

## Essay {Paper03}

[SBP07 F5midyear-03-p3]

3 (a) KK051201 - Problem statement

Score	Rubric
3	[Able to state the problem statement clearly and accurately] <b>Suggested answer</b> How does the reactivity of Group 1 elements change when they react with water?
2	[Able to state the problem statement slightly inaccurate] <b>Suggested answer</b> To study the reactivity of Group 1 elements.
1	[Able to provide an idea of a problem statement] <b>Suggested answer</b> The reactivity of Group 1 elements.
0	No response or wrong response

3 (b) KK051202 – Stating all variables

Score	Rubric
3	[Able to state all the corresponding variables accurately] <b>Suggested answer</b> Manipulated variable : Type of Group 1 metals Responding variable : Reactivity of reaction Fixed variables : Water, size of metals
2	[Able to state two corresponding variables accurately].
1	[Able to state any one corresponding variable correctly].
0	No response or wrong response

3 (c) KK051205 – List of materials and apparatus

Score	Rubric
3	[Able to list all materials and apparatus correctly] <b>Suggested answer</b> Materials A small piece of lithium, sodium, potassium and water Apparatus [Suitable container], forceps, Knife, filter paper
2	[Able to list the basic materials and apparatus required] <b>Suggested answer</b> A small piece of lithium, sodium and potassium, water Apparatus [Suitable container], forceps

1	[Able to provide an idea of materials and apparatus used] <b>Suggested answer</b> Group 1 metals, water, forceps
0	No response or wrong response

3(d) KK051204 – Experimental procedure

Score	Rubric
3	[Able to state all experimental steps correctly] <b>Suggested answer</b> 1. Cut a small piece of lithium using a knife and forceps. 2. Dry the oil on the surface of the lithium with filter paper. 3. Place the lithium slowly onto the water surface in a trough 4. Observe the reactivity of the reaction 5. Repeat steps 1 to 4 using sodium and potassium to replace lithium
2	[Able to provide 3 steps correctly to carry out the experiment] Steps 3,4 and 5
1	[Able to provide minimum of 2 steps correctly to carry out the experiment] Steps 3 and 4
0	No response or wrong response

3 (e) KK 0501-05 – Tabulation of data

Score	Rubric								
3	[Able to construct a table correctly containing the following elements] - Columns and rows - Observation for each metal  <b>Suggested answer</b>								
	<table border="1"> <thead> <tr> <th>Metals</th> <th>Observations</th> </tr> </thead> <tbody> <tr> <td>Lithium</td> <td></td> </tr> <tr> <td>Sodium</td> <td></td> </tr> <tr> <td>Potassium</td> <td></td> </tr> </tbody> </table>	Metals	Observations	Lithium		Sodium		Potassium	
Metals	Observations								
Lithium									
Sodium									
Potassium									

2	<p>[Able to construct a tabulation of data containing the following elements]          - Rows and columns present          - Observation for metals</p> <p><b>Suggested answer</b></p> <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">Metals</td> <td style="width: 50%;">Observation</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </table>	Metals	Observation				
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1	<p>[An idea of a tabulation of data ]          - Minimum of 2 rows and columns</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;"> </td> <td style="width: 50%;"> </td> </tr> <tr> <td> </td> <td> </td> </tr> </table>						
0	No response or wrong response						

### Marks of excellence

Score	Rubric
2	<p>Points given based on student's written plan.</p> <p>a) Candidate's display of all aspects of the planning</p> <ol style="list-style-type: none"> <li>1 Problem statement</li> <li>2 Statement of variables</li> <li>3 List of materials and apparatus</li> <li>4 Procedure</li> <li>5 Tabulation of data</li> </ol> <p>b) Candidate's display of all aspects with a minimum score of 2 for each aspect</p>
1	<p>Points given based on student's written plan.</p> <p>a) Candidate's display of all aspects of the planning</p> <ol style="list-style-type: none"> <li>1 Problem statement</li> <li>2 Statement of variables</li> <li>3 List of materials and apparatus</li> <li>4 Procedure</li> <li>5 Tabulation of data</li> </ol> <p>b) Candidate's display of all aspects with a minimum score of 1 for each aspect</p>
0	No response or wrong response

**[SPM08-02-P3]**

a)	Aim of the experiment :  To investigate the reactivity of lithium, sodium and potassium with water.								
b)	All the variables :  Manipulated variable : Different type of alkali metal Responding variable : Reactivity of metals Fixed variable : Water, size of alkali metal								
c)	Statement of the hypothesis :  When going down Group 1, alkali metals become more reactive in their reaction with water.								
d)	List of substances and apparatus :  Substances : Small pieces of lithium, sodium and potassium, filter paper, distilled water, red litmus paper Apparatus : Water trough, small knife, forceps								
e)	Procedure of the experiment :  1. Cut a small piece of lithium using a knife and forceps. 2. Dry the oil on the surface of the lithium with filter paper. 3. Place the lithium slowly onto the water surface in a water trough. 4. When the reactions stop, test the solution produced with red litmus paper. 5. Record the observation on the table. 6. Repeat steps 1-5 using sodium and potassium to replace lithium one by one.								
f)	Tabulation of data:  <table border="1" style="margin-left: 40px;"> <thead> <tr> <th style="width: 30%;">Alkali Metals</th> <th>Observation</th> </tr> </thead> <tbody> <tr> <td>Lithium</td> <td></td> </tr> <tr> <td>Sodium</td> <td></td> </tr> <tr> <td>Potassium</td> <td></td> </tr> </tbody> </table>	Alkali Metals	Observation	Lithium		Sodium		Potassium	
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