

Essay {Paper03}

[MRSMTrial10-02]

(a) How other metal when pair with iron nail influence the rusting or iron nail?

(b) Manipulated variable: Pair of metal with iron nail

Responding variable : Rate of rusting // Rusting of iron

Constant variable : Iron nails

(c) When a more electropositive metal is in contact with iron, the metal inhibits rusting // When a less electropositive metal is in contact with iron, the metal speed up rusting // Iron rusts faster when in contact with metal less electropositive

(d) *Apparatus* : Five test tubes, test tube rack

Materials : sand paper, five iron nails, magnesium strip, zinc strip, tin strip, copper strip, hot agar-agar/jelly solution mixed with potassium hexacyanoferrate(III) solution and phenolphthalein indicator

(e) 1. Clean all the metal strips with sand paper

2. Coil the metal strip around the iron nails and then put in the each test tube

3. Pour the same volume of hot agar-agar/jelly solution has been mixed with potassium hexacyanoferrate(III) and phenolphthalein indicator

4. Leave the test tubes aside for one day

5. Compare the intensity of the blue and pink colour in each test tube and recorded

(f)

Test tube	A	B	C	D	E
Intensity of blue colour					
Intensity of pink colour					

[SBPTrial07-03-P3]

(a)

Rubrik	Score
[Able to give the statement of problem correctly] Example : How the effect on rusting when iron is in contact with another metals?	3
[Able to give the statement of problem incorrectly] Example : To investigate the effect of other metals on the rusting of iron	2
[Able to state an idea the statement of problem] Example : To study the rusting of iron	1
[No response or wrong response]	0

(b)

Rubrik	Score
[Able to state All variables correctly]	3
Suggested answer : Manipulated variable : Different types of metals// Different metals Responding variable : Rate of rusting // Rusting of iron Constant variable : Iron nails/temperature	
[Able to state any two variables correctly]	2
[Able to state any one variables correctly]	1
[No response or wrong response]	0

(c)

Rubrik	Score
[Able to give the hypothesis accurately]	3
Suggested answer : When a more electropositive metal is in contact with iron, the metal inhibits rusting // When a less electropositive metal is in contact with iron, the metal speed up rusting // Iron rusts faster when in contact with metal less electropositive	
[Able to give the hypothesis almost accurately]	2
Suggested answer : When a more reactive metal is in contact with iron, the metal inhibits rusting	
[Able to state an idea of hypothesis]	1
Suggested answer : When a less electropositive metal is in contact with iron, the metal inhibits rusting	
No response or wrong response	0

(d)

Rubrik	Score
[Able to give the list of the apparatus and substances correctly and completely]	3
Suggested answer : <i>Apparatus</i> : Five test tubes, test tube rack <i>Materials</i> : sand paper, five iron nails, magnesium strip, zinc strip, tin strip, copper strip, hot agar-agar/jelly solution mixed with potassium hexacyanoferrate(III) solution and phenolphthalein indicator	
[Able to give the list of the apparatus and substances correctly and but not completely]	2
Example : List of apparatus and materials Test tube, iron nail, magnesium, zinc, tin, copper, water, potassium hexacyanoferrate(III) / phenolphthalein indicator	

[Able to give an idea about the list of the apparatus and materials correctly] Example : Any one apparatus and two materials	1
[No response or wrong response]	0

(e)

Rubrik	Score
[Able to state all procedures correctly] Suggested answer : 1. Clean all the metal strips with sand paper 2. Coil the metal strip around the iron nails and then put in the each test tube 3. Pour the same volume of hot agar-agar/jelly solution has been mixed with potassium hexacyanoferrate(III) and phenolphthalein indicator 4. Leave the test tubes aside for one day 5. Compare the intensity of the blue and pink colour in each test tube and recorded	3
[Able to state 3 steps of procedures correctly] Example : Steps 2,3,5	2
[Able to state 2 steps of procedures correctly] Steps 2,3	1
[No response or wrong response]	0

(f)

Rubrik	Score																		
[Able to exhibit the tabulation of data correctly] Tabulation of data has 6 columns and 3 rows Example : <table border="1" style="margin-left: 20px;"> <tr> <td>Test tube</td> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> </tr> <tr> <td>Intensity of blue colour</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Intensity of pink colour</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Test tube	A	B	C	D	E	Intensity of blue colour						Intensity of pink colour						3
Test tube	A	B	C	D	E														
Intensity of blue colour																			
Intensity of pink colour																			
[Able to exhibit the tabulation of data less accurately] Tabulation of data has 6 columns and 2 rows Example : <table border="1" style="margin-left: 20px;"> <tr> <td>Test tube</td> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> </tr> <tr> <td>Observation</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Test tube	A	B	C	D	E	Observation						2						
Test tube	A	B	C	D	E														
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[Able to state an idea about the tabulation of data] Tabulation of data has 2 columns and 2 rows <table border="1" style="margin-left: 20px;"> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>					1														
[No response or wrong response]	0																		

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