



**MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
NEGERI SEMBILAN DARUL KHUSUS**

NAMA		NO. PENGENALAN DIRI	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td><td style="width: 5%;"></td> </tr> </table>																				
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PROGRAM PENINGKATAN AKADEMIK TINGKATAN 5 TAHUN 2024

SAINS

1511/2

Kertas 2

2 ½ jam

2 jam 30 minit

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. *Tulis Nama, Kelas, No. Pengenalan Diri dan Angka Giliran anda dalam petak yang disediakan.*
2. *Kertas peperiksaan ini mengandungi tiga bahagian: Bahagian A, Bahagian B dan Bahagian C.*
3. *Jawapan hendaklah ditulis pada ruang jawapan yang disediakan di dalam kertas peperiksaan ini.*
4. *Kertas peperiksaan ini adalah dalam dwibahasa.*
5. *Jawapan boleh ditulis dalam bahasa Melayu atau bahasa Inggeris.*
6. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
7. *Kerja mengira anda mesti ditunjukkan.*
8. *Kertas peperiksaan ini hendaklah diserahkan kepada pengawas peperiksaan pada akhir peperiksaan.*

<i>Untuk Kegunaan Pemeriksa</i>			
Kod Pemeriksa:			
Bahagian	Soalan	Markah Penuh	Markah Diperoleh
A	1	5	
	2	5	
	3	5	
	4	5	
B	5	6	
	6	6	
	7	6	
	8	6	
	9	7	
	10	7	
C	11	10	
	12	12	
	13	12	
Jumlah			

Kertas peperiksaan ini mengandungi 44 halaman bercetak.

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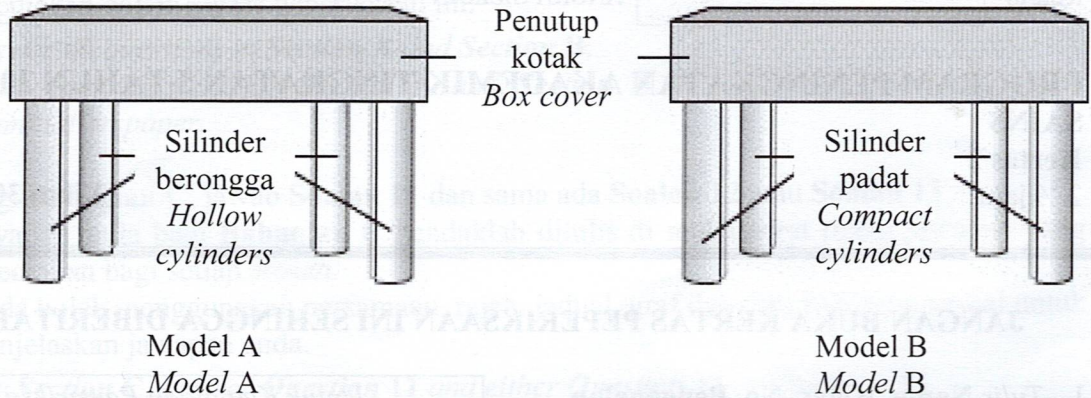
Bahagian A

[20 markah]

Jawab semua soalan.

1 Rajah 1.1 menunjukkan suatu eksperimen untuk membandingkan kekuatan tulang.

Diagram 1.1 shows an experiment to compare the strength of bones.



Rajah 1.1
Diagram 1.1

Buku yang sama jenis diletakkan satu per satu di atas penutup kotak Model A dan Model B sehingga silinder bengkok.

Jadual 1 menunjukkan keputusan eksperimen.

Books of the same type are placed one by one on the box covers of Model A and Model B until the cylinder bends.

Table 1 shows the results of the experiment.

Model Model	Jenis silinder Type of cylinder	Bilangan buku yang boleh disokong Number of books that can be supported
A	Berongga Hollow	15
B	Padat Compact	10

Jadual 1
Table 1

(a) Berdasarkan Rajah 1.1, nyatakan

Based on Diagram 1.1, state

(i) tujuan eksperimen.
the aim of the experiment.

.....

.....

(ii) faktor yang diubah.

factor that is being changed.

.....

[2 markah]

[2 marks]

(b) Ramalkan bilangan buku yang boleh disokong sekiranya ketinggian silinder bagi Model A dikurangkan.

Predict the number of books that can be supported if the height of cylinder for the Model A is decreased.

.....

[1 markah]

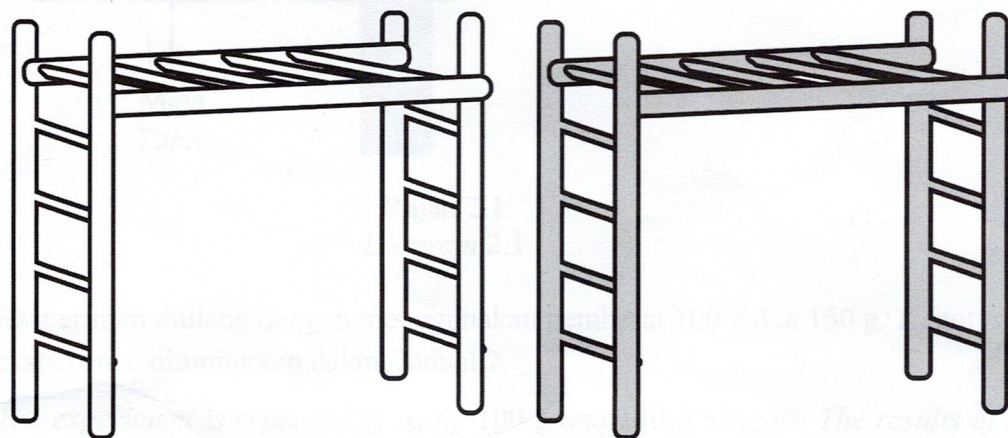
[1 mark]

(c) Seorang ahli gimnas bercadang untuk membina palang gayut di halaman rumahnya.

Rajah 1.2 menunjukkan palang gayut C dan palang gayut D dengan ciri-cirinya.

A gymnast plans to build a monkey bar in his house yard.

Diagram 1.2 shows monkey bar C and monkey bar D with their properties.



Palang gayut C
Monkey bar C

- Besi berongga
Hollow iron
- Diameter 5 cm
Diameter of 5 cm

Palang gayut D
Monkey bar D

- Besi padat
Compact iron
- Diameter 5 cm
Diameter of 5 cm

Rajah 1.2
Diagram 1.2

[Lihat halaman sebelah

Pada pendapat anda, palang gayut yang manakah lebih kuat?
Berikan alasan untuk menyokong jawapan anda.

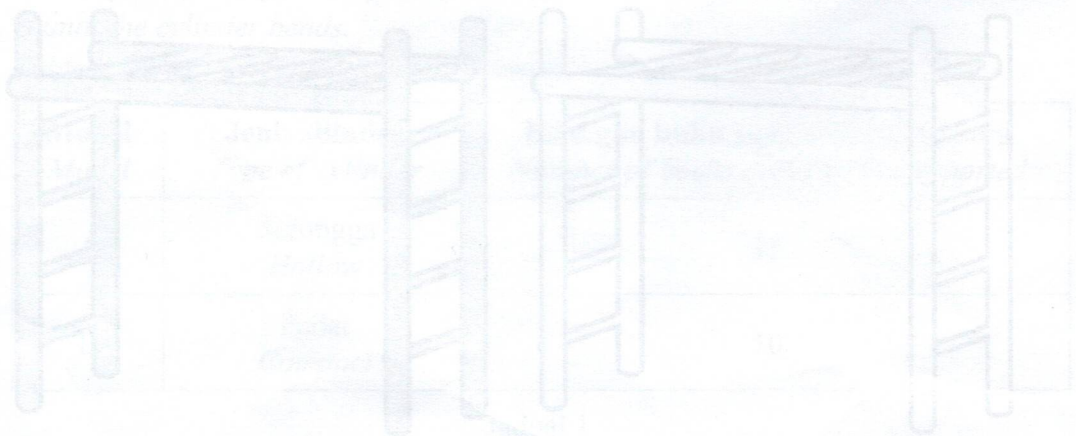
In your opinion, which monkey bar is stronger?

Give reason to support your answer.

Pilihan :
Choice

Alasan :
Reason

[2 markah]
[2 marks]

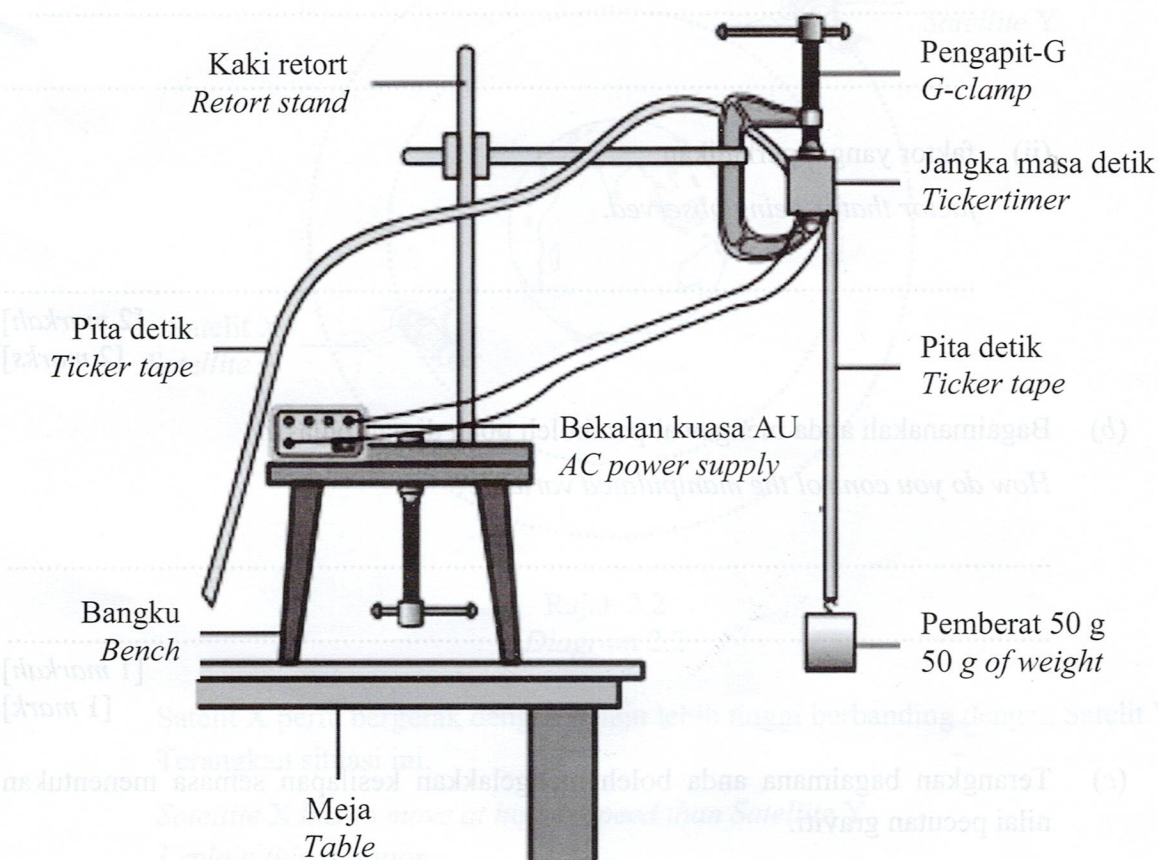


Jumlah
A1

	5
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- 2 Rajah 2.1 menunjukkan eksperimen untuk menentukan nilai pecutan graviti, g . Frekuensi jangkamasa detik ialah 50 Hz.

Diagram 2.1 shows an experiment to determine the value of gravitational acceleration, g . The frequency of the tickertimer is 50 Hz.



Rajah 2.1
Diagram 2.1

Eksperimen diulang dengan menggunakan pemberat 100 g dan 150 g. Keputusan eksperimen ditunjukkan dalam Jadual 2.

The experiment is repeated by using 100 g and 150 g weights. The results of the experiment is shown in Table 2.

Jisim pemberat (g) <i>Mass of weight (g)</i>	50	100	150
Pecutan graviti, g ($m s^{-2}$) <i>Gravitational acceleration, g ($m s^{-2}$)</i>	9.5	9.5	9.5

Jadual 2
Table 2

(a) Berdasarkan eksperimen tersebut, nyatakan

Based on the experiment, state

(i) **satu** hipotesis.

one hypothesis.

.....
.....

(ii) faktor yang diperhatikan.

factor that is being observed.

..... [2 markah]
..... [2 marks]

(b) Bagaimanakah anda mengawal pemboleh ubah dimanipulasi?

How do you control the manipulated variable?

..... [1 markah]
..... [1 mark]

(c) Terangkan bagaimana anda boleh mengelakkan kesilapan semasa menentukan nilai pecutan graviti.

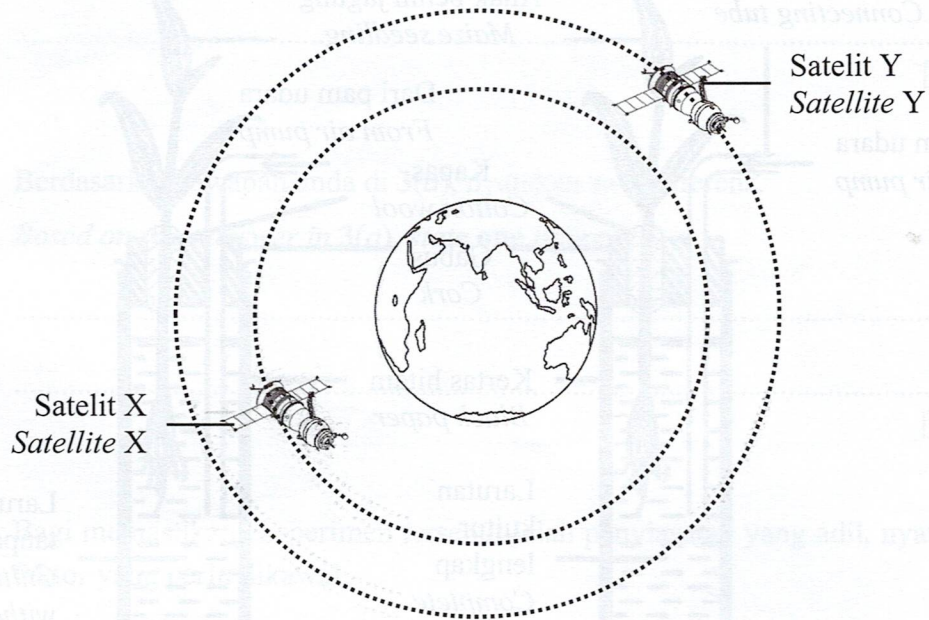
Explain how you can avoid mistake while determining the value of gravitational acceleration.

..... [1 markah]
..... [1 mark]

Mass of weight (g)	Mass of weight (g)	Gravitational acceleration g (m/s ²)	Gravitational acceleration g (m/s ²)
150	100	9.2	9.2
100	50	9.2	9.2
50	25	9.2	9.2

- (d) Rajah 2.2 menunjukkan dua satelit yang mengelilingi Bumi dalam orbit masing-masing.

Diagram 2.2 shows two satellites cirulating the Earth in their respective orbits.



Rajah 2.2
Diagram 2.2

Satelit X perlu bergerak dengan halaju lebih tinggi berbanding dengan Satelit Y. Terangkan situasi ini.

Satellite X has to move at higher speed than Satellite Y.

Explain this situation.

.....

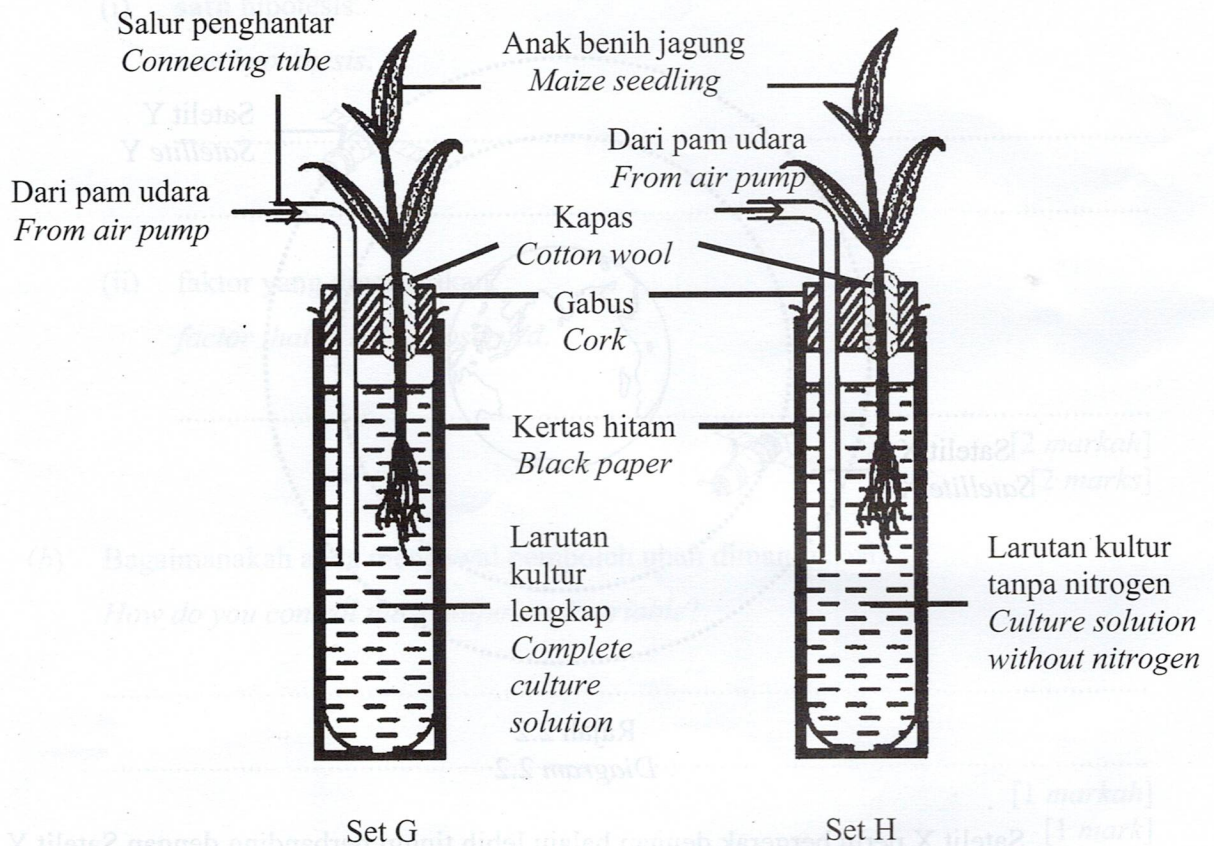
		[1 markah]
		[1 mark]

Jumlah
A2

	5
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3. Rajah 3 menunjukkan satu eksperimen yang dijalankan oleh murid E di makmal.

Diagram 3 shows an experiment conducted by student E in a laboratory.



Rajah 3
Diagram 3

Jadual 3.1 menunjukkan pemerhatian bagi eksperimen tersebut.

Table 3.1 shows the observations of the experiment.

Set	Saiz daun Size of leaves	Warna daun Colour of leaves
G	Lebih besar Larger	Hijau terang Bright green
H	Lebih kecil Smaller	Hijau pucat / Kuning Pale green / Yellow

Jadual 3.1
Table 3.1

(a) Nyatakan **satu** pemerhatian bagi Set H.

State one observation for Set H.

.....
.....

[1 markah]
[1 mark]

(b) Berdasarkan jawapan anda di 3(a), nyatakan **satu** inferens.

Based on your answer in 3(a), state one inference.

.....
.....

[1 markah]
[1 mark]

(c) Bagi memastikan eksperimen tersebut ialah penyiasatan yang adil, nyatakan **satu** faktor yang perlu dikawal.

To ensure that the experiment is a fair investigation, state one factor that should be controlled.

.....

[1 markah]
[1 mark]

(d) Nitrogen ialah suatu makronutrien. Berdasarkan eksperimen tersebut, berikan definisi secara operasi bagi makronutrien.

Nitrogen is a macronutrient. Based on the experiment, give an operational definition for macronutrient.

.....
.....

[1 markah]
[1 mark]

[Lihat halaman sebelah

SULIT

- (e) Murid F menjalankan eksperimen yang sama. Jadual 3.2 menunjukkan keputusan eksperimen bagi murid E dan murid F selepas dua minggu.

Student F carried out the same experiment. Table 3.2 shows the result of the experiment for Student E and Student F after two weeks.

Murid Student	Ketinggian anak benih jagung Height of maize seedlings	
	Set G	Set H
Murid E Student E	7.0 cm	6.5 cm
Murid F Student F	5.0 cm	4.5 cm

Jadual 3.2

Table 3.2

Pada pendapat anda, apakah yang menyebabkan keadaan tersebut?

In your opinion, what might cause that condition?

.....

.....

[1 markah]

[1 mark]

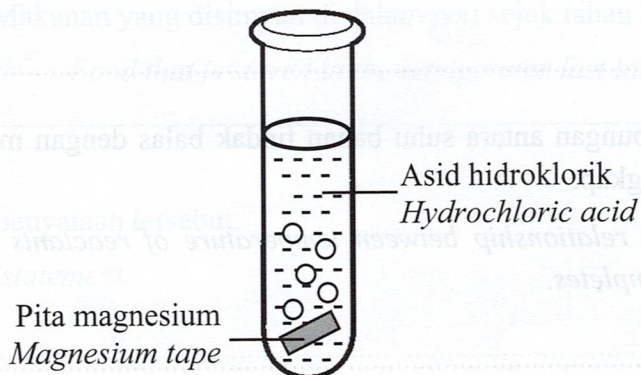
Jumlah

A3

5

- 4 Rajah 4 menunjukkan satu eksperimen untuk mengkaji hubungan antara suhu bahan tindak balas dengan kadar tindak balas.

Diagram 4 shows an experiment to study the relationship between the temperature of reactants and the rate of reaction.



Rajah 4
Diagram 4

Jadual 4 menunjukkan keputusan eksperimen.

Table 4 shows the result of the experiment.

Ekperimen Experiment	I	II	III
Suhu bahan tindak balas (°C) Temperature of reactant (°C)	30	40	50
Masa untuk tindak balas lengkap (s) Time for reaction completes (s)	50	27	12

Jadual 4
Table 4

(a) Berdasarkan Rajah 4, nyatakan

Based on Diagram 4, state

(i) bahan tindak balas.
the reactants.

.....

(ii) hubungan antara suhu bahan tindak balas dengan masa untuk tindak balas lengkap.

the relationship between temperature of reactants and time for reaction completes.

.....

.....

[2 markah]

[2 marks]

(b) Ramalkan masa untuk tindak balas lengkap jika suhu bahan tindak balas ialah 15°C.

Predict the time for reaction to complete if the temperature of reactants is 15 °C.

.....

[1 markah]

[1 mark]

(c) Bagaimanakah anda mengawal pemboleh ubah bergerak balas?

How do you control the responding variable?

.....

[1 markah]

[1 mark]

- (d) Baca dan kaji maklumat berikut.
Read and study the following information.

Makanan yang disimpan di dalam peti sejuk tahan lebih lama.
Food that is stored in the refrigerator last longer.

Wajarkan pernyataan tersebut.
Justify the statement.

.....
.....

[1 markah]
[1 mark]

Jumlah
A4

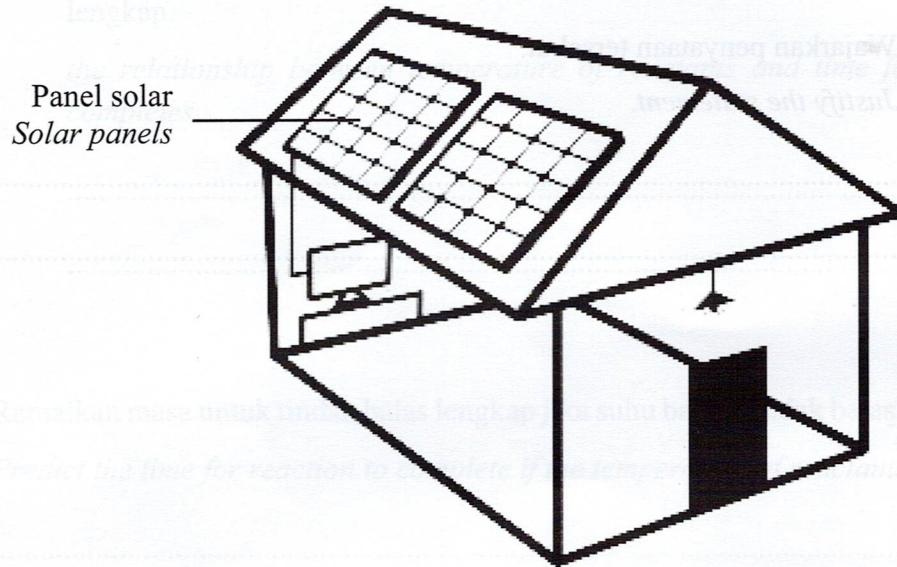
5

Bahagian B

[38 markah]

Jawab **semua** soalan.

- 5 Rajah 5.1 menunjukkan satu alat penukar tenaga yang dipasang di atas bumbung rumah.
Diagram 5.1 shows an energy converter device installed on the rooftop of a house.



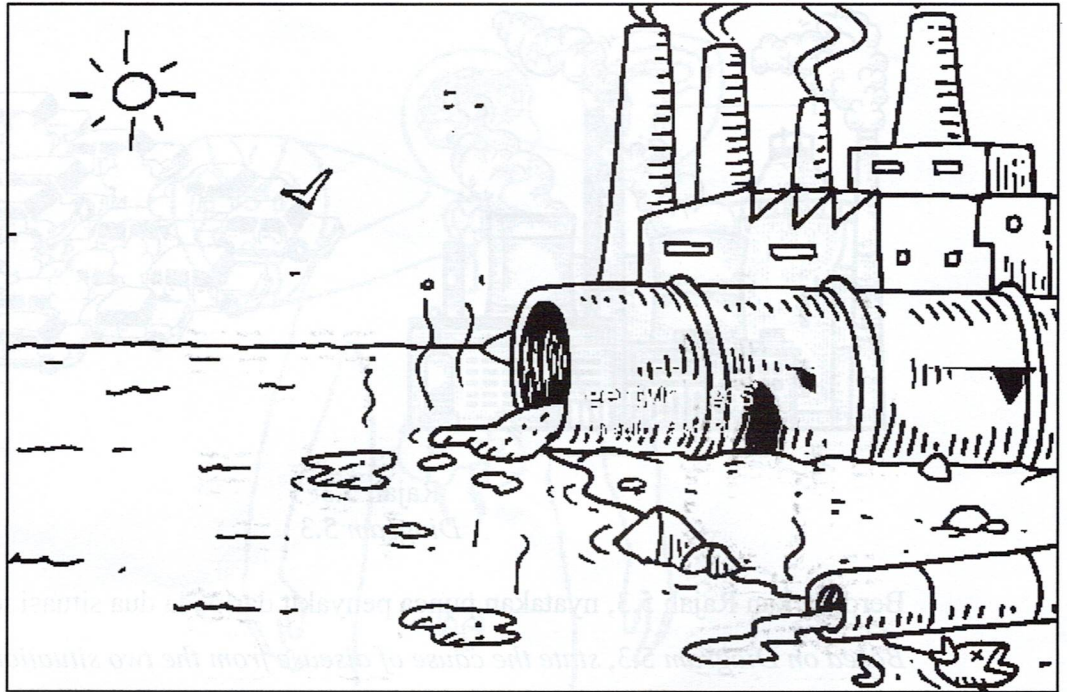
Rajah 5.1
Diagram 5.1

- (a) Berdasarkan Rajah 5.1, nyatakan
Based on Diagram 5.1, state
- (i) sektor teknologi hijau tersebut.
the green technology sector.
-
- (ii) perubahan tenaga yang berlaku.
the energy changes that occur.
-

[2 markah]
[2 marks]

(b) Rajah 5.2 menunjukkan suatu isu sosiosaintifik.

Diagram 5.2 shows a socioscientific issue.



Rajah 5.2
Diagram 5.2

Berdasarkan Rajah 5.2, nyatakan **dua** kesan buruk isu tersebut terhadap alam sekitar.

Based on Diagram 5.2, state **two** adverse effects of the issue to the environment.

.....

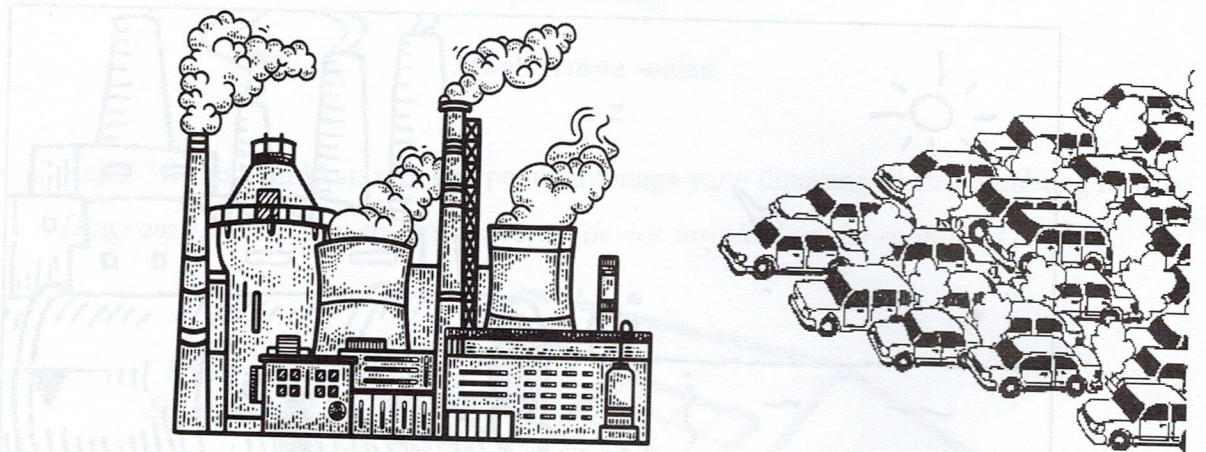
.....

.....

[2 markah]
[2 marks]

(c) Rajah 5.3 menunjukkan dua situasi di sebuah bandar.

Diagram 5.3 shows two situations in a town.



Rajah 5.3
Diagram 5.3

Berdasarkan Rajah 5.3, nyatakan punca penyakit daripada dua situasi tersebut.

Based on Diagram 5.3, state the cause of disease from the two situations.

.....

.....

.....

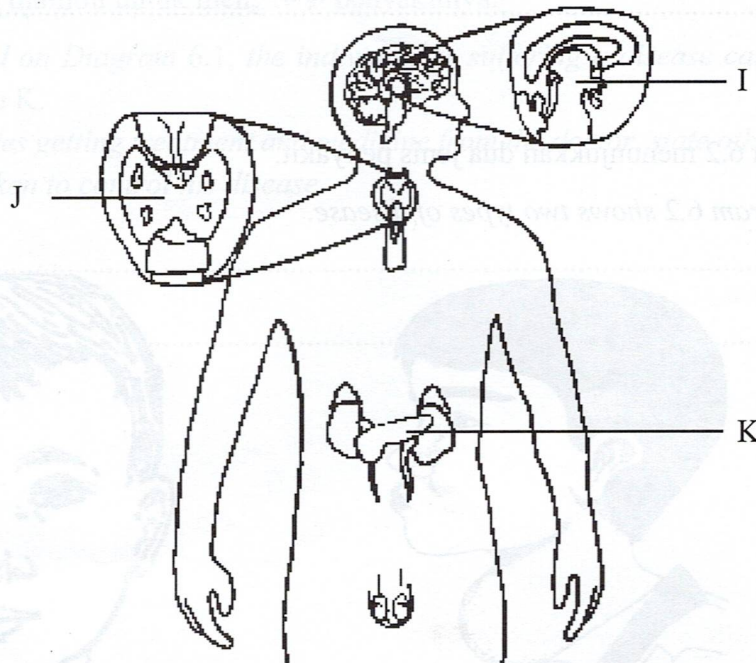
[2 markah]
[2 marks]

Jumlah
B5

6

- 6 Rajah 6.1 menunjukkan sistem endokrin seorang individu.

Diagram 6.1 shows the endocrine system of an individual.



Rajah 6.1
Diagram 6.1

- (a) Berdasarkan Rajah 6.1, nyatakan

Based on Diagram 6.1, state

- (i) kelenjar I.
gland I.

.....

- (ii) kesan pada lelaki tersebut jika kelenjar I merembeskan hormon yang berlebihan.

the effect to the man if gland I secretes excessive hormones.

.....

[2 markah]

[2 marks]

[Lihat halaman sebelah

(b) Nyatakan **satu** fungsi hormon yang dirembeskan oleh kelenjar K.

State one function of the hormone secreted by gland K.

[1 markah]

[1 mark]

(c) Rajah 6.2 menunjukkan dua jenis penyakit.

Diagram 6.2 shows two types of disease.



Goiter
Goitre



Beguk
Mumps

Rajah 6.2
Diagram 6.2

Berdasarkan Rajah 6.2, banding bezakan kedua-dua jenis penyakit tersebut.

Based on Diagram 6.2, compare and contrast both types of the disease.

Persamaan:

Similarity:

.....

.....

Perbezaan:

Difference:

.....

.....

[2 markah]

[2 marks]

- (d) Berdasarkan Rajah 6.1, individu tersebut menghidap suatu penyakit sebagai akibat kerosakan organ K.
Selain mendapatkan rawatan dan ubat daripada doktor, nyatakan tindakan lain yang boleh diambil untuk mengawal penyakitnya.

Based on Diagram 6.1, the individual is suffering a disease caused by damaged organ K.

Besides getting treatment and medicine from the doctor, state other action that can be taken to control his disease.

.....

.....

[1 markah]

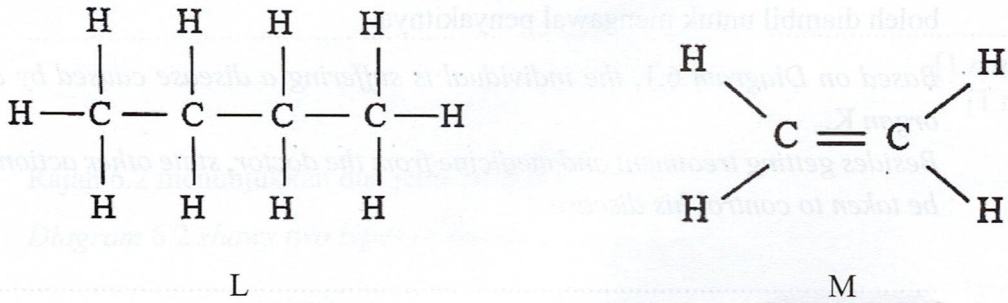
[1 mark]

**Jumlah
B6**

6

7 Rajah 7.1 menunjukkan dua contoh sebatian hidrokarbon.

Diagram 7.1 shows two examples of hydrocarbon compounds.



Rajah 7.1
Diagram 7.1

(a) Berdasarkan Rajah 7.1,
Based on Diagram 7.1,

(i) berikan siri homolog bagi unsur M.
give a homologous series for element M.

.....

(ii) unsur yang manakah mempunyai siri homolog yang sama dengan gas metana?

which element has the same homologous series as methane gas?

.....

[2 markah]
[2 marks]

(b) Terangkan cara untuk menghasilkan gas metana.
Explain how to produce methane gas.

.....

[1 markah]
[1 mark]

(c) Nyatakan **satu** perbezaan antara sebatian hidrokarbon L dan M.
State **one** difference between hydrocarbon compounds L and M.

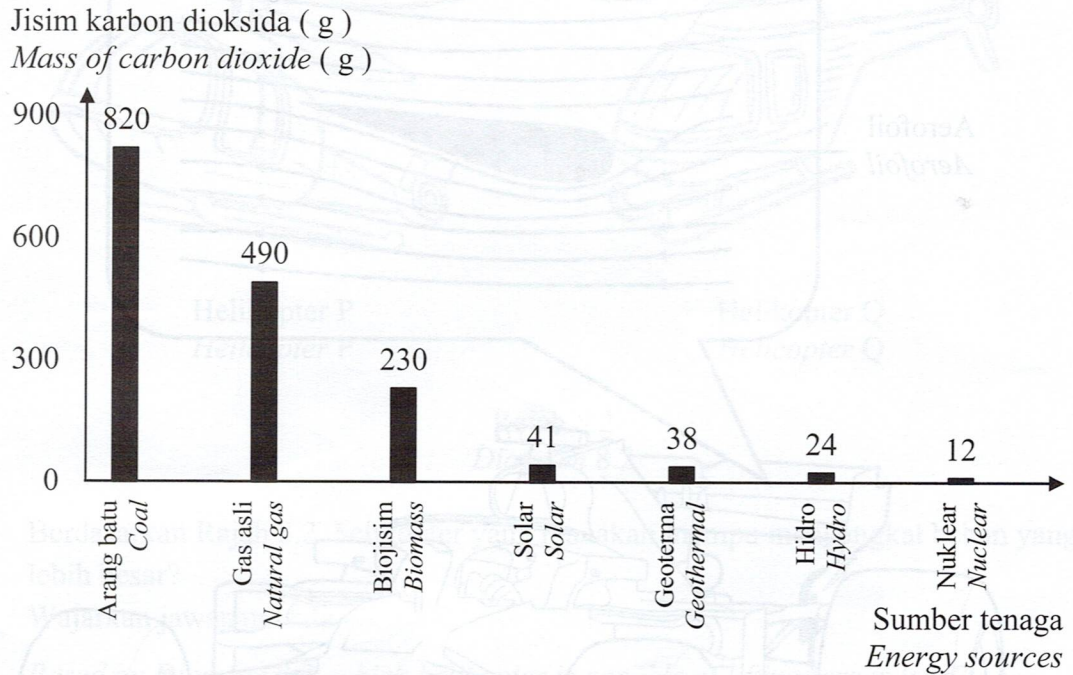
.....

.....

[1 markah]
[1 mark]

- (d) Rajah 7.2 menunjukkan graf pembebasan gas karbon dioksida daripada penggunaan sumber tenaga berbeza.

Diagram 7.2 shows a graph of carbon dioxide gas emissions from the use of different energy sources.



Sumber / Source:

<https://world-nuclear.org/nuclear-essentials/how-can-nuclear-combat-climate-change.aspx>

Rajah 7.2
Diagram 7.2

Berdasarkan Rajah 7.2, sumber tenaga manakah yang paling mesra alam?
Terangkan jawapan anda.

Based on Diagram 7.2, which energy source is the most environmentally friendly?
Explain your answer.

.....

.....

[2 markah]

[2 mark]

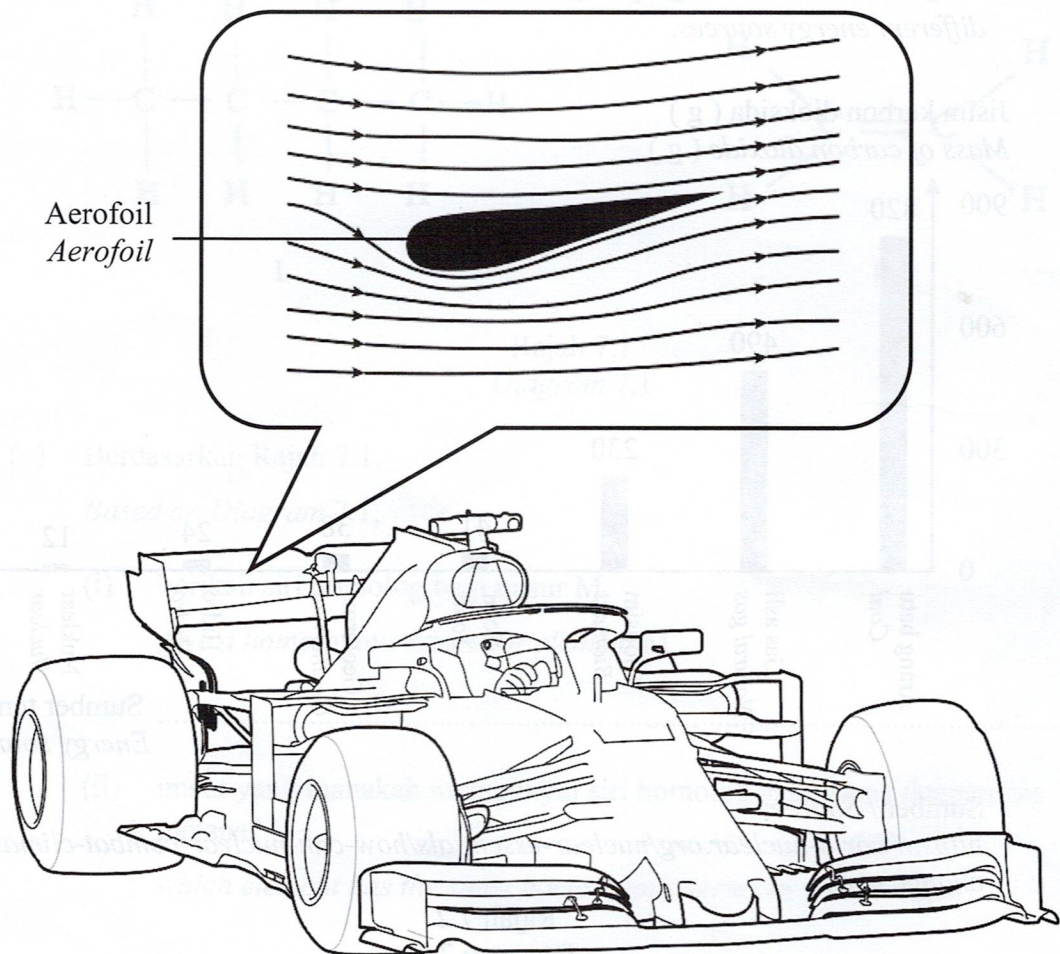
**Jumlah
B7**

6

[Lihat halaman sebelah

8 Rajah 8.1 menunjukkan aplikasi aerofoil pada kereta lumba.

Diagram 8.1 shows the application of an aerofoil on a racing car.



Rajah 8.1
Diagram 8.1

(a) Nyatakan hubungan antara halaju udara dan tekanan udara pada aerofoil.

State the relationship between air velocity and air pressure on an aerofoil.

.....
[1 markah]

[1 mark]

(b) Selain kereta lumba, nyatakan aplikasi lain aerofoil.

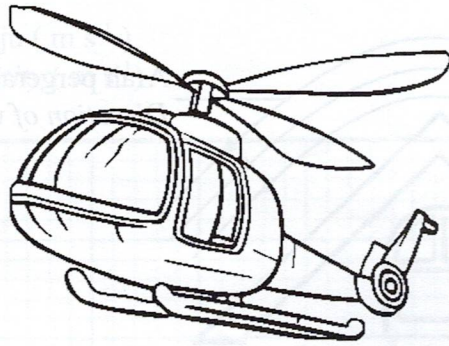
Besides racing car, state other application of aerofoil.

.....
[1 markah]

[1 mark]

(c) Rajah 8.2 menunjukkan dua jenis helikopter.

Diagram 8.2 shows two types of helicopter.



Helikopter P
Helicopter P



Helikopter Q
Helicopter Q

Rajah 8.2
Diagram 8.2

Berdasarkan Rajah 8.2, helikopter yang manakah mampu mengangkat beban yang lebih besar?

Wajarkan jawapan anda.

Based on Diagram 8.2, which helicopter is capable of lifting larger load?

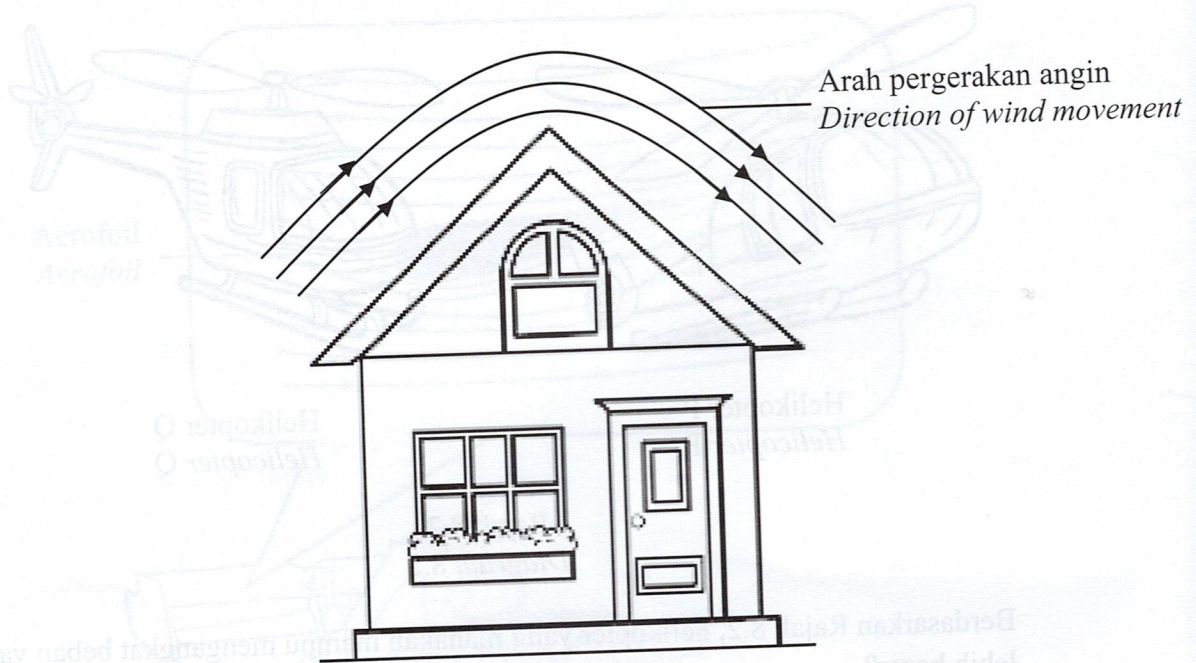
Justify your answer.

.....
.....

[2 markah]
[2 marks]

(d) Rajah 8.3 menunjukkan reka bentuk rumah di Malaysia.

Diagram 8.3 shows a design of house in Malaysia.



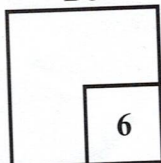
Rajah 8.3
Diagram 8.3

Berdasarkan Rajah 8.3, wajarkan reka bentuk bumbung rumah tersebut.
Based on Diagram 8.3, justify the design of the house rooftop.

.....
.....

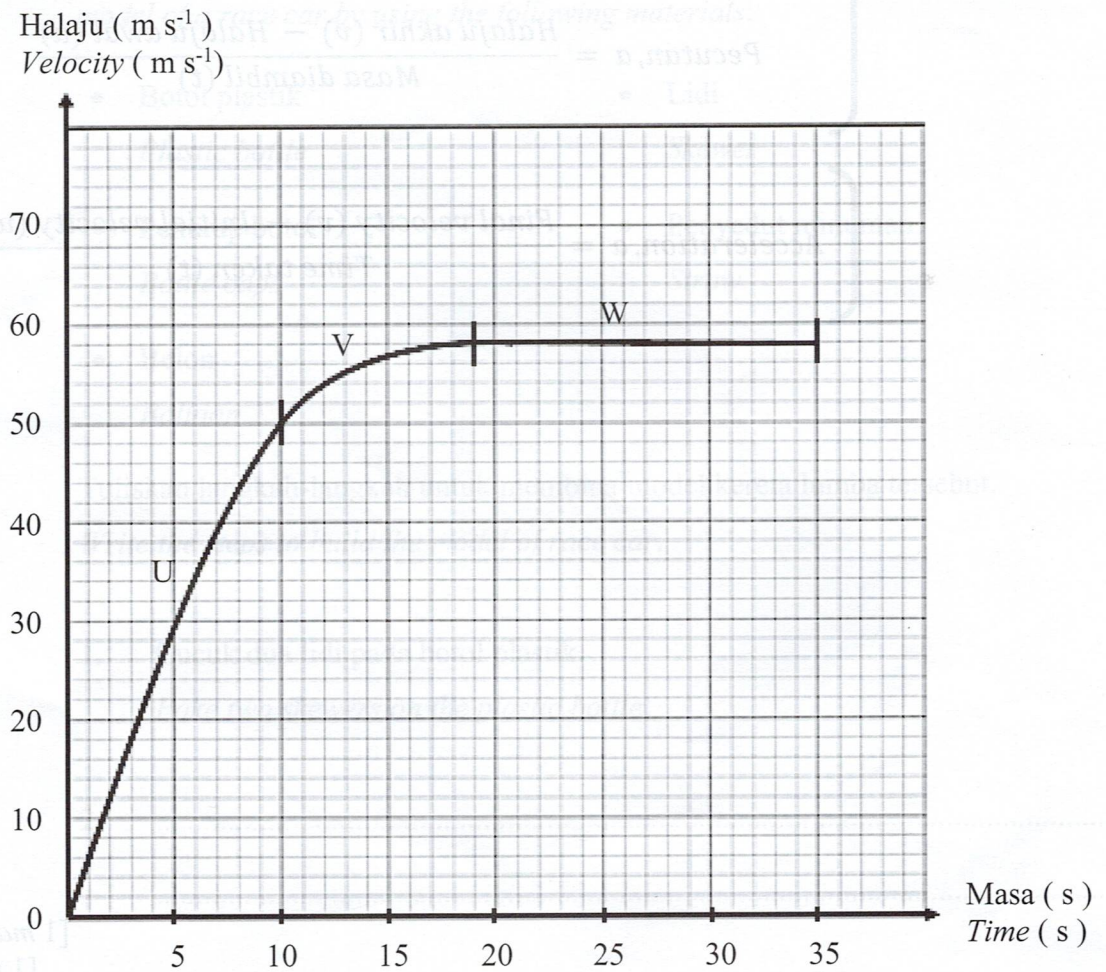
[2 markah]
[2 marks]

Jumlah
B8



- 9 Rajah 9 menunjukkan graf halaju-masa bagi seorang penerjun payung terjun terlatih.

Diagram 9 shows the velocity-time graph of a trained skydiver.



Rajah 9
Diagram 9

- (a) Berdasarkan Rajah 9,
Based on Diagram 9,

- (i) bahagian yang manakah menunjukkan halaju malar?
which part shows constant velocity?

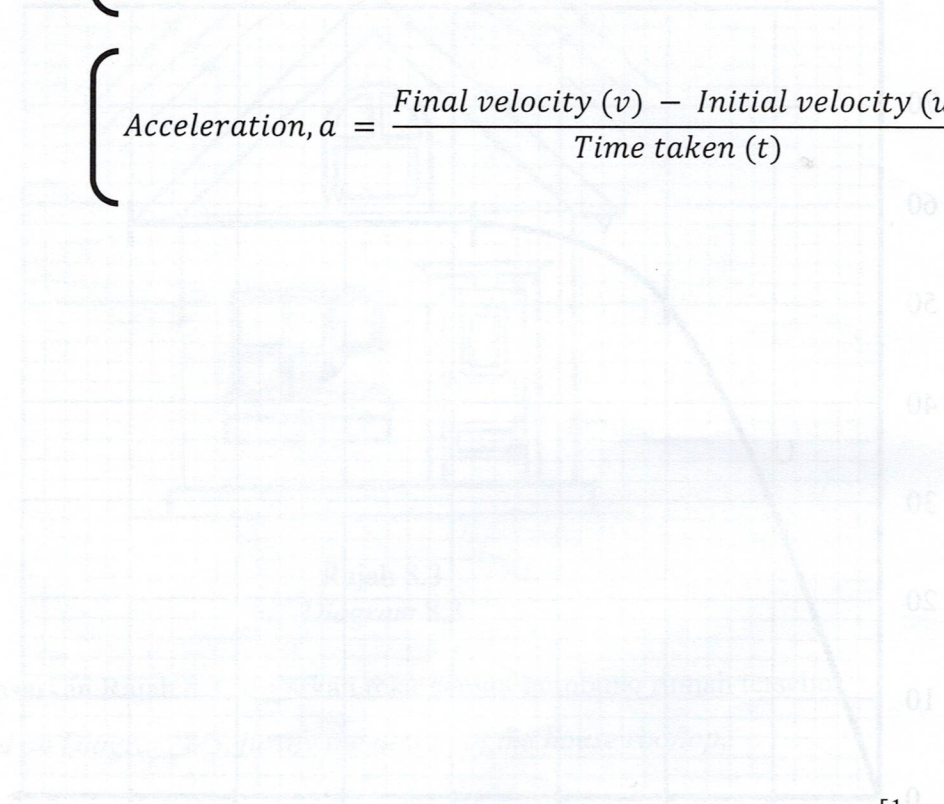
[1 markah]
[1 mark]

(ii) Hitung pecutan penerjun tersebut dari masa 5 saat hingga masa 10 saat.

Calculate the acceleration of the jumper from 5th second to 10th second.

$$\left(\text{Pecutan, } a = \frac{\text{Halaju akhir } (v) - \text{Halaju awal } (u)}{\text{Masa diambil } (t)} \right)$$

$$\left(\text{Acceleration, } a = \frac{\text{Final velocity } (v) - \text{Initial velocity } (u)}{\text{Time taken } (t)} \right)$$



[1 markah]
[1 mark]

(b) Pada pendapat anda, adakah penerjun itu mengalami jatuh bebas?
Terangkan jawapan anda.

*In your opinion, does the skydiver experience free fall?
Explain your answer.*

.....

.....

.....

[2 markah]
[2 marks]

- (c) Sekumpulan murid menyertai pertandingan STEM. Mereka diminta untuk membina suatu model kereta lumba dengan menggunakan bahan berikut:

A group of students participate in STEM competition. They are asked to build a model of a race car by using the following materials:

- Botol plastik
Plastic bottle
- Penutup botol
Bottle caps
- Belon
Balloon
- Lidi
Skewer
- Penyedut minuman
Straw

Tuliskan langkah-langkah untuk membina model kereta lumba tersebut.

Write the steps to build the model of race car.

1. Cucuk dua lidi pada botol plastik.

Poke two skewers on the plastic bottle.

2.

3.

4.

[3 markah]

[3 marks]

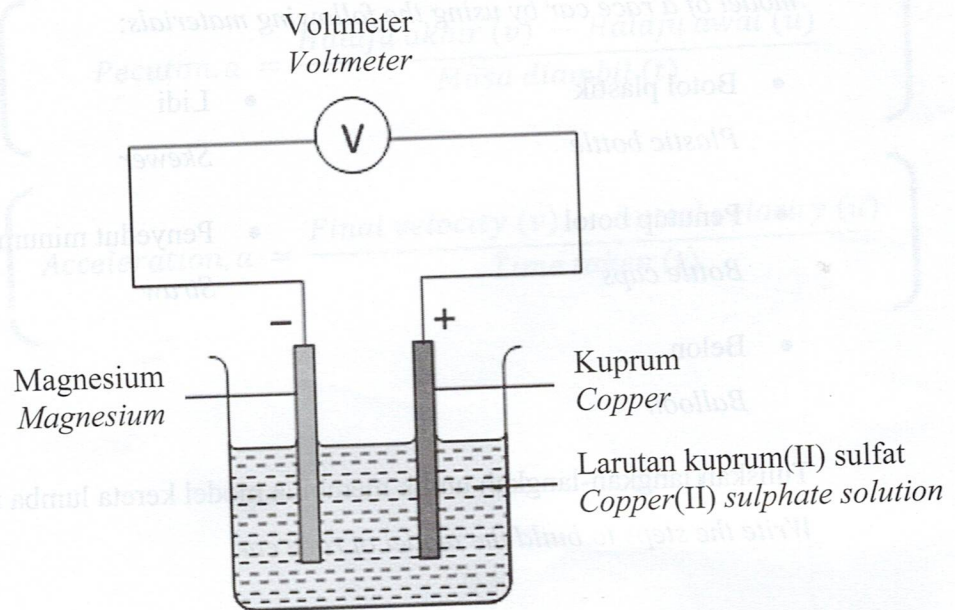
**Jumlah
B9**

	7
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[Lihat halaman sebelah

10 Rajah 10.1 menunjukkan satu sel kimia ringkas.

Diagram 10.1 shows a simple chemical cell.



Rajah 10.1
Diagram 10.1

(a) Berdasarkan Rajah 10.1, nyatakan elektrod yang menarik kation.

Based on Diagram 10.1, state electrode that attract cations.

[1 markah]
[1 mark]

(b) Dalam Rajah 10.1, voltmeter memberikan bacaan 2.6 V.
Cadangkan **satu** elektrod menggantikan kuprum untuk menghasilkan voltan lebih rendah.

In Diagram 10.1, voltmeter gives out reading of 2.6 V.
Suggest **one** electrode to replace copper in order to produce lower voltage.

[1 markah]
[1 mark]

(c) Selepas 30 minit, kedua-dua elektrod dikeluarkan dari larutan kuprum(II) sulfat dan ditimbang. Bandingkan jangkaan jisim kedua-dua elektrod dan jelaskan keadaan tersebut.

After 30 minutes, both electrodes are taken out from copper(II) sulphate solution and weighed. Compare the expected mass of both electrodes and explain the situation.

Perbandingan jisim elektrod:

Comparison of electrodes mass:

.....
.....

Penerangan:

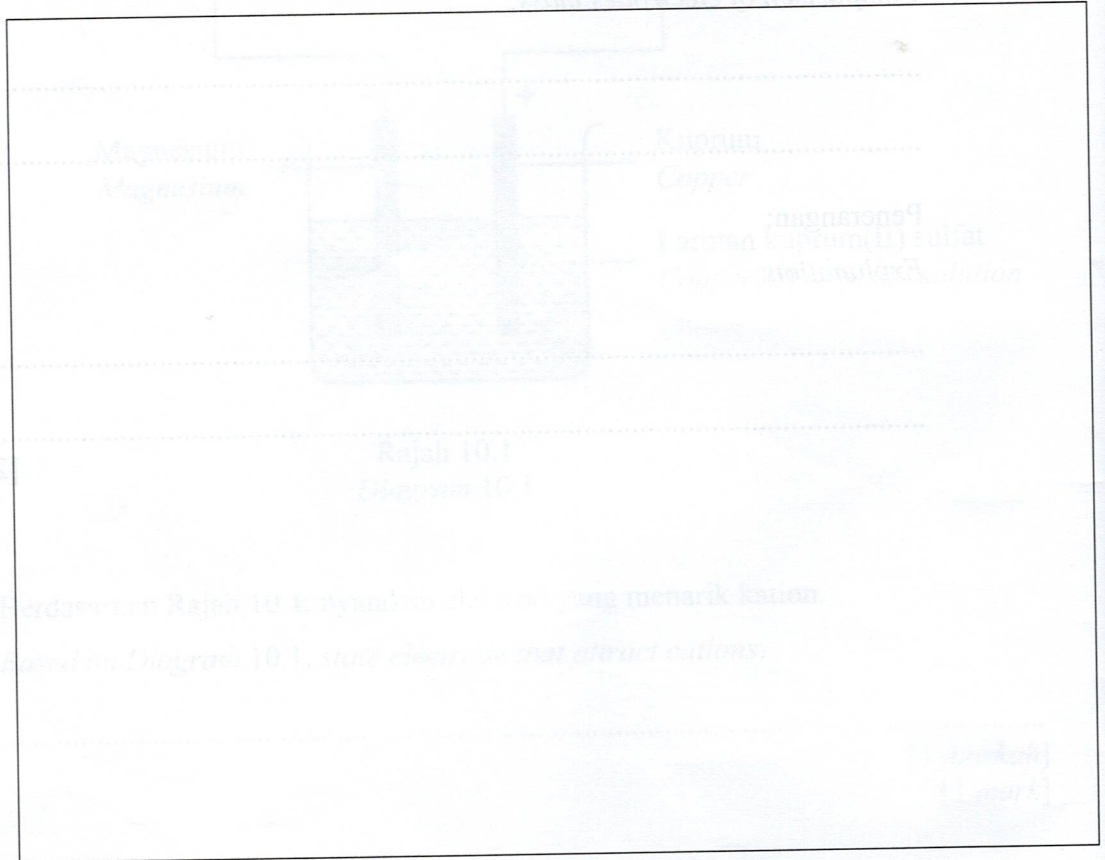
Explanation:

.....
.....

[2 markah]
[2 marks]

(d) Anda mempunyai dawai elektrik, mentol LED, sebatang paku besi dan sekeping plat kuprum.
Dengan menggunakan suatu bahan tambahan yang sesuai sebagai elektrolit, lakarkan satu sel kimia ringkas dalam ruang yang disediakan. Labelkan dan terangkan lakaran anda.

*You have electrical wires, an LED bulb, an iron nail and a copper plate.
By using an additional suitable substance as an electrolyte, sketch a simple chemical cell in the space provided. Label and explain your sketching.*



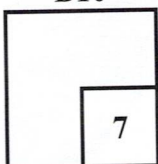
Penerangan / *Explanation:*

.....
.....

[3 markah]

[3 marks]

**Jumlah
B10**

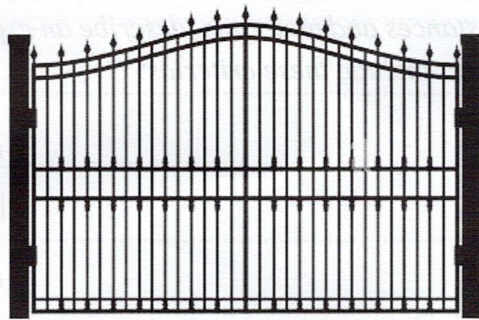
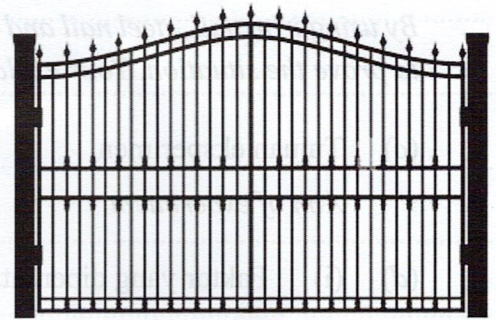


Bahagian C

[22 markah]

Jawab **Soalan 11** dan sama ada **Soalan 12** atau **Soalan 13**.**11** Baca dan kaji situasi berikut.*Read and study the following situation.*

Rajah 11 menunjukkan dua pintu pagar bagi dua buah rumah.

Diagram 11 shows two gates of two houses.Rumah R
*House R*Jenis bahan bagi pintu pagar:
Besi*Type of material of gate:*
IronRumah S
*House S*Jenis bahan bagi pintu pagar:
Keluli*Type of material of gate:*
*Steel*Rajah 11
Diagram 11

Selepas lima tahun, pagar Rumah R menjadi berkarat manakala pagar Rumah S kekal tidak berubah. Keadaan ini menunjukkan jenis bahan bagi pintu pagar mempunyai ketahanan terhadap pengaratan yang berbeza.

After five years, gate of House R became rusty while gate of House S remains unchanged. This situation shows that types of material of gate have different resistance to corrosion.

[Lihat halaman sebelah

Berdasarkan keadaan tersebut, nyatakan

Based on the situation, state

(a) **satu** pernyataan masalah.

[1 markah]

one problem statement.

[1 mark]

(b) **satu** hipotesis.

[1 markah]

one hypothesis.

[1 mark]

Dengan menggunakan paku besi, paku keluli dan bahan-bahan lain, huraikan satu eksperimen bagi membuktikan keadaan tersebut. Penerangan anda hendaklah mengandungi kriteria berikut:

By using iron nail, steel nail and other substances and materials, describe an experiment to prove the situation. Your explanation must include these criterias:

(c) Tujuan eksperimen

[1 markah]

Aim of experiment

[1 mark]

(d) (i) Faktor yang diperhatikan

[1 markah]

Factor that is being observed

[1 mark]

(ii) Faktor yang dikawal

[1 markah]

Factor that is being controlled

[1 mark]

(e) Prosedur atau kaedah

[3 markah]

Procedures or methods

[3 marks]

(f) Jadual bagi keputusan eksperimen

[1 markah]

Table of result of experiment

[1 mark]

(g) Langkah berjaga-jaga semasa menjalankan eksperimen

[1 markah]

Precautionary steps while carrying out the experiment

[1 mark]

- 12 (a) Sendi-sendi manusia terdapat di tulang belakang dan bahagian lain tubuh badan seperti bahu, siku, pergelangan tangan, lutut dan buku lali. Sendi terbentuk apabila dua atau lebih tulang bertemu dan berfungsi untuk melicinkan pergerakan.

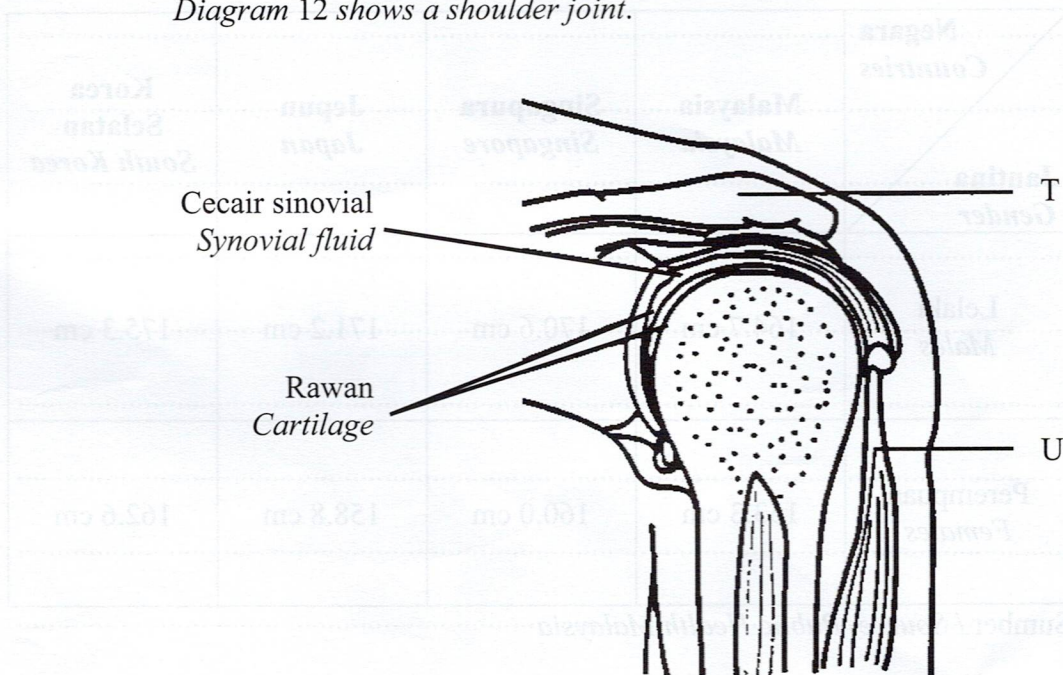
Human joints are found in the spine and other parts of the body such as shoulders elbows, wrists, knees and ankles. Joints are formed when two or more bones meet and functioning to facilitate movement.

Nyatakan maksud sendi bergerak dan berikan **satu** contoh. [2 markah]

*State the meaning of moving joints and give **one** example.* [2 marks]

- (b) Rajah 12 menunjukkan sendi bahu.

Diagram 12 shows a shoulder joint.



Rajah 12
Diagram 12

Nyatakan **dua** perbezaan antara bahagian T dengan bahagian U. [2 markah]

*State **two** differences between part T and part U.* [2 marks]

- (c) Nenek anda mengadu berasa sakit pada lututnya apabila berjalan menuruni tangga. Pada pendapat anda, nyatakan punca yang mungkin bagi masalah kesihatan nenek anda dan cadangkan perkara yang boleh dilakukan untuk mengurangkan kesakitan. [4 markah]

Your grandmother has been complaining of pain in her knees when she is walking down the stairs.

In your opinion, state the possible causes of your grandmother's health problem and suggest what she can do to reduce the pain. [4 marks]

- (d) Jadual 5 menunjukkan data purata ketinggian penduduk dewasa di rantau Asia. Table 5 shows the average height data of the adult population in the Asian region.

Negara Countries	Malaysia Malaysia	Singapura Singapore	Jepun Japan	Korea Selatan South Korea
Jantina Gender				
Lelaki Males	164.7 cm	170.6 cm	171.2 cm	175.3 cm
Perempuan Females	153.3 cm	160.0 cm	158.8 cm	162.6 cm

Sumber / Source: Public Health Malaysia

Jadual 5

Table 5

Berdasarkan Jadual 5, terangkan faktor yang mempengaruhi purata ketinggian penduduk. [4 markah]

Based on Table 5, explain the factors that affect the average height. [4 marks]

- 13 (a) Nyatakan **dua** kaedah yang dapat meningkatkan kuantiti dan kualiti pengeluaran makanan.

Berikan **satu** kebaikan bagi setiap kaedah yang dinyatakan. [4 markah]

State two methods that can increase the quantity and quality of food production.

Give one advantage for each method mentioned. [4 marks]

- (b) Proses penghapusan perosak tanaman memainkan peranan penting dalam usaha menjaga kualiti dan kuantiti pengeluaran makanan.

Rajah 13.1 menunjukkan dua kaedah yang digunakan untuk mengawal perosak tanaman dalam industri kelapa sawit Malaysia.

The process of eliminating crop pests plays an important role in maintaining the quality and quantity of food production.

Diagram 13.1 shows two methods used to control crop pests in palm oil industry in Malaysia.



Kaedah V
Method V



Kaedah W
Method W

Rajah 13.1
Diagram 13.1

Berdasarkan Rajah 13.1, pilih kaedah yang lebih sesuai untuk mengawal perosak tanaman.

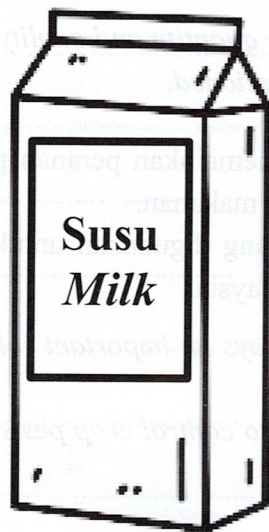
Wajarkan pilihan anda. [4 markah]

Based on Diagram 13.1 choose the more appropriate method to control crop pests.

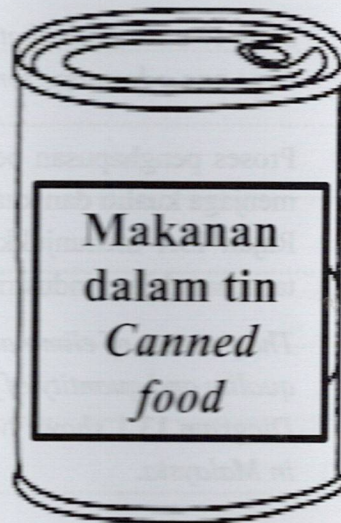
Justify your answer. [4 marks]

(c) Rajah 13.2 menunjukkan dua teknologi pemprosesan makanan.

Diagram 13.2 shows two food processing technologies.



Teknologi pemprosesan X
Processing technology X



Teknologi pemprosesan Y
Processing technology Y

Rajah 13.2
Diagram 13.2

Berdasarkan Rajah 13.2, banding bezakan kedua-dua teknologi pemprosesan makanan tersebut. [4 markah]

Based on Diagram 13.2, compare and contrast both of the food processing technologies. [4 marks]