

Essay {Paper03}

[SBPdiag07-03-P3]

3 (a) KK051201 - Problem statement

Score	Rubric
3	(Able to state the problem statement clearly and accurately) Suggested answer : How to determine whether a given sample of acetamide is pure or not?
2	(Able to state the problem statement slightly inaccurate) Suggested answer : Which acetamide is pure?
1	(Able to provide an idea of a problem statement) Suggested answer : To study the purity of acetamide.
0	No response or wrong response

3 (b) KK051202 – Stating all variables

Score	Rubric
3	(Able to state all the corresponding variables accurately) Suggested answer Manipulated variable : Acetamide A and acetamide B // Type of Acetamide Responding variable : melting point Fixed variables : quantity/mass of acetamide
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) KK0511- Making hypothesis

Score	Rubric
3	(Able to state the hypothesis correctly) Suggested answer Pure acetamide has a melting point of 83°C [whereas impure acetamide has no fixed melting point].
2	(Able to state the hypothesis slightly inaccurate) Suggested answer The melting point of acetamide A and B is different.
1	(Able to provide an idea of hypothesis) Suggested answer The melting point of acetamide A is lower/ higher than B.
0	No response or wrong response

3 (d) KK051205 – List of materials and apparatus

Score	Rubric
3	(Able to list all materials and apparatus correctly) Suggested answer Materials: Acetamide A, acetamide B, water Apparatus: Boiling tube, beaker, thermometer, tripod stand, retort stand and clamp, Bunsen burner, stop watch, wire gauze, spatula
2	(Able to list the basic materials and apparatus required) Suggested answer Materials: Acetamide A, acetamide B Apparatus: Boiling tube , beaker, thermometer, stop watch
1	(Able to provide an idea of materials and apparatus used) Suggested answer Materials: Acetamide Apparatus: [state at least one apparatus]
0	No response or wrong response

3(e) KK051204 – Experimental procedure

Score	Rubric
3	[Able to state all experimental steps correctly] Suggested answer 1. Fill a boiling tube with solid acetamide A until one third full. 2. Suspend the boiling tube in a beaker half filled with water. 3. Heat the water until the temperature of acetamide A reaches about 60°C. [50 – 60°C] 4. Stir slowly with the thermometer, 5. Record the temperature of acetamide at half minute intervals until the temperature reaches 90°C. [90 – 100°C] 6. Repeat steps 1 to 5 by replacing acetamide A with acetamide B. 7. Plot graphs of Temperature against time for both substances to determine the melting point.
2	[Able to provide 4 steps correctly to carry out the experiment]
1	[Able to provide minimum of 2 steps correctly to carry out the experiment]
0	No response or wrong response

3 (f) KK 0501-05 – Tabulation of data

Score	Rubric																
3	(Able to construct a table correctly containing the following elements) Substance, time, temperature Suggested answer <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="2">Acetamide A</th> <th colspan="2">Acetamide B</th> </tr> <tr> <th>Time (min)</th> <th>Temperature (°C)</th> <th>Time (min)</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Acetamide A		Acetamide B		Time (min)	Temperature (°C)	Time (min)	Temperature (°C)								
Acetamide A		Acetamide B															
Time (min)	Temperature (°C)	Time (min)	Temperature (°C)														

2	<p>(Able to construct a tabulation of data containing the following elements) Substance, melting point Suggested answer</p> <table border="1" data-bbox="311 226 1182 344"> <thead> <tr> <th data-bbox="311 226 553 264">Acetamide</th> <th data-bbox="553 226 1182 264">Melting point (°C)</th> </tr> </thead> <tbody> <tr> <td data-bbox="311 264 553 302">A</td> <td data-bbox="553 264 1182 302"></td> </tr> <tr> <td data-bbox="311 302 553 344">B</td> <td data-bbox="553 302 1182 344"></td> </tr> </tbody> </table>	Acetamide	Melting point (°C)	A		B	
Acetamide	Melting point (°C)						
A							
B							
1	<p>(An idea of a tabulation of data) - Minimum of 2 rows and columns</p> <table border="1" data-bbox="311 472 1182 551"> <tbody> <tr> <td data-bbox="311 472 553 510"></td> <td data-bbox="553 472 1182 510"></td> </tr> <tr> <td data-bbox="311 510 553 551"></td> <td data-bbox="553 510 1182 551"></td> </tr> </tbody> </table>						
0	No response or wrong response						

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