

LOGO
SEKOLAH

NAMA SEKOLAH

PEPERIKSAAN PERCUBAAN SPM 2023

BIOLOGI

Ujian Amali

Peraturan Pemarkahan

4551/3

UNTUK KEGUNAAN GURU MATA PELAJARAN SAHAJA

**PERATURAN PEMARKAHAN
UJIAN AMALI BIOLOGI**

Peraturan Pemarkahan ini mengandungi 7 halaman bercetak.

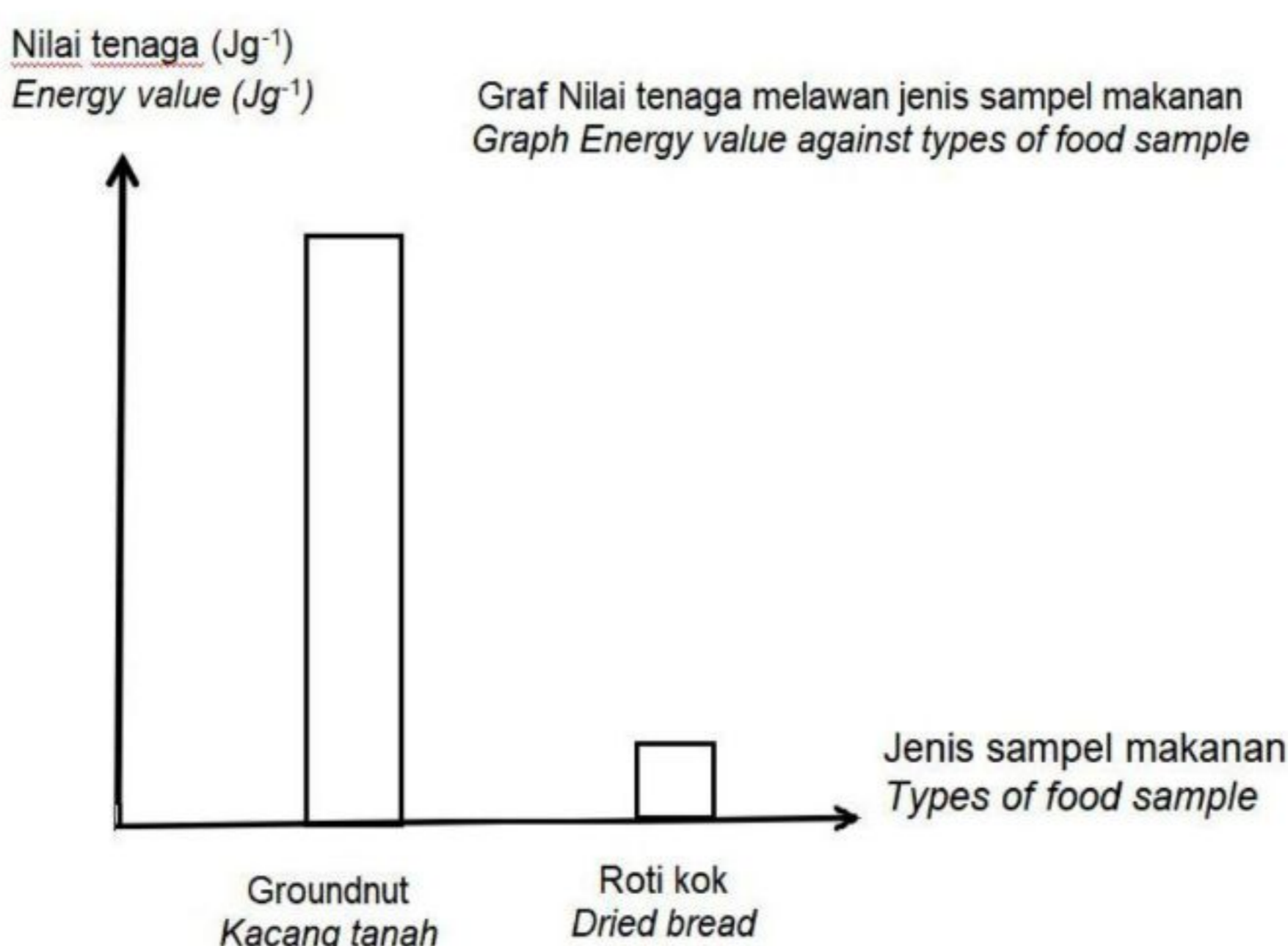
**PERATURAN PERMARKAHAN
UJIAN AMALI BIOLOGI
PEPERIKSAAN PERCUBAAN SPM 2023
TINGKATAN 5**

NO	SKEMA PERMARKAHAN	SKOR																																
1.(a)	<p>Boleh merancang eksperimen berdasarkan kriteria berikut :</p> <p>P1 - dapat menyatakan cara mengendalikan pemboleh ubah manipulasi(MV)</p> <p>P2 - dapat menyatakan cara mengendalikan pemboleh ubah bergerak balas (RV)</p> <p>P3 - dapat menyatakan cara mengendalikan pemboleh ubah dimalarkan (CV)</p> <p>P4 - dapat menyatakan satu langkah berjaga-jaga (<i>precaution step</i>)</p> <p>Contoh jawapan :</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;"></th> <th style="text-align: center;">Prosedur</th> <th style="text-align: center;">Kriteria</th> <th style="width: 5%;"></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>Ukur 20 ml air suling menggunakan silinder penyukat dan tuangkan ke dalam tabung didih. <i>Measure 20 ml of distilled water using a measuring cylinder and pour it into boiling tube</i></td> <td>20 ml/apa-apa isipadu sesuai <i>20 ml /any suitable volume</i></td> <td style="text-align: center;">P3</td> </tr> <tr> <td style="text-align: center;">2.</td> <td>Apitkan tabung didih kepada kaki retort <i>Clamp the boiling tube to the retort stand</i></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3.</td> <td>Tetapkan kedudukan thermometer dengan menggunakan kapas. <i>Fix the position of the thermometer using cotton wool.</i></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">4.</td> <td>Ukur dan rekod suhu awal air suling ke dalam jadual menggunakan termometer. <i>Measure and record the initial temperature of the distilled water in the table by using thermometer.</i></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">5.</td> <td>Cucuk sample makanan A/ kacang tanah pada jarum tenggek. <i>Stick the food sample A/ groundnut on the mounting needle.</i></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">6.</td> <td>Letakkan penghadang di sekeliling peralatan yang disediakan. <i>Place the barrier around the apparatus set-up.</i></td> <td></td> <td style="text-align: center;">P4</td> </tr> <tr> <td style="text-align: center;">7.</td> <td>Nyalakan sampel makanan A/ kacang tanah</td> <td></td> <td></td> </tr> </tbody> </table>		Prosedur	Kriteria		1.	Ukur 20 ml air suling menggunakan silinder penyukat dan tuangkan ke dalam tabung didih. <i>Measure 20 ml of distilled water using a measuring cylinder and pour it into boiling tube</i>	20 ml/apa-apa isipadu sesuai <i>20 ml /any suitable volume</i>	P3	2.	Apitkan tabung didih kepada kaki retort <i>Clamp the boiling tube to the retort stand</i>			3.	Tetapkan kedudukan thermometer dengan menggunakan kapas. <i>Fix the position of the thermometer using cotton wool.</i>			4.	Ukur dan rekod suhu awal air suling ke dalam jadual menggunakan termometer. <i>Measure and record the initial temperature of the distilled water in the table by using thermometer.</i>			5.	Cucuk sample makanan A/ kacang tanah pada jarum tenggek. <i>Stick the food sample A/ groundnut on the mounting needle.</i>			6.	Letakkan penghadang di sekeliling peralatan yang disediakan. <i>Place the barrier around the apparatus set-up.</i>		P4	7.	Nyalakan sampel makanan A/ kacang tanah			<p>1</p> <p>1</p> <p>1</p> <p>1</p>
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	<p>menggunakan lilin dan letak di bawah tabung didih. <i>Light the food sample A/ groundnut using a candle and place it below the boiling tube.</i></p>			
8.	<p>Ukur dan rekod suhu akhir air suling ke dalam jadual menggunakan termometer. <i>Measure and record the final temperature of the distilled water in the table by using thermometer.</i></p> <p>Add on : after the groundnut has completely burned.</p>	<p>Perkataan yang dihitamkan adalah wajib. <i>The word that been bold is compulsory.</i></p>	P2	
9.	<p>Ulang Langkah 1 – 8 menggunakan sampel makanan B/roti kok. <i>Repeat steps 1 to 8 using food sample B/dried bread.</i></p>		P1	
10	<p>Kirakan nilai tenaga bagi setiap sampel makanan menggunakan formula berikut:</p> $= \text{Jisim air (g)} \times 4.2 \text{ J g}^{-1} \text{ }^{\circ}\text{C}^{-1} \times \text{peningkatan suhu air (}^{\circ}\text{C)}$ <p>----- Jisim sampel makanan (g)</p> <p><i>Calculate the energy value for each food sample using the following formula:</i></p> $= \text{Water mass (g)} \times 4.2 \text{ J g}^{-1} \text{ }^{\circ}\text{C}^{-1} \times \text{Increase in water temperature (}^{\circ}\text{C)}$ <p>----- Food sample mass (g)</p>		P2	
<p>Note: Have all 4P (3 marks) 2P – 3P (2 marks) 1P (1 mark)</p>				
				3markah

<p>1.(b) [Data]</p>	<p>Boleh melengkapkan data di dalam jadual berdasarkan kriteria berikut : P1 – Suhu awal air suling($^{\circ}\text{C}$)/ <i>Initial temperature of distilled water ($^{\circ}\text{C}$)</i> P2 – Suhu akhir air suling($^{\circ}\text{C}$)/ <i>Final temperature of distilled water ($^{\circ}\text{C}$)</i></p> <p>Jawapan :</p> <table border="1" data-bbox="369 691 1734 1466"> <thead> <tr> <th data-bbox="369 691 823 863">Tabung uji <i>Test tube</i></th> <th data-bbox="823 691 1278 863">Sampel Makanan A <i>Food Sample A</i></th> <th data-bbox="1278 691 1734 863">Sampel Makanan B <i>Food Sample B</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="369 863 823 982"></td> <td data-bbox="823 863 1278 982">(Kacang Tanah/<i>Groundnut</i>)</td> <td data-bbox="1278 863 1734 982">(Roti kok/<i>Dried bread</i>)</td> </tr> <tr> <td data-bbox="369 982 823 1240">Suhu awal air suling ($^{\circ}\text{C}$) <i>Initial temperature of distilled water ($^{\circ}\text{C}$)</i></td> <td data-bbox="823 982 1278 1240">27$^{\circ}\text{C}$ - 31$^{\circ}\text{C}$ (Based on Student's answer, must be in above range)</td> <td data-bbox="1278 982 1734 1240">27$^{\circ}\text{C}$ - 31$^{\circ}\text{C}$ (Based on Student's answer, must be in above range)</td> </tr> <tr> <td data-bbox="369 1240 823 1466">Suhu akhir air suling ($^{\circ}\text{C}$) <i>Final temperature of distilled water ($^{\circ}\text{C}$)</i></td> <td data-bbox="823 1240 1278 1466">89$^{\circ}\text{C}$ (Based on Student's answer)</td> <td data-bbox="1278 1240 1734 1466">36$^{\circ}\text{C}$ (Based on Student's answer)</td> </tr> </tbody> </table>	Tabung uji <i>Test tube</i>	Sampel Makanan A <i>Food Sample A</i>	Sampel Makanan B <i>Food Sample B</i>		(Kacang Tanah/ <i>Groundnut</i>)	(Roti kok/ <i>Dried bread</i>)	Suhu awal air suling ($^{\circ}\text{C}$) <i>Initial temperature of distilled water ($^{\circ}\text{C}$)</i>	27 $^{\circ}\text{C}$ - 31 $^{\circ}\text{C}$ (Based on Student's answer, must be in above range)	27 $^{\circ}\text{C}$ - 31 $^{\circ}\text{C}$ (Based on Student's answer, must be in above range)	Suhu akhir air suling ($^{\circ}\text{C}$) <i>Final temperature of distilled water ($^{\circ}\text{C}$)</i>	89 $^{\circ}\text{C}$ (Based on Student's answer)	36 $^{\circ}\text{C}$ (Based on Student's answer)	<p>1 1 2markah</p>
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<p>1. (c) (i) [Observation]</p>	<p>Boleh menyatakan pemerhatian</p> <p>P1 – Jenis sample makanan/<i>Type of food Sample</i> P2 – Nilai suhu awal dan akhir air suling/<i>Value of Initial and Final temperature of distilled water</i></p> <p>-Untuk sample makanan A/kacang tanah, suhu awal air suling ialah 30$^{\circ}\text{C}$ dan suhu akhir air suling ialah 30$^{\circ}\text{C}$ <i>For food sample A/ Groundnut, the initial temperature of distilled water is 30$^{\circ}\text{C}$ and final temperature of distilled water is 89$^{\circ}\text{C}$</i></p> <p>Atau /or</p> <p>-Untuk sample makanan B/roti kok, suhu awal air suling ialah 30$^{\circ}\text{C}$ dan suhu akhir air suling ialah 36$^{\circ}\text{C}$ <i>For food sample A/ dried bread, the initial temperature of distilled water is 30$^{\circ}\text{C}$ and final temperature of distilled water is 36$^{\circ}\text{C}$</i></p>	<p>1 markah</p>												

<p>1. (c) (ii)) [Inferens]</p>	<p>Boleh menyatakan inferens</p> <p>P1 – Kelas makanan sample makanan /<i>Food Class of Food Sample</i> P2 – Nilai Tenaga/ <i>Energy Value</i></p> <p><u>Contoh Jawapan/ Sample Answer</u></p> <p>-Sampel makanan A/kacang tanah mengandungi protein/lipid, nilai tenaga dalam sampel makanan ini adalah tinggi. <i>Food sample A/ groundnut contain protein/lipid, the energy value for this food sample is high.</i></p> <p>Atau/Or</p> <p>Sampel makanan B/roti kok mengandungi karbohidrat, nilai tenaga dalam sampel makanan ini adalah rendah. <i>Food sample B/ dried bread contain carbohydrate, the energy value for this food sample is low.</i></p> <p>Note: Inferens yang dinyatakan wajib selari dengan pemerhatian yang dinyatakan. <i>Inferens stated must be parallel with observation stated.</i></p>	<p>1 markah</p>
<p>1.(d) [Hypothesis]</p>	<p>Boleh menyatakan hipotesis</p> <p>P1 – Sampel makanan /<i>Food Sample (MV)</i> P2 – Nilai Tenaga/ <i>Energy Value</i> atau/or suhu akhir air suling/<i>final temperature of distilled water (RV)</i> P3 – Hubungan/ <i>Relationship (comparing)</i></p> <p><u>Contoh Jawapan/ Sample Answer</u></p> <p>-Nilai tenaga sampel makanan A/kacang tanah adalah lebih tinggi berbanding sampel makanan B.(sebaliknya) <i>Energy value of food sample A/ groundnut is higher than energy value of food sample B. (vice versa).</i></p> <p>Atau/Or</p> <p>-Suhu akhir air suling sampel makanan A/kacang tanah adalah lebih tinggi berbanding sampel makanan B.(sebaliknya) <i>Final temperature of distilled water of food sample A/ groundnut is higher than energy value of food sample B. (vice versa).</i></p> <p>Note : Wajib ada kesemua P untuk 1 markah <i>Must have all P to get 1m.</i></p>	<p>1 markah</p>

<p>1. (e) [Calculation]</p>	<p><u>Contoh Jawapan/ Sample Answer</u></p> <p>Sampel makanan A : <i>Food sample A :</i></p> $\begin{aligned} \text{Nilai Tenaga (Jg}^{-1}\text{)} &= \frac{20\text{g} \times 4.2 \text{ Jg}^{-1} \text{ }^{\circ}\text{C}^{-1} \times 59 \text{ }^{\circ}\text{C}}{1.0 \text{ g}} \\ \text{Energy value (Jg}^{-1}\text{)} &= 4956.00 \text{ Jg}^{-1} \end{aligned}$ <p>Sampel makanan B : <i>Food sample B :</i></p> $\begin{aligned} \text{Nilai Tenaga (Jg}^{-1}\text{)} &= \frac{20\text{g} \times 4.2 \text{ Jg}^{-1} \text{ }^{\circ}\text{C}^{-1} \times 6 \text{ }^{\circ}\text{C}}{1.0 \text{ g}} \\ \text{Energy value (Jg}^{-1}\text{)} &= 504.00 \text{ Jg}^{-1} \end{aligned}$	<p>1</p> <p>1</p> <p>2markah</p>
<p>1. (f) [Graf]</p>	<p>Dapat membina graf yang betul yang mematuhi semua kriteria berikut</p> <p>P1 : Tajuk graf, paksi beserta unit/ <i>Graph Title, Axis with unit</i> P2 : Titik, skala yg seragam/ <i>Point, Uniform scale</i> P3 : Bentuk graf (Bar), <i>Shape of Graph (Bar Graph)</i></p> <p><u>Contoh Jawapan/ Sample Answer</u></p>  <p>Nilai tenaga (Jg⁻¹) Energy value (Jg⁻¹)</p> <p>Graf Nilai tenaga melawan jenis sampel makanan Graph Energy value against types of food sample</p> <p>Jenis sampel makanan Types of food sample</p> <p>Groundnut Kacang tanah</p> <p>Roti kok Dried bread</p>	<p>1</p> <p>1</p> <p>1</p> <p>3markah</p>

<p>1. (g) [Ramalan]</p>	<p>Dapat meramalkan jumlah tenaga jika sampel makanan ditukar</p> <p>Contoh jawapan :</p> <p>P1 – Nilai tenaga isi rong kelapa adalah lebih tinggi berbanding nilai tenaga kacang tanah dan roti kok. <i>Energy value of coconut kernel is higher than energy value of groundnut and dried bread.</i></p> <p>P2 – Isi rong kelapa mengandungi lipid/ <i>Coconut kernel contain lipid</i></p> <p>P3 – Sampel makanan ini membebaskan tenaga haba yang lebih tinggi apabila terbakar dengan lengkap/ <i>This food sample will release higher heat energy when completely burn.</i></p> <p>P1 + Mana - mana P2 atau P3/ <i>P1 + Any P2 atau P3</i></p>	<p>1</p> <p>1</p> <p>1</p> <p>2markah</p>
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PERATURAN PERMARKAHAN TAMAT / END OF SCHEME