p> <p>Contoh inferens kurang lengkap:</p> <p>Sebatian magnesium terbentuk</p> <p>Magnesium berpadu / bertindak balas dengan udara</p> <p>Magnesium teroksida/ dioksidakan</p>	
<p>Dapat menyatakan satu idea tentang pemerhatian:</p> <p>Contoh jawapan:</p> <ol style="list-style-type: none"> 1. Gas dibebaskan // gas putih 2. Terdapat pertambahan berat 3. Berat magnesium bertambah 4. Nyalaan/ baraan / cahaya <p>Jisim mangkuk pijar bertambah</p>	<p>Dapat menyatakan satu idea inferens:</p> <p>Contoh jawapan:</p> <p>Tindak balas berlaku</p>	

1b

Cadangan jawapan	Skor
Dapat mencatatkan ketiga-tiga jisim dengan 2 t. perpuluhan dengan betul: Contoh jawapan: Jisim mangkuk pijar dan penutup: 25.35 g Jisim mangkuk pijar, penutup dan pita magnesium: 27.75 g Jisim mangkuk pijar, penutup dan magnesium oksida setelah disejukkan: 29.35 g	3
Dapat mencatatkan mana-mana dua jisim dengan 2 t. perpuluhan dengan betul	2
Dapat mencatatkan mana-mana satu jisim dengan 2 t. perpuluhan dengan betul	1

1c (i) dan (ii)

Cadangan jawapan	Skor
Dapat menentukan jisim magnesium, jisim oksigen dan menunjukkan 3 langkah menentukan formula empirik magnesium oksida dengan betul: Jisim magnesium: $27.75 - 25.35 = 2.40 / 2.4$ g Jisim oksigen: $29.35 - 27.75 = 1.60 / 1.6$ g Langkah menentukan formula empirik magnesium oksida: L1: Mol magnesium: $\frac{2.4}{24} = 0.1$ Mol oksigen: $\frac{1.6}{16} = 0.1$ L2: Nisbah Mg : O = 1:1 L3: Formula empirik = MgO	
Dapat menyatakan jisim magnesium, jisim oksigen dan menunjukkan 2 langkah pertama atau menyatakan formula empirik magnesium oksida dengan betul	
Dapat menyatakan jisim magnesium atau jisim oksigen atau menyatakan formula empirik magnesium oksida dengan betul	

1d

Cadangan jawapan	Skor
Dapat menyatakan definisi secara operasi berdasarkan formula empirik dengan tepat: Contoh jawapan: 1 mol magnesium react with 1 mol oxygen	
Dapat menyatakan definisi secara operasi berdasarkan formula empirik dengan kurang tepat: Contoh jawapan: 1 mol magnesium bertindak balas dengan oksigen	

Dapat menyatakan definisi secara operasi mengikut konsep:	
Contoh jawapan: Mol magnesium dan oksigen adalah sama.	

[SBPdiag06-01-P3]

1 (a)

Score	Rubric										
3	<p>[Able to state three inferences according to the observations correctly] Example:</p> <table border="1"> <thead> <tr> <th>Observations</th> <th>Inferences</th> </tr> </thead> <tbody> <tr> <td>i) Yellow fumes is released.</td> <td>Zinc oxide is produced // Zinc has been oxidised.</td> </tr> <tr> <td>ii) Bright burning.</td> <td>Zinc is a reactive metal.</td> </tr> <tr> <td>iii) The mass increases.</td> <td>Zinc has combined with oxygen.</td> </tr> <tr> <td>iv) The residue is yellow when hot and white when cold.</td> <td>Zinc oxide is produces // Zinc has been oxidised.</td> </tr> </tbody> </table>	Observations	Inferences	i) Yellow fumes is released.	Zinc oxide is produced // Zinc has been oxidised.	ii) Bright burning.	Zinc is a reactive metal.	iii) The mass increases.	Zinc has combined with oxygen.	iv) The residue is yellow when hot and white when cold.	Zinc oxide is produces // Zinc has been oxidised.
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2	<p>[Able to state two inferences / two observations which is accurate or two inaccurate inferences / two inaccurate observations] Example:</p> <table border="1"> <thead> <tr> <th>Observations</th> <th>Inferences</th> </tr> </thead> <tbody> <tr> <td>i) Fumes is released.</td> <td>Zinc compound is produced // Zinc has been oxidised.</td> </tr> <tr> <td>ii) Zinc burns.</td> <td>Zinc is a reactive metal.</td> </tr> <tr> <td>iii) The mass increases.</td> <td>Zinc has combined with oxygen.</td> </tr> <tr> <td>iv) The metal change colour.</td> <td>Zinc oxide is produces // Zinc has been oxidised.</td> </tr> </tbody> </table>	Observations	Inferences	i) Fumes is released.	Zinc compound is produced // Zinc has been oxidised.	ii) Zinc burns.	Zinc is a reactive metal.	iii) The mass increases.	Zinc has combined with oxygen.	iv) The metal change colour.	Zinc oxide is produces // Zinc has been oxidised.
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0	No response or wrong response.										

1 (b)

Score	Rubric								
3	[Able to record the data correctly] Example: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Description</th> <th>Mass / g</th> </tr> </thead> <tbody> <tr> <td>The crucible and lid.</td> <td>125.44</td> </tr> <tr> <td>The crucible, lid and zinc powder.</td> <td>133.24</td> </tr> <tr> <td>The crucible, lid and zinc oxide.</td> <td>135.07</td> </tr> </tbody> </table>	Description	Mass / g	The crucible and lid.	125.44	The crucible, lid and zinc powder.	133.24	The crucible, lid and zinc oxide.	135.07
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The crucible, lid and zinc powder.	133.24								
The crucible, lid and zinc oxide.	135.07								
2	[Able to record two data correctly // all reading are correct to three or four decimal places]								
1	[Able to record one data correctly]								
0	No response or wrong response								

1 (c)

Score	Rubric									
3	[Able to calculate the mass of zinc, mass of oxygen and show the steps to determine the empirical formula of zinc oxide accurately] Example: i) Mass of zinc = $133.24 - 125.44 = 7.80 \text{ g}$ ii) Mass of oxygen = $135.07 - 133.24 = 1.83 \text{ g}$ iii) The empirical formula of zinc oxide: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Element</th> <th>Zn</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>No. of moles</td> <td>$\frac{7.80}{65}$ = 0.12</td> <td>$\frac{1.83}{16}$ = 0.11</td> </tr> <tr> <td>Simplest ratio</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <p style="margin-left: 40px;">Empirical formula : ZnO</p>	Element	Zn	O	No. of moles	$\frac{7.80}{65}$ = 0.12	$\frac{1.83}{16}$ = 0.11	Simplest ratio	1	1
Element	Zn	O								
No. of moles	$\frac{7.80}{65}$ = 0.12	$\frac{1.83}{16}$ = 0.11								
Simplest ratio	1	1								
2	[Able to state the mass of zinc, mass of oxygen and show a part of steps to determine the empirical formula of zinc oxide / state the empirical formula correctly] Example: i) Mass of zinc = 7.80 g ii) Mass of oxygen = 1.83 g iii) The empirical formula of zinc oxide : ZnO									
1	[Able to state the mass of zinc / the mass of oxygen / the empirical formula of zinc oxide correctly]									
0	No response or wrong response									

1 (d)

Score	Rubric
3	[Able to predict and explain the answer correctly] Example: No. Copper is non-reactive metal.
2	[Able to predict but cannot explain the answer] Example: No. Copper(II) oxide is non-reactive / copper is reactive metal.
1	[Able to give ideas on the prediction] Example: Yes. Copper is a reactive metal / copper can reacts with oxygen / copper is non-reactive metal.
0	No response or wrong response

1 (e)

Score	Rubric				
3	[Able to classify the metal oxides correctly] - write the name or symbol of the metal oxides Example: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Basic oxides</th> <th style="width: 50%;">Acidic oxide</th> </tr> </thead> <tbody> <tr> <td>Magnesium oxide / MgO Copper (II) oxide/CuO</td> <td>Sulphur dioxide/ SO₂ Carbon dioxide /CO₂</td> </tr> </tbody> </table>	Basic oxides	Acidic oxide	Magnesium oxide / MgO Copper (II) oxide/CuO	Sulphur dioxide/ SO ₂ Carbon dioxide /CO ₂
Basic oxides	Acidic oxide				
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2	[Able to classify the metal oxides with less accuracy] Example: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Basic oxides</th> <th style="width: 50%;">Acidic oxide</th> </tr> </thead> <tbody> <tr> <td>Magnesium oxide / MgO / Copper (II) oxide/CuO</td> <td>Sulphur dioxide/ SO₂ / Carbon dioxide /CO₂</td> </tr> </tbody> </table>	Basic oxides	Acidic oxide	Magnesium oxide / MgO / Copper (II) oxide/CuO	Sulphur dioxide/ SO ₂ / Carbon dioxide /CO ₂
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1	[Able to give ideas on the classification with less accuracy] Example: Magnesium oxide / MgO Sulphur dioxide/ SO ₂ Copper (II) oxide/CuO Carbon dioxide /CO ₂				
0	No response or wrong response				

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