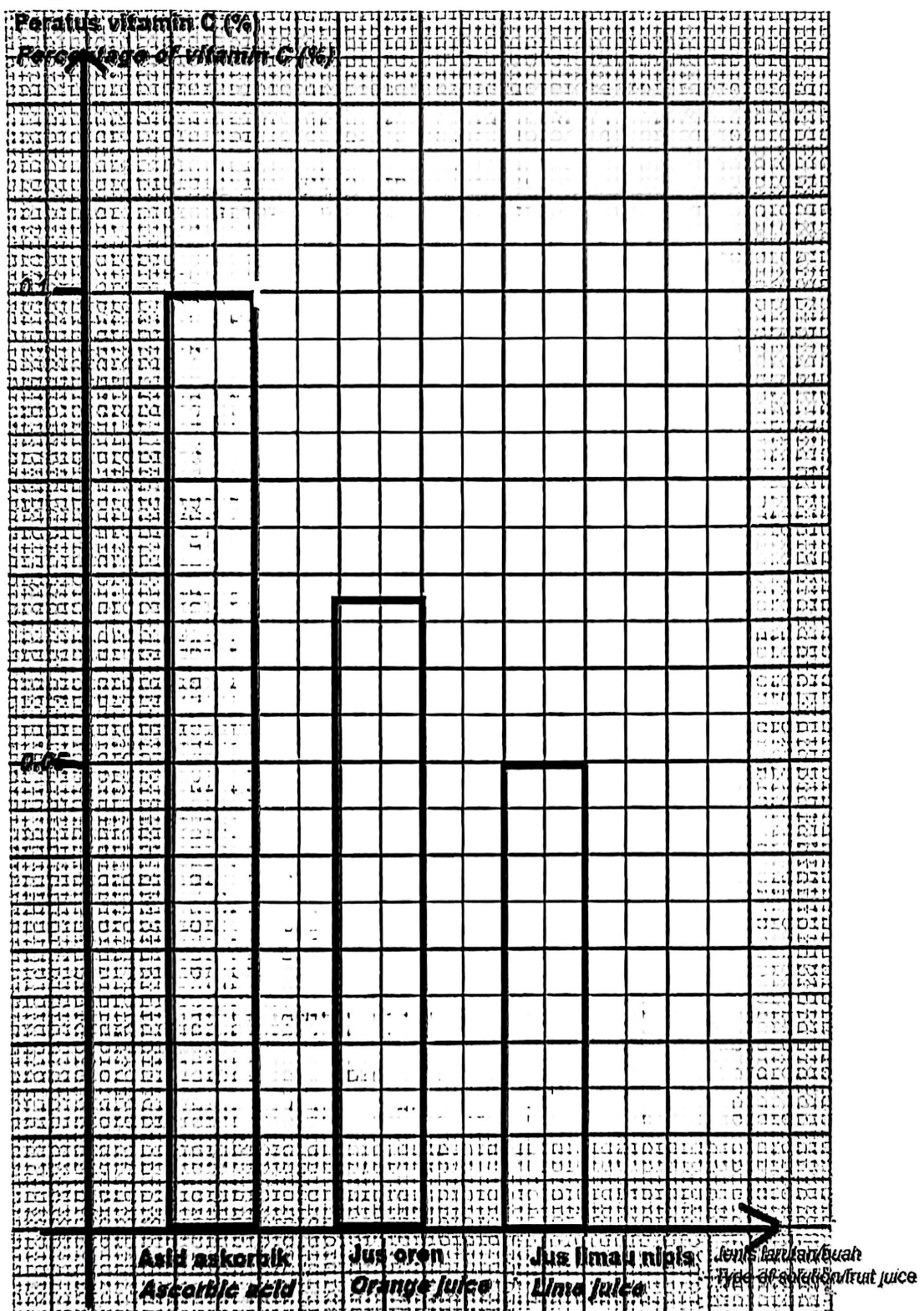


| No                                                                                                                                                            | Peraturan Pemarkahan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Markah                                               | Catatan                                                                                                                                        |                                      |                                                                     |                                                                                                                                                               |         |         |         |                                                             |                                                      |                                                      |     |                            |                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|---------|-------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|-----|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1(a)(i)                                                                                                                                                       | <p>Dapat merekodkan data dan membuat pengiraan peratus vitamin c dengan betul</p> <p>Contoh Jawapan</p> <table border="1"> <thead> <tr> <th>Larutan /Jus<br/><i>Solution / Juice</i></th><th>Jus oren<br/><i>Orange juice</i></th><th>Jus limau nipis<br/><i>Lime juice</i></th><th>Larutan asid askorbik<br/>0.1%<br/><i>0.1% acid ascorbic solution</i></th></tr> </thead> <tbody> <tr> <td>Isi padu larutan / jus yang digunakan untuk melunturkan warna larutan DCPIP (ml)<br/><i>Volume of solution / juice used to decolourise DCPIP solution (ml)</i></td><td>1.2-2.0</td><td>1.5-2.5</td><td>0.8-1.2</td></tr> <tr> <td>Peratus vitamin C (%)<br/><i>Percentage of Vitamin C (%)</i></td><td> <p>CONTOH</p> <math display="block">\frac{1.0 \times 0.1\%}{1.5} = 0.067</math> </td><td> <p>CONTOH</p> <math display="block">\frac{1.0 \times 0.1\%}{2.0} = 0.050</math> </td><td>0.1</td></tr> </tbody> </table> | Larutan /Jus<br><i>Solution / Juice</i>              | Jus oren<br><i>Orange juice</i>                                                                                                                | Jus limau nipis<br><i>Lime juice</i> | Larutan asid askorbik<br>0.1%<br><i>0.1% acid ascorbic solution</i> | Isi padu larutan / jus yang digunakan untuk melunturkan warna larutan DCPIP (ml)<br><i>Volume of solution / juice used to decolourise DCPIP solution (ml)</i> | 1.2-2.0 | 1.5-2.5 | 0.8-1.2 | Peratus vitamin C (%)<br><i>Percentage of Vitamin C (%)</i> | <p>CONTOH</p> $\frac{1.0 \times 0.1\%}{1.5} = 0.067$ | <p>CONTOH</p> $\frac{1.0 \times 0.1\%}{2.0} = 0.050$ | 0.1 | <p>5</p> <p>3</p> <p>2</p> | <p><b>DATA ISIPADU DITERIMA, JIKA:</b></p> <p>-Dalam julat/Rujuk keputusan PMP</p> <p>-Isi padu asid askorbik lebih tinggi daripada jus oren</p> <p>-Isi padu jus limau nipis lebih rendah daripada jus oren</p> <p><b>PERATUS VITAMIN C</b>, mesti dikira dengan menggunakan isi padu yang betul daripada jadual 1.</p> |
| Larutan /Jus<br><i>Solution / Juice</i>                                                                                                                       | Jus oren<br><i>Orange juice</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Jus limau nipis<br><i>Lime juice</i>                 | Larutan asid askorbik<br>0.1%<br><i>0.1% acid ascorbic solution</i>                                                                            |                                      |                                                                     |                                                                                                                                                               |         |         |         |                                                             |                                                      |                                                      |     |                            |                                                                                                                                                                                                                                                                                                                          |
| Isi padu larutan / jus yang digunakan untuk melunturkan warna larutan DCPIP (ml)<br><i>Volume of solution / juice used to decolourise DCPIP solution (ml)</i> | 1.2-2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.5-2.5                                              | 0.8-1.2                                                                                                                                        |                                      |                                                                     |                                                                                                                                                               |         |         |         |                                                             |                                                      |                                                      |     |                            |                                                                                                                                                                                                                                                                                                                          |
| Peratus vitamin C (%)<br><i>Percentage of Vitamin C (%)</i>                                                                                                   | <p>CONTOH</p> $\frac{1.0 \times 0.1\%}{1.5} = 0.067$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>CONTOH</p> $\frac{1.0 \times 0.1\%}{2.0} = 0.050$ | 0.1                                                                                                                                            |                                      |                                                                     |                                                                                                                                                               |         |         |         |                                                             |                                                      |                                                      |     |                            |                                                                                                                                                                                                                                                                                                                          |
| (a)(ii)                                                                                                                                                       | <p>Dapat melukiskan graf yang bersesuaian dengan betul.</p> <p>P1 – Tajuk paksi x dan paksi y dengan unit yang betul + kepala anak panah</p> <p>P2 - skala yang seragam + saiz &gt; 50% + ada senggatan</p> <p>P3 – Semua titik diplot dengan betul</p> <p>P4 – Bentuk graf yang sesuai dan betul</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>1</p> <p>1</p> <p>1</p> <p>1</p>                  | <p>4</p> <p>- Sekiranya Calon Melukis Graf Garis,</p> <p>- TOLAK P4</p> <p>- Jika tiada bar untuk asid askorbik,</p> <p>-TOLAK P3 &amp; P4</p> |                                      |                                                                     |                                                                                                                                                               |         |         |         |                                                             |                                                      |                                                      |     |                            |                                                                                                                                                                                                                                                                                                                          |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |   |                                                                                            |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---|--------------------------------------------------------------------------------------------|
| (b)(i)  | <p>Dapat menyatakan pemboleh ubah bergerak balas dengan betul</p> <p>Contoh jawapan</p> <p>Isi padu larutan/jus yang digunakan untuk melunturkan warna larutan DCPIP // Peratus Vitamin C<br/> <i>Volume of solution/juice used to decolorise DCPIP solution // Percentage of Vitamin C</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1           | 1 |                                                                                            |
| (b)(ii) | <p>Dapat menyatakan cara mengendali pemboleh ubah bergerak balas dengan betul</p> <p>Contoh jawapan</p> <p><b>Merekod</b> isi padu larutan/jus yang digunakan untuk melunturkan warna larutan DCPIP dengan menggunakan picagari (berjarum)</p> <p>// mengira peratus Vitamin C dengan menggunakan formula ;</p> <p>Peratus vitamin = <math>\frac{\text{Isi padu larutan asid askorbik}}{\text{Isi padu jus yang digunakan}} \times 0.1\%</math></p> <p><i>Record the volume of solution/juice used to decolorise DCPIP solution by using syringe(with needle)</i></p> <p>// Calculate the percentage of Vitamin C by using formula ;</p> <p>Percentage Of Vitamin C = <math>\frac{\text{Volume of ascorbic acid solution}}{\text{Volume of juice used}} \times 0.1\%</math></p> | 1<br>@<br>1 | 1 |                                                                                            |
| (c)     | <p>Dapat menulis hipotesis dengan menghubungkan pemboleh ubah manipulasi dan bergerak balas dengan betul</p> <p>P1 – Jus limau nipis dan Jus oren<br/> <i>Lime juice and Orange juice</i></p> <p>P2 – Isi padu larutan/jus yang digunakan untuk melunturkan warna DCPIP//Peratus Vitamin C<br/> <i>Volume of solution/juice used to decolourise DCPIP //Percentage of Vitamin C</i></p> <p>P3 - hubungan<br/> <i>Relationship</i></p>                                                                                                                                                                                                                                                                                                                                           | 1<br><br>1  | 2 | <p>Hipotesis diterima dengan mana-mana P2</p> <p><b>DAN</b></p> <p>Hubungan yang betul</p> |

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |   |                                                                                        |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---|----------------------------------------------------------------------------------------|
|     | <p>Contoh jawapan</p> <p>Jus limau nipis mengandungi peratus vitamin C yang lebih rendah berbanding Jus oren//sebaliknya<br/> <i>Lime juice contains a lower percentage of vitamin C than orange juice//vice versa</i></p> <p>Atau</p> <p>Isi padu jus oren yang lebih sedikit digunakan untuk melunturkan warna DCPIP berbanding jus limau nipis//sebaliknya<br/> <i>A smaller volume of orange juice is used to decolourise DCPIP than lime juice//vice versa</i></p>                                                                                                                                                                                         |                            |   |                                                                                        |
| (d) | <p>Dapat membuat ramalan isi padu larutan/jus dengan betul</p> <p>Contoh Jawapan</p> <p><b>Ramalan :</b><br/> <b>Prediction</b></p> <p>Isipadu jus perisa oren lebih banyak digunakan // sebarang nilai melebihi 1.7ml<br/> <i>The volume of orange flavored juice is more used // any value above 1.7ml</i></p> <p><b>Penerangan:</b><br/> <b>Explanation</b></p> <p>P1 - Lebih besar permukaan jus perisa oren terdedah kepada udara/oksigen<br/> <i>The greater the surface area of the orange juice exposed to air/oxygen</i></p> <p>P2 – lebih banyak jus perisa oren mengalami pengoksidaan<br/> <i>the more the orange juice undergoes oxidation</i></p> | <p>1</p> <p>1</p> <p>1</p> | 2 | <p>Nota :</p> <p><b>Ramalan - 1m</b></p> <p>Penerangan - 1m</p> <p><b>(P1//P2)</b></p> |



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