

Marking Scheme Paper 3 Set 2
Skema Pemarkahan Kertas 3 Set 2

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah |
|-----------------|--|--------------|
| 1 (a) | Dapat memberikan semua bacaan dengan titik perpuluhan yang betul $t_1 : 55.0 \text{ s}$ $t_2 : 47.0 \text{ s}$ $t_3 : 42.0 \text{ s}$ $t_4 : 37.0 \text{ s}$ | 3 |
| | Satu kesilapan bacaan atau satu titik perpuluhan tidak tepat | 2 |
| | Dua kesilapan bacaan dan dua titik perpuluhan tidak tepat | 1 |
| | Tidak ada jawapan yang tepat | 0 |

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah | | | | | | | | | | | | | | | | | | | | |
|-----------------|--|--------------|----------------------|--|----------------------|--|---|----|------|-------|----|----|------|-------|-----|----|------|-------|----|----|------|-------|
| 1 (b) | Semua maklumat di berikan berikut adalah betul 1. Unit di atas pada label 2. Tempat perpuluhan masa adalah betul 3. Kiraan $\frac{1}{\text{masa}}$ adalah betul 4. Jadual bergaris dan lengkap | 3 | | | | | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Experiment</th> <th>Temperature / °C Suhu / °C</th> <th>Time / s masa / s</th> <th>$\frac{1}{\text{time/masa}} / \text{s}^{-1}$</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>30</td> <td>55.0</td> <td>0.018</td> </tr> <tr> <td>II</td> <td>35</td> <td>47.0</td> <td>0.021</td> </tr> <tr> <td>III</td> <td>40</td> <td>42.0</td> <td>0.024</td> </tr> <tr> <td>IV</td> <td>45</td> <td>37.0</td> <td>0.027</td> </tr> </tbody> </table> | | Experiment | Temperature / °C Suhu / °C | Time / s masa / s | $\frac{1}{\text{time/masa}} / \text{s}^{-1}$ | I | 30 | 55.0 | 0.018 | II | 35 | 47.0 | 0.021 | III | 40 | 42.0 | 0.024 | IV | 45 | 37.0 | 0.027 |
| Experiment | Temperature / °C Suhu / °C | | Time / s masa / s | $\frac{1}{\text{time/masa}} / \text{s}^{-1}$ | | | | | | | | | | | | | | | | | | |
| I | 30 | | 55.0 | 0.018 | | | | | | | | | | | | | | | | | | |
| II | 35 | | 47.0 | 0.021 | | | | | | | | | | | | | | | | | | |
| III | 40 | 42.0 | 0.024 | | | | | | | | | | | | | | | | | | | |
| IV | 45 | 37.0 | 0.027 | | | | | | | | | | | | | | | | | | | |
| | Satu kesilapan pada maklumat di atas | 2 | | | | | | | | | | | | | | | | | | | | |
| | Dua kesilapan pada maklumat di atas | 1 | | | | | | | | | | | | | | | | | | | | |
| | Lebih dari dua kesilapan | 0 | | | | | | | | | | | | | | | | | | | | |

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah |
|-----------------|--|--------------|
| 1 (c) | Bubble of gas is released <i>Gelembung gas di bebaskan</i> | 3 |
| | Sedikit kesilapan pada jawapan Contoh : Bubble of gas <i>Gelembung gas</i> | 2 |
| | Idea pemerhatian di berikan Gas hidrogen di bebaskan / gas di bebaskan / kelalang kon menjadi panas | 1 |
| | Respons yang salah | 0 |

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah |
|-----------------|---|--------------|
| 1 (d) | Magnesium reacts with sulphuric acid to produce hydrogen gas <i>Magnesium bertindak balas dengan asid sulfurik untuk menghasilkan gas hidrogen</i> | 3 |
| | Sedikit kesilapan pada jawapan Tindak balas magnesium menghasilkan gas hidrogen | 2 |
| | Idea inferens di berikan Gas hidrogen di hasilkan / gas terhasil ialah gas hidrogen | 1 |
| | Respons yang salah | 0 |

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah |
|-----------------|---|--------------|
| 1 (e) | Semua pembolehubah di berikan dengan betul (i) Manipulasi : suhu asid (ii) Bergerak balas : Kadar tindak balas / masa untuk magnesium melarut (iii) Di malarkan : Kepekatan asid / saiz @ panjang pita magnesium | 3 |
| | Satu kesilapan pada pembolehubah | 2 |
| | Dua kesilapan pada pembolehubah | 1 |

| | | |
|--|---------------------------------|---|
| | Semua respons yang salah | 0 |
|--|---------------------------------|---|

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah |
|-----------------|--|--------------|
| 1 (f) | Hipotesis yang tepat di berikan Semakin tinggi suhu asid sulfurik semakin singkat masa yang di ambil untuk magnesium melarut sepenuhnya / Semakin tinggi suhu asid sulfurik semakin tinggi kadar tindak balas / ATAU HIPOTESIS YANG SALAH | 3 |
| | Sedikit kesilapan pada hipotesis Semakin tinggi suhu asid sulfurik semakin pendek/kecil masa yang di ambil untuk magnesium melarut sepenuhnya / Semakin tinggi suhu asid sulfurik semakin singkat masa yang di ambil / Semakin tinggi suhu asid sulfurik semakin cepat kadar tindak balas | 2 |
| | Idea hipotesis di berikan Kadar tindak balas bergantung kepada suhu asid / Suhu asid mempengaruhi kadar tindak balas | 1 |
| | Respons yang salah | 0 |

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah |
|-----------------|---|--------------|
| 1 (g) | Operasi secara definisi yang di berikan mempunyai dua perkara di bawah <ul style="list-style-type: none"> • Apa yang dilakukan? • Apa yang di perhatikan di dalam eksperimen <p>Contoh</p> <p>Kadar tindak balas ialah masa untuk magnesium melarut sepenuhnya di dalam asid sulfurik / Apabila magnesium di tindak balaskan ke dalam asid sulfurik kadar tindak balas ialah masa yang di ambil untuk magnesium melarut sepenuhnya.</p> | 3 |
| | Sedikit kesilapan pada OD | 2 |
| | Idea OD di berikan | 1 |
| | Respons yang salah | 0 |

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah |
|-----------------|--|--------------|
| 1 (h) | Hubungan yang betul di berikan Semakin tinggi suhu asid sulfurik semakin tinggi kadar tindak balas | 3 |
| | Sedikit kesilapan pada hubungan Semakin tinggi suhu asid sulfurik semakin cepat kadar tindak balas | 2 |
| | Idea hubungan di berikan / Hubungan terbalik suhu asid sulfurik mempengaruhi (bergantung kepada) kadar tindak balas / semakin tinggi kadar tindak balas semakin tinggi suhu | 1 |
| | Respons yang salah | 0 |

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah |
|-----------------|---|--------------|
| 1 (i) | Masa di beri dalam julat dan titik perpuluhan adalah betul [30.0 – 32.0] s | 3 |
| | [29.0 – 30.0] s | 2 |
| | Idea masa berkurangan dari 37s di berikan kurang dari 37 saat / semakin lambat | 1 |
| | Respons yang salah | 0 |

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah |
|-----------------|--|--------------|
| 1 (j) | Persamaan kimia yang seimbang di berikan $\text{Mg} + \text{H}_2\text{SO}_4 \rightarrow \text{MgSO}_4 + \text{H}_2$ | 3 |
| | Persamaan tidak seimbang | 2 |
| | Idea menuliskan persamaan menghasilkan gas hidrogen di berikan Contohnya : Terdapat ion pada persamaan $\text{Mg}^{2+} + \text{H}_2\text{SO}_4 \rightarrow \text{MgSO}_4 + \text{H}_2$ | 1 |
| | Respons yang salah | 0 |

| Question Soalan | Suggestion answer Cadangan jawapan | Marks Markah | | | | |
|---|---|-----------------|---------------------------|---------------------------|----------------------------------|---|
| 1 (k) | Semua bahan di kelaskan dengan betul | 3 | | | | |
| | <table border="1"> <thead> <tr> <th>Kadar tindak balas tinggi</th> <th>Kadar tindak balas rendah</th> </tr> </thead> <tbody> <tr> <td>Pembakaran magnesium dalam udara</td> <td>Penguraian hidrogen peroksida pada suhu bilik</td> </tr> <tr> <td>Tindak balas larutan argenterum nitrat dengan larutan natrium klorida</td> <td>Pengaratan besi</td> </tr> </tbody> </table> | | Kadar tindak balas tinggi | Kadar tindak balas rendah | Pembakaran magnesium dalam udara | Penguraian hidrogen peroksida pada suhu bilik |
| Kadar tindak balas tinggi | Kadar tindak balas rendah | | | | | |
| Pembakaran magnesium dalam udara | Penguraian hidrogen peroksida pada suhu bilik | | | | | |
| Tindak balas larutan argenterum nitrat dengan larutan natrium klorida | Pengaratan besi | | | | | |
| | Satu kesilapan pada jawapan | 2 | | | | |
| | Dua kesilapan pada jawapan | 1 | | | | |
| | Respons yang salah | 0 | | | | |

| Question No. | Rubric | Score |
|--------------|--|-------|
| 2 (a) | Able to give the statement of the problem accurately. Sample answer: Does vulcanized rubber more elastic than unvulcanised rubber? | 3 |
| | Able to give the statement of the problem correctly. Does vulcanized rubber more elastic? // Does unvulcanized rubber less elastic? | 2 |
| | Able to give an idea of statement of the problem correctly. - Does vulcanized rubber and unvulcanised rubber have different elasticity? // - Do different types of rubber have different elasticity? // - Are they any differences in elasticity rubber? - To investigate the elasticity of vulcanized rubber and unvulcanised rubber. | 1 |
| | No response or wrong response. | 0 |

| Question No. | Rubric | Score |
|--------------|---|-------|
| 2(b) | Able to state the three variables correctly. Manipulated variable : Type of rubber // Vulcanised rubber and unvulcanised rubber. Responding variable : The change in the length of the rubber // the length of rubber // elasticity Constant variable : weight // size / length of rubber strand | 3 |
| | Able to state any two of the following variables correctly. <i>Dapat menyatakan mana-mana dua pembolehubah di atas dengan betul.</i> | 2 |
| | Able to state any one of the following variables correctly. <i>Dapat menyatakan mana-mana satu pembolehubah di atas dengan betul.</i> | 1 |
| | No response or wrong response. <i>Tiada jawapan atau jawapan salah.</i> | 0 |

| Question No. | Rubric | Score |
|--------------|--|-------|
| 2(c) | Able to give the hypothesis accurately. Dapat memberikan hipotesis dengan tepat. Sample answer: - Vulcanised rubber is more/less elastic than unvulcanised rubber // Unvulcanised rubber is less/more than vulcanized rubber. | 3 |
| | Able to give the hypothesis correctly. Sample answer: - Vulcanised rubber able to stretch easily compared to unvulcanised rubber.// - Vulcanised rubber is more/less elastic.// | 2 |
| | Able to give an idea of hypothesis correctly. Sample answer: The two types of rubber have different stretch ability / hardness / strong. Vulcanization made the rubber more / less stretchable / (any characteristic if rubber) | 1 |
| | No response or wrong response. | 0 |

| Question No. | Rubric | Score |
|--------------|---|-------|
| 2 (d) | Able to state complete material and apparatus. Answer: - Vulcanised rubber - Unvulcanised rubber - Clip - Weight (10g-100g) - Retort stand - Ruler | 3 |
| | One mistake in materials and apparatus | 2 |
| | Two mistakes in materials and apparatus | 1 |
| | No response or wrong response. | 0 |

| Question No. | Rubric | Score |
|--------------|--|-------|
| 2 (e) | Able to state a complete procedure. Answer: 1. Hang the vulcanized rubber strip/ (unvulcanised rubber) on retort stand. 2. Measure the initial length. 3. Hang a weight. 4. Measure the length and record. 5. Take off the weight. 6. Measure the length of the rubber strand and record. 7. Repeat the experiment by replace the vulcanized rubber with unvulcanised rubber / (vulcanized rubber). | 3 |
| | Slight mistake in the procedure | 2 |
| | More than two mistakes in the procedure | 1 |
| | No response or wrong response. | 0 |

| Question No. | Rubric | Score | | | | | | | | | | | | |
|---------------------|--|--|--|--|--|-------------------|--|--|--|---------------------|--|--|--|---|
| 2 (f) | Able to make a labelled tabulation of data with suitable unit. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Type of rubber</th> <th>Initial length / cm</th> <th>Length of the rubber while the weight is hung / cm</th> <th>Length of the rubber when the weight is taken off / cm</th> </tr> </thead> <tbody> <tr> <td>Vulcanised rubber</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Unvulcanised rubber</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | Type of rubber | Initial length / cm | Length of the rubber while the weight is hung / cm | Length of the rubber when the weight is taken off / cm | Vulcanised rubber | | | | Unvulcanised rubber | | | | 2 |
| Type of rubber | Initial length / cm | Length of the rubber while the weight is hung / cm | Length of the rubber when the weight is taken off / cm | | | | | | | | | | | |
| Vulcanised rubber | | | | | | | | | | | | | | |
| Unvulcanised rubber | | | | | | | | | | | | | | |
| | Able to make a table not completely without unit or the line of table is not properly done | 1 | | | | | | | | | | | | |
| | No or wrong response | 0 | | | | | | | | | | | | |