

PROGRAM GEMPUR KECEMERLANGAN
SIJIL PELAJARAN MALAYSIA 2026

ANJURAN BERSAMA
MAJLIS PENGETUA SEKOLAH MALAYSIA NEGERI PERLIS
DAN
MAJLIS GURU CEMERLANG NEGERI PERLIS

GEMPUR KECEMERLANGAN SPM 2026
SAINS
Kertas 2
2 jam 30 minit

1511/2

Dua jam tiga puluh minit

Nama : Tingkatan :

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

- 1. Tuliskan nama dan tingkatan anda pada ruangan yang disediakan.
- 2. Kertas soalan ini adalah dalam dwibahasa.
- 3. Soalan dalam Bahasa Melayu mendahului soalan yang sepadan dalam Bahasa Inggeris.
- 4. Calon dibenarkan menjawab keseluruhan Bahasa Melayu atau Bahasa Inggeris.
- 5. Calon dikehendaki membaca maklumat di halaman 2 kertas soalan ini.



Untuk Kegunaan 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 soalan ini mengandungi 36 halaman bercetak

**MAKLUMAT UNTUK CALON
INFORMATION FOR CANDIDATES**

1. Kertas soalan ini mengandungi tiga bahagian : **Bahagian A, Bahagian B dan Bahagian C.**
This questions paper consists of three sections : Section A, Section B and Section C.
2. Jawab semua soalan dalam **Bahagian A dan Bahagian B.**
Jawapan anda bagi **Bahagian A dan Bahagian B** hendaklah ditulis pada ruang yang disediakan dalam kertas soalan ini.
Answer all questions in Section A and Section B.
Write your answers for Section A and Section B in the spaces provided in this questions paper.
3. Bagi **Bahagian C**, jawab **Soalan 11** dan samada **Soalan 12** atau **Soalan 13.**
Jawapan anda bagi **Bahagian C** hendaklah ditulis dalam helaian tambahan yang dibekalkan oleh Pengawas peperiksaan.
For Section C, answer Question 11 and either Question 12 or Question 13.
Write your answers for Section C on the "helaian tambahan" provided by the invigilators.
You may use equations, diagrams, tables, graphs and other suitable methods to explain your answers.
4. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
The diagrams in the questions provided are not drawn to scale unless stated.
5. Markah yang diperuntukkan bagi setiap ceraihan soalan ditunjukkan dalam kurungan.
The marks allocated for each sub-part of a questions are shown in brackets.
6. Jika anda hendak menukar jawapan, batalkan jawapan yang telah dibuat. Kemudian tulis jawapan yang baru.
If you wish to change your answer, cross out the answer that you have done. Then write down the new answer.
7. You may use a non-programmable scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.
8. Ceraikan Bahagian C daripada kertas soalan ini. Ikat helaian tambahan bersama-sama kertas soalan ini dan serahkan kepada pengawas peperiksaan pada akhir peperiksaan.
Detach Section C from this question paper. Tie the "helaian tambahan" together with this question paper and hand in to the invigilator at the end of the examination.

Bahagian A
Section A
[20 markah]
[20 marks]

For
Examiner's
Use

Jawab semua soalan dalam bahagian ini
Answer all questions in this section.

- 1 Jadual 1.1 menunjukkan bacaan nadi yang diperoleh apabila tiga orang murid selesai melakukan tiga jenis aktiviti fizikal yang berbeza selama 5 minit.
Table 1.1 shows the pulse readings obtained when a student completed three different types of physical activity for 5 minutes.

Jenis aktiviti fizikal Type of physical activity	Kadar denyutan nadi (bpm) Pulse rate (bpm)		
	Mukri	Cheng Li	Raju
Berehat Resting	76	81	70
Berjalan Walking	91	98	90
Berlari Running	148	136	165

Jadual 1.1
Table 1.1

- (a) Berdasarkan Jadual 1.1,
Based on Table 1.1,
- (i) nyatakan tujuan eksperimen
state the aim of experiment
-
-
- (ii) nyatakan satu faktor yang diubah
state one factor that is changed

[1 markah]
[1 mark]

1 (a)(i)

	1
--	---

[1 markah]
[1 mark]

1 (a)(ii)

	1
--	---

- (iii) nyatakan satu cara mengawal pemboleh ubah di 1(a)(ii)
state one way to control the variable in 1(a)(ii)
-
-

[1 markah]
[1 mark]

1 (a)(iii)

	1
--	---

For
Examiner's
Use

- (b) Ramalkan kadar denyutan nadi Raju selepas melakukan aktiviti berlari pecut sejauh 100m.
Predict Raju's pulse rate after performing a 100 meters sprint.

[1 markah]
[1 mark]

1 (b)

1

- (c) Aktiviti di atas diulang oleh dua orang murid lain. Jadual 1.2 menunjukkan bacaan kadar denyutan nadi murid tersebut selepas melakukan tiga jenis aktiviti fizikal selama 5 minit.
The above activity is repeated by two other students. Table 1.2 shows the pulse readings of the students after performing three different physical activities for 5 minutes.

Jenis aktiviti fizikal Type of physical activity	Kadar denyutan nadi (bpm) Pulse rate (bpm)	
	Aishah	Munirah
Berehat Resting	80	85
Berjalan Walking	96	92
Berlari Running	96	92

Jadual 1.2
Table 1.2

Berdasarkan Jadual 1.2, murid tersebut membuat kesimpulan bahawa kadar denyutan nadi bagi aktiviti berjalan dan berlari adalah sama. Kesimpulan ini tidak boleh diterima. Apakah kesilapan yang mungkin dilakukan oleh Aisyah dan Munirah semasa mengambil bacaan kadar denyutan nadinya?
Based on Table 1.2, the student made a conclusion that the pulse rate for walking and running activities is the same. Her conclusion cannot be accepted. What is the mistake probably made by Aisyah and Munirah while taking their pulse rate reading?

[1 markah]
[1 mark]

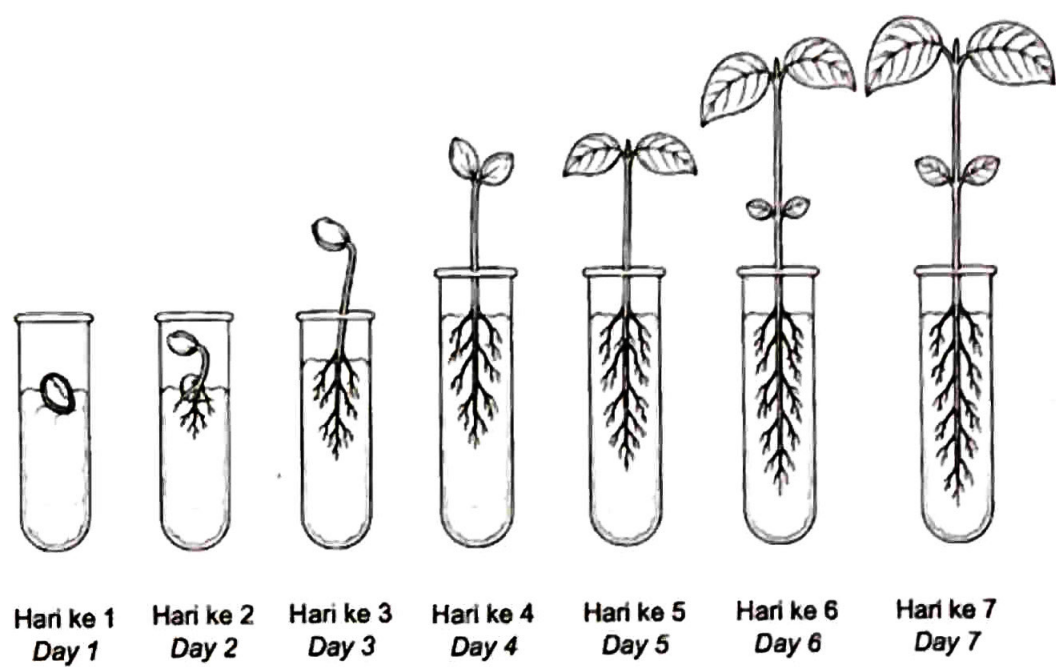
1 (c)

1

Total A1

5

- 2 Rajah 2 menunjukkan eksperimen untuk mengkaji pertumbuhan anak benih kacang hijau.
Diagram 2 shows measurements to study the growth of a green seedling



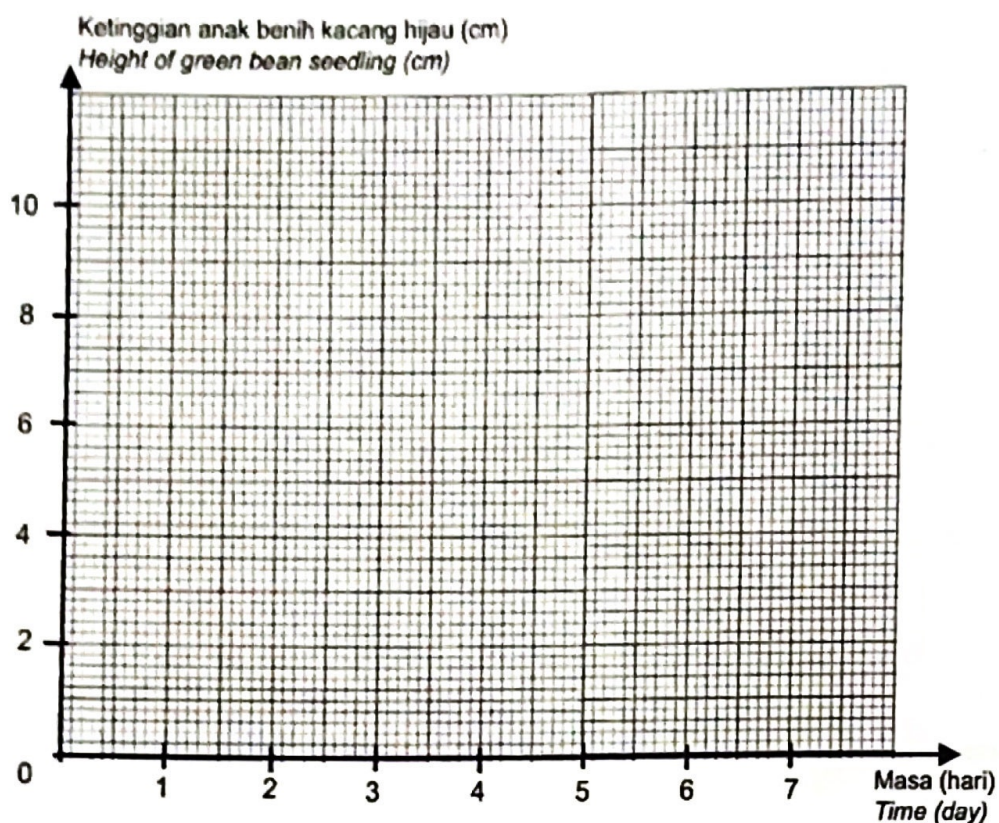
Rajah 2
Diagram 2

Ketinggian anak benih kacang hijau diukur dan direkodkan setiap hari selama 7 hari seperti yang ditunjukkan dalam Jadual 2.
The height of green bean seedling is measured and recorded daily for 7 days as shown in Table 2.

Masa (hari) Time (day)	Ketinggian anak benih kacang hijau (cm) The height of green seedling (cm)
1	0.0
2	0.6
3	2.0
4	5.0
5	
6	8.8
7	9.6

Jadual 2
Table 2

- (a) Berdasarkan Jadual 2 , lukis graf ketinggian anak benih kacang hijau melawan masa.
Based on Table 2, draw a graph of the height of green bean seedling against time.

For
Examiner's
Use[2 markah]
[2 marks]

- (b) Berdasarkan graf di 2(a), nyatakan ketinggian anak benih kacang hijau pada hari ke- 5 dalam sentimeter (cm)
Based on the graph in 2(a), state the height of green bean seedling on day 5 in centimetres (cm)

[1 markah]
[1 mark]

- (c) Nyatakan hubungan antara ketinggian anak benih kacang hijau dengan masa.
State the relationship between the height of green bean seedling and time.

[1 markah]
[1 mark]

- (d) Berdasarkan Rajah 2, nyatakan **satu** langkah berjaga-jaga yang perlu dilakukan ketika menjalankan eksperimen.
Based on Diagram 2, state one precaution that should be taken when conducting the experiment

For
Examiner's
Use

2 (d)

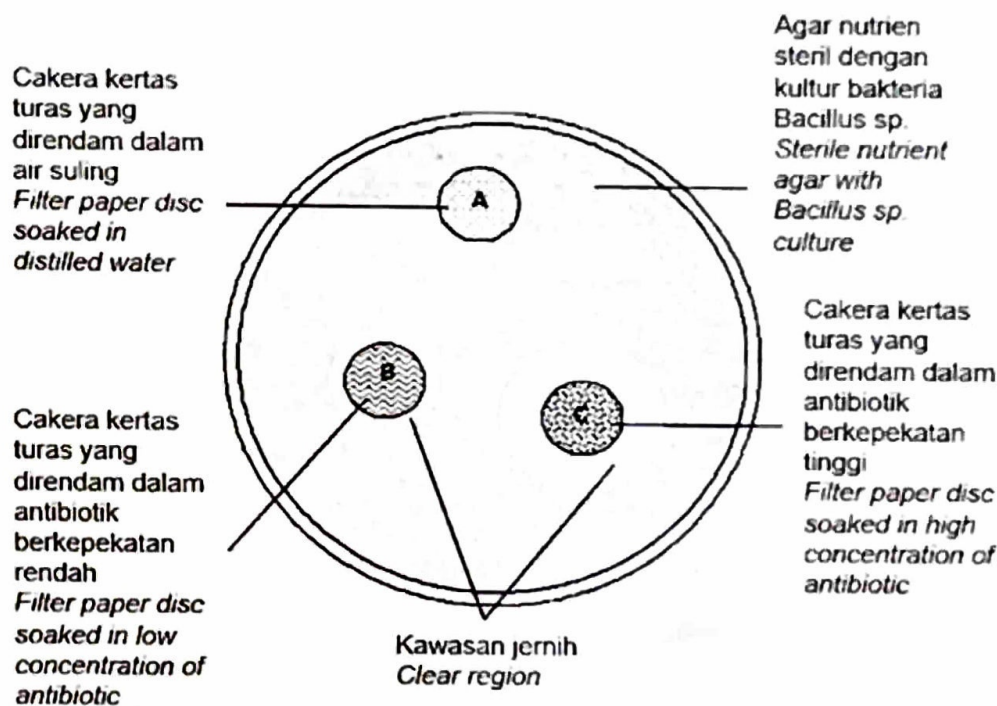
[1 markah]
[1 mark]

1

Total A2

5

- 3 Rajah 3 menunjukkan hasil bagi satu eksperimen untuk mengkaji kesan kepekatan antibiotik terhadap pertumbuhan bakteria *Bacillus* sp. selepas tiga hari.
*Diagram 3 shows the result of an experiment to study the effect of concentration of an antibiotic on the growth of bacteria *Bacillus* sp. after three days.*



Rajah 3
Diagram 3

For
Examiner's
Use

- (a) Berdasarkan Rajah 3,
Based on Diagram 3,

- (i) nyatakan **satu** pemerhatian bagi eksperimen ini.
State one observation for this experiment.

.....
.....

[1 markah]
[1 mark]

3 (a)(i)

	1
--	---

- (ii) nyatakan **satu** inferens terhadap pemerhatian di 3(a)(i).
state one inference on the observation in 3(a)(i).

.....
.....

[1 markah]
[1 mark]

3 (a)(ii)

	1
--	---

- (b) Nyatakan **satu** hipotesis bagi eksperimen ini.
State one hypothesis for this experiment.

.....
.....

[1 markah]
[1 mark]

3 (b)

	1
--	---

- (c) Nyatakan definisi secara operasi bagi antibiotik.
State the operational definition of antibiotic.

.....
.....

[1 markah]
[1 mark]

3 (c)

	1
--	---

- (d) Cakera kertas turas yang direndam ke dalam air suling diletakkan ke dalam piring petri berisi agar-agar nutrien pada awal eksperimen bertindak sebagai set kawalan.
Nyatakan fungsi set kawalan tersebut.

filter paper disc soaked in distilled water was placed in a petri dish containing nutrient agar at the beginning of the experiment to act as a control set.
State the function of the control set.

.....
.....

[1 markah]
[1 mark]

3 (d)

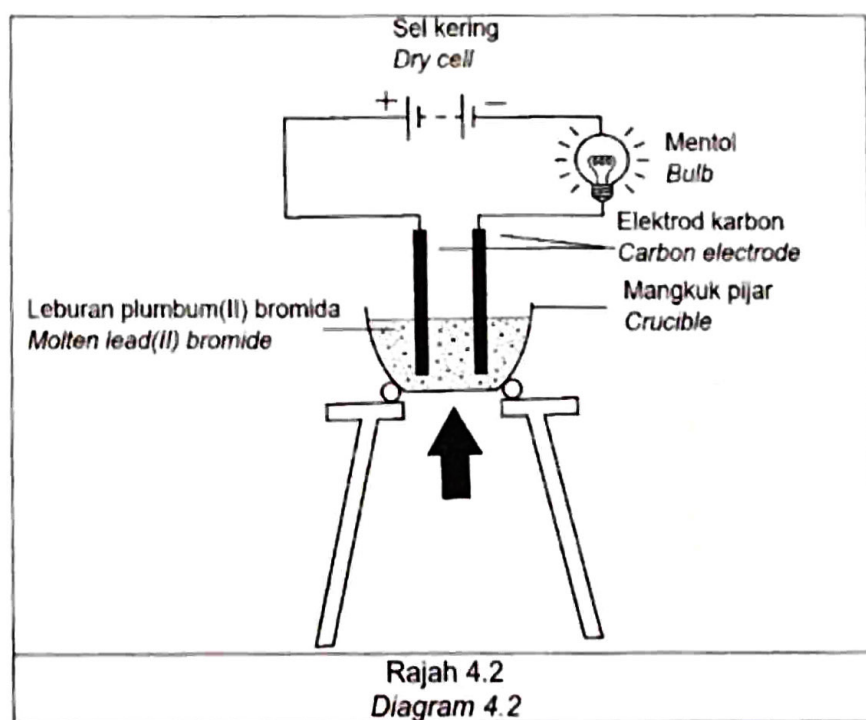
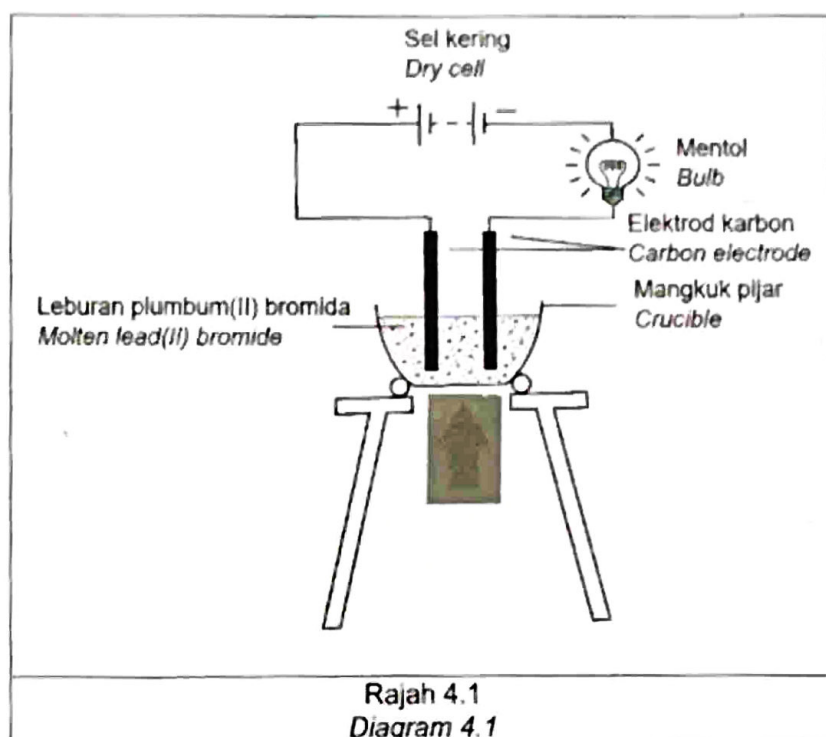
	1
--	---

Total A3

	5
--	---

- 4 Rajah 4.1 dan 4.2 menunjukkan eksperimen yang didemonstrasikan oleh seorang guru di dalam kebuk wasap untuk mengkaji proses elektrolisis bagi plumbum(II) bromida dalam keadaan pepejal dan leburan.
Diagram 4.1 and 4.2 shows an experiment demonstrated by a teacher in a fume chamber to study the electrolysis process of lead(II) bromide in the solid and molten state.

For
Examiner's
Use



For
Examiner's
Use

(a) Berdasarkan Rajah 4.2, nyatakan pemerhatian bagi eksperimen ini.
Based on Diagram 4.2, state the observation for this experiment.

[1 markah]
[1 mark]

4 (a)

1

(b) Elektrolit ialah sebatian yang membenarkan arus elektrik mengalir melaluinya. Kelaskan bahan-bahan dalam senarai di bawah kepada **elektrolit** dan **bukan elektrolit** dalam Jadual 4.
Electrolytes are compounds that allow electric current to flow through them. Classify the substances in the list below into **electrolytes** and **non-electrolytes** in Table 4.

Larutan natrium hidroksida Sodium hydroxide solution	Larutan glukosa Glucose solution
Asetamida Acetamide	Larutan garam Salt solution

4 (b)

Elektrolit Electrolytes	Bukan Elektrolit Non-electrolytes

Jadual 4
Table 4

[2 markah]
[2 marks]

4 (c)

1

(c) Apakah kesimpulan bagi eksperimen ini?
What is the conclusion for this experiment?

[1 markah]
[1 mark]

(d) Seorang murid membuat hipotesis berikut:
A student makes the following hypothesis:

Sebatian ion dalam keadaan pepejal tidak dapat menjalani proses elektrolisis
Ionic compounds in the solid state cannot undergo electrolysis

4 (d)

1

Berdasarkan keputusan eksperimen dalam Rajah 4.1 dan 4.2, apakah pemerhatian yang menyokong pernyataan di atas?
Based on the experiment results in diagram 4.1 and 4.2, what is the observation that support the statement above?

[1 markah]
[1 mark]

Total A4

5

Bahagian B
Section B
[38 markah]
[38 marks]

Jawab **semua** soalan dalam bahagian ini.
Answer **all** questions in this section.

- 5 Rajah 5.1 menunjukkan suatu situasi mangsa yang berada dalam keadaan cemas ketika makan di sebuah restoran.
Diagram 5.1 shows a situation of a victim who is in distress while eating in a restaurant.



Rajah 5.1
Diagram 5.1

- (a) Berdasarkan Rajah 5.1,
Based on Diagram 5.1,
- (i) Nyatakan jenis bantuan kecemasan yang perlu diberikan kepada mangsa tersebut.
State the type of emergency aid that needs to be provided to the victim.

5 (a)(i)

	1
--	---

[1 markah]
[1 mark]

- (ii) Nyatakan punca keadaan yang dinyatakan di 5(a)(i) berlaku.
State the cause of the condition mentioned in 5(a)(i).

5 (a)(ii)

	1
--	---

[1 markah]
[1 mark]

- (b) Rajah 5.2 menunjukkan suatu amaran yang dipamerkan pada alat permainan kanak-kanak.

Diagram 5.2 shows a warning displayed on a children's toy.



Rajah 5.2
Diagram 5.2

- (i) Berdasarkan Rajah 5.2, cadangkan dua langkah yang boleh diambil oleh ibu bapa semasa memilih alat permainan kepada anak kecil.

Based on Diagram 5.2, suggest two measures that parents should take when selecting toys to young children.

.....

.....

.....

[2 markah]
[2 marks]

- (ii) Berdasarkan Rajah 5.2, apakah yang akan berlaku sekiranya amaran pada rajah tidak dipatuhi?

Jelaskan jawapan anda.

Based on Diagram 5.2, state what will happen if the warning shown is ignored. Explain your answer.

.....

.....

.....

[2 markah]
[2 marks]

5 (b)(i)

2

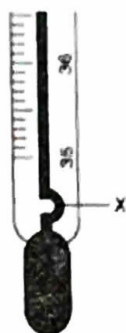
5 (b)(ii)

2

Total B5

6

- 6 Rajah 6.1 menunjukkan satu alat untuk mengukur suhu badan.
Diagram 6.1 shows an instrument for measuring body temperature.



Rajah 6.1
Diagram 6.1

- (a) Berdasarkan Rajah 6.1, namakan alat pengukuran tersebut.
Based on Diagram 6.1, name the measuring instrument.

[1 markah]
[1 mark]

6 (a)

	1
--	---

- (b) Nyatakan fungsi X.
State the function of X.

[1 markah]
[1 mark]

6(b)

	1
--	---

- (c) Rajah 6.2 menunjukkan satu amalan pemakanan yang diamalkan oleh Ali.
Diagram 6.2 shows one eating habit practiced by Ali.



Rajah 6.2
Diagram 6.2

6(c)

	2
--	---

For
Examiner's
Use

Jelaskan satu langkah yang boleh diambil bagi memastikan Ali mencapai Indeks Jisim Badan (BMI) yang ideal.
Explain one step that can be taken to ensure that Ali achieves an ideal Body Mass Index.

[2 markah]
[2 mark]

- (d) Jadual 6 menunjukkan Indeks Jisim Badan (BMI) bagi empat orang murid.
Table 6 shows the Body Mass Index of four students.

Murid <i>Student</i>	Indeks Jisim Badan <i>Body Mass Index</i>
Aina	17.5
Kumar	29.2
Siti	30.3
Fans	24.2

Jadual 6
Table 6

Berdasarkan Jadual 6 :
Based on Table 6 :

- (i) Siapakah yang mempunyai jisim badan unggul?
Who has the ideal body mass?
- (ii) Jelaskan perbandingan antara risiko kesihatan murid yang mempunyai Indeks Jisim Badan (BMI) paling rendah dengan Indeks Jisim Badan (BMI) paling tinggi.
Explain the comparison between the health risks of the student with the lowest Body Mass Index and the student with the highest Body Mass Index.

[2 markah]
[2 marks]

6(d)

2

Total B6

6

For
Examiner's
Use

7 Rajah 7.1 menunjukkan suatu Jadual Berkala Unsur Moden yang tidak lengkap.
Diagram 7.1 shows an incomplete Modern Periodic Table of Elements.

1																	18
	2											13	14	15	16	17	
	P	3	4	5	6	7	8	9	10	11	12		R			S	
						Q											
																T	

Rajah 7.1
Diagram 7.1

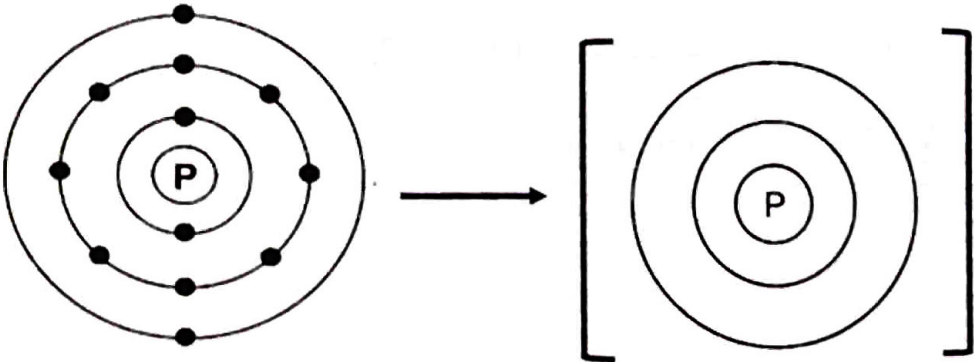
- (a) Berdasarkan Rajah 7.1, unsur manakah yang berada dalam kumpulan yang sama?
Based on Figure 7.1, which elements are in the same group?

[1 markah]
[1 mark]

7(a)

1

- (b) Rajah 7.2(a). menunjukkan susunan elektron bagi atom P. Lengkapkan Rajah 7.2(b) dengan melukis susunan elektron bagi pembentukan ion P untuk mencapai susunan elektron oktet yang stabil.
Diagram 7.2(a) shows the electron arrangement of the P atom. Complete Diagram 7.2(b) by drawing the electron arrangement for the formation of the P ion to achieve a stable octet electron arrangement.



Rajah 7.2 (a)
Diagram 7.2(a)

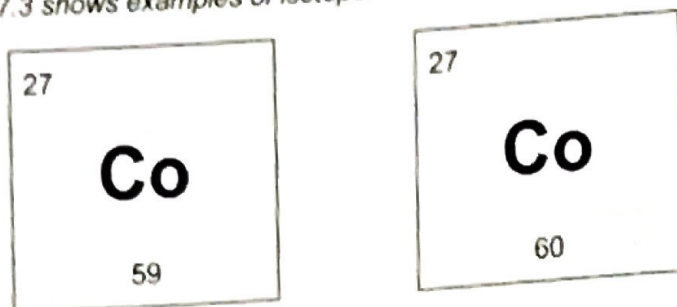
Rajah 7.2(b)
Diagram 7.2(b)

[2 markah]
[2 marks]

7(b)

2

- (c) Rajah 7.3 menunjukkan contoh isotop.
Diagram 7.3 shows examples of isotopes.



Rajah 7.3
Diagram 7.3

Nyatakan **satu** persamaan dan **satu** perbezaan antara dua atom tersebut.
State **one** similarity and **one** difference between two atoms.

Persamaan:

Similarity:

.....

Perbezaan

Difference:

.....

[2 markah]

[2 marks]

- (d) Berdasarkan Rajah 7.3, atom kobalt-60 paling sesuai digunakan untuk rawatan kanser.

Wajarkan jawapan anda.

Based on Diagram 7.3, cobalt-60 atoms is most suitable for cancer treatment.

Justify your answer.

.....

.....

[1 markah]

[1 mark]

7(c)

	2
--	---

7(d)

	1
--	---

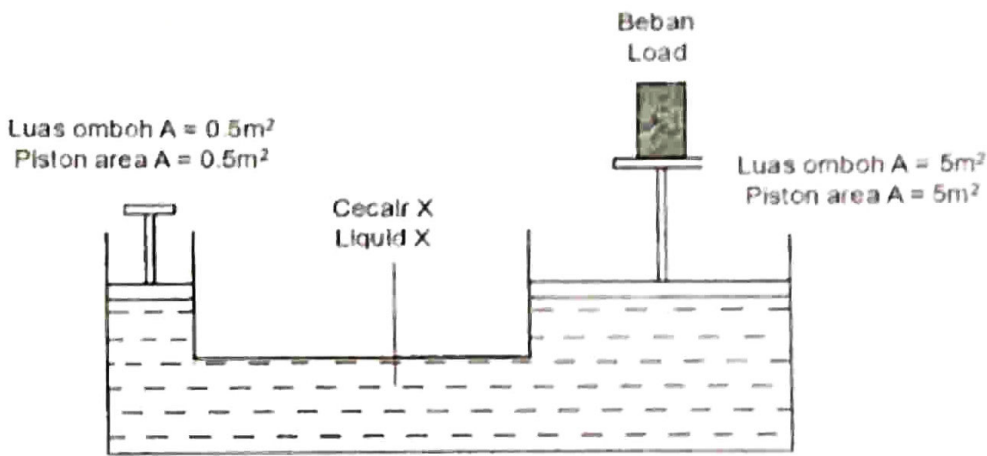
Total B7

	6
--	---



8 Rajah 8 menunjukkan satu contoh sistem hidraulik
Diagram 8 shows an example of a hydraulic system.

For
Examiner's
Use



Rajah 8
Diagram 8

- (a) Berdasarkan Rajah 8 ,
Based on Diagram 8 ,
(i) Apakah prinsip yang digunakan dalam operasi sistem tersebut?
What is the principle that applies in the operation in the system?

8(a)(i)

[1 markah]
[1 mark]

1

- (ii) Hitungkan berat beban yang perlu diletakkan ke atas omboh B untuk mengimbangi daya 100N pada omboh A.
Calculate the weight of the load that needs to be placed on piston B to balance the force of 100N on piston A.

Daya input Input force	=	Daya output Output force
Luas omboh A Area of piston A		Luas omboh B Area of piston B

8(a)(ii)

2

[2 markah]
[2 marks]

- (b) Encik Ahmad mendapati bahawa brek kenderaannya tidak berfungsi dengan baik kerana terdapat kebocoran minyak brek.
Nyatakan sebab brek tersebut tidak dapat berfungsi dengan sempurna.
Mr. Ahmad found that his vehicle's brakes were not functioning properly due to a break fluid leak.
State the reason why the brakes could not function properly.

[1 markah]

[1 mark]

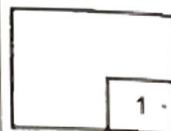
- (c) Berdasarkan Rajah 8, banding beza antara omboh A dan omboh B.
Base on Diagram 8, compare and contrast between piston A and piston B.

[2 markah]

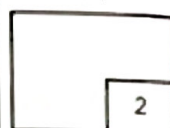
[2 marks]

For
Examiner's
Use

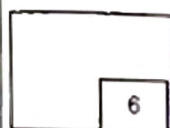
8(b)



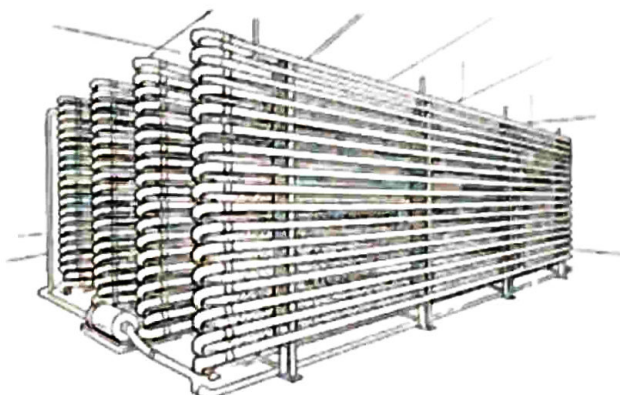
8 (c)



Total B8



- 9 Rajah 9.1 menunjukkan sebuah loji mikroalga.
Diagram 9.1 shows a microalgae plant.



Rajah 9.1
Diagram 9.1

- (a) Berdasarkan Rajah 9.1, apakah fungsi loji mikroalga dalam usaha pemeliharaan alam sekitar?
Based on Diagram 9.1, what is the function of the microalgae plant in environmental conservation efforts?

[1 markah]
[1 mark]

- (b) Rajah 9.2 menunjukkan pencemaran alam sekitar yang berlaku di suatu kawasan.
Diagram 9.2 shows environmental pollution occurring in an area.



Rajah 9.2
Diagram 9.2

Pada pendapat anda, apakah kesan jangka panjang pencemaran ini terhadap kehidupan manusia?
In your opinion, what are the long-term effects of this pollution on human life?

[1 markah]
[1 mark]

9(a)

	1
--	---

9(b)

	1
--	---

- (c) Kelab Pencinta Alam Sekitar telah menghasilkan larutan pembersih ekoenzim sebagai satu usaha mengaplikasikan Teknologi Hijau dalam Sektor Pengurusan Sisa dan Air Sisa. Wajarkan tindakan kelab tersebut.
The Environmental Lovers Club has produced eco-enzyme cleaning solution as an effort to apply Green Technology in the Waste and Wastewater Management Sector. Justify the action taken by the club

For
Examiner's
Use

9(c)

	2

[2 markah]
[2 marks]

- (d) Larutan pembersih ekoenzim merupakan hasil semula jadi daripada sisa pertanian seperti sisa buah-buahan atau sayur-sayuran. Berikut merupakan bahan-bahan yang digunakan untuk menghasilkan larutan pembersih ekoenzim:
Eco-enzyme cleaning solution is a natural product derived from agricultural waste such as fruit or vegetable scraps. The following are the materials used to produce eco-enzyme cleaning solution:

1. Sisa buah-buahan
Fruit scraps
2. Gula perang
Brown sugar
3. Air
Water
4. Botol plastik hitam bertutup
Black sealed plastic bottle

Berdasarkan bahan-bahan di atas, terangkan bagaimana cara untuk merekapipta larutan pembersih ekoenzim.

Based on the materials above, explain how to create the eco-enzyme cleaning solution.

9(d)

	3

1.
2.
3.
4. Larutan yang terhasil ditapis untuk memisahkannya daripada sisa pepejal dan sedia digunakan.
The solution produced is filtered to separate it from solid residues and is ready to be used.

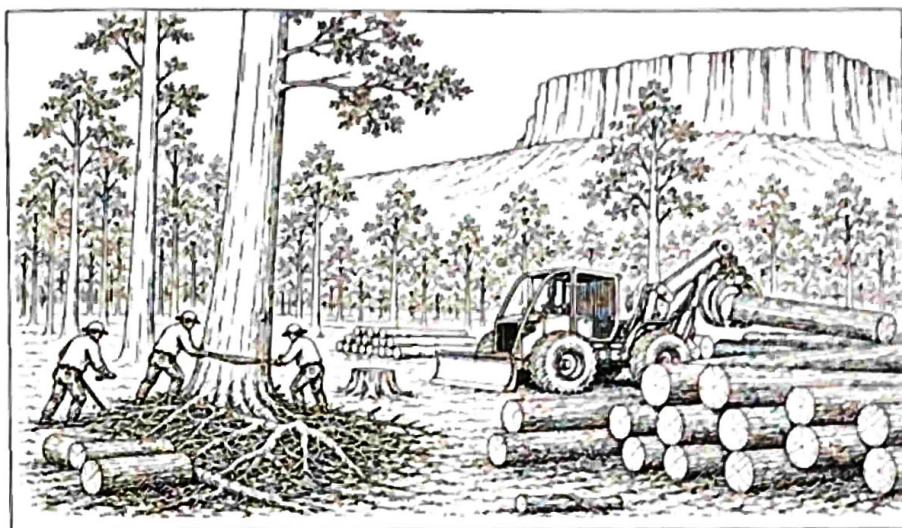
Total B9

	7

[3 markah]
[3 marks]

- 10 (a) Rajah 10.1 menunjukkan satu isu sosiosaintifik terhadap alam sekitar.
Diagram 10.1 shows the socio-scientific issues towards the environment.

For
Examiner's
Use



Rajah 10.1
Diagram 10.1

- (a) (i) Berdasarkan Rajah 10.1, nyatakan sektor Teknologi Hijau yang berkaitan.
Based on Diagram 10.1, state one sector in Green Technology that is related.

10(a)(i)

	1
--	---

[1 markah]
[1 mark]

- (ii) Kejadian tanah runtuh telah berlaku di Lebuhraya X yang terletak berhampiran dengan lokasi aktiviti di dalam Rajah 10.1. Cadangkan satu tindakan yang boleh dilaksanakan untuk mengelakkan bencana tersebut.
A landslide has occurred on Highway X which is located near the location of the activity in Diagram 10.1. Suggest one action that can be implemented to prevent the disaster.

10(a)(ii)

	1
--	---

[1 markah]
[1 mark]

- (b) Sebuah syarikat akua-agro telah melakukan penebangan hutan paya bakau bagi membina kolam ternakan udang komersial.
Nyatakan dua kesan tindakan tersebut kepada alam sekitar.
An aqua-agro company has cleared mangrove forests to build commercial shrimp ponds.
State two effects of the action towards the environment?

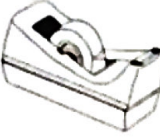
10 (b)

	2
--	---

[2 markah]
[2 marks]

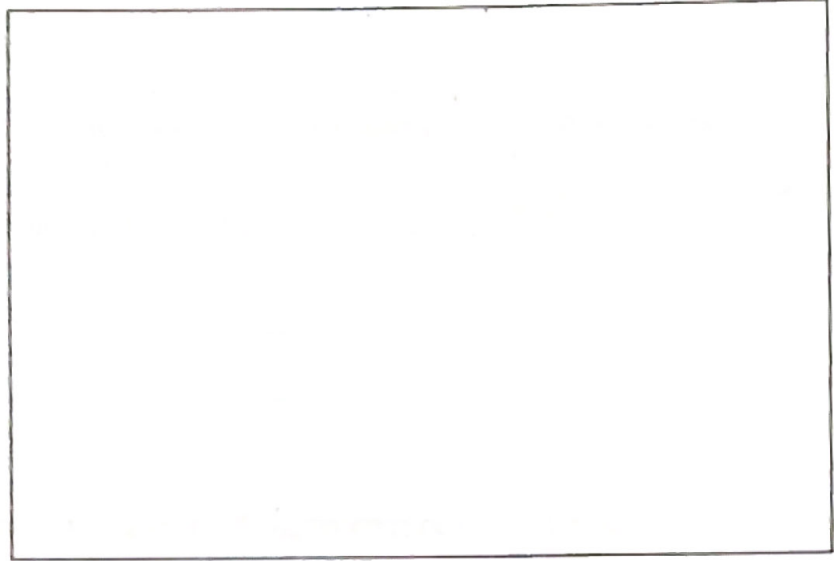
For
Examiner's
Use

- (c) Puan Melissa menanam sayur-sayuran di dalam beberapa pasu di rumahnya untuk memenuhi keperluan harian keluarga. Beliau bercadang untuk bercuti bersama keluarga selama lima hari. Oleh itu, beliau menghasilkan sebuah alat penyiram bagi memastikan tanamannya tidak mati akibat kekurangan air.
Mrs. Melissa grows vegetables in several pots at her home to meet her family's daily needs. She plans to go on vacation with her family for five days. Therefore, she creates a watering device to ensure that her plants do not die due to lack of water.

			
Botol plastik Plastic bottle	Putik kapas Cotton bud	Penyepit makanan Chopstick	Pita selofan Cellophane tape

Rajah 10.2
Diagram 10.2

Dengan menggunakan bahan-bahan dalam rajah 10.2, lakar dan labelkan alat penyiram tersebut. Jelaskan bagaimana alat tersebut berfungsi.
By using the materials in Diagram 10.2, sketch and label the watering device. Explain how the device works.



Penerangan :
Explanation:

.....

.....

[3 markah]
[3 marks]

10 (c)

3

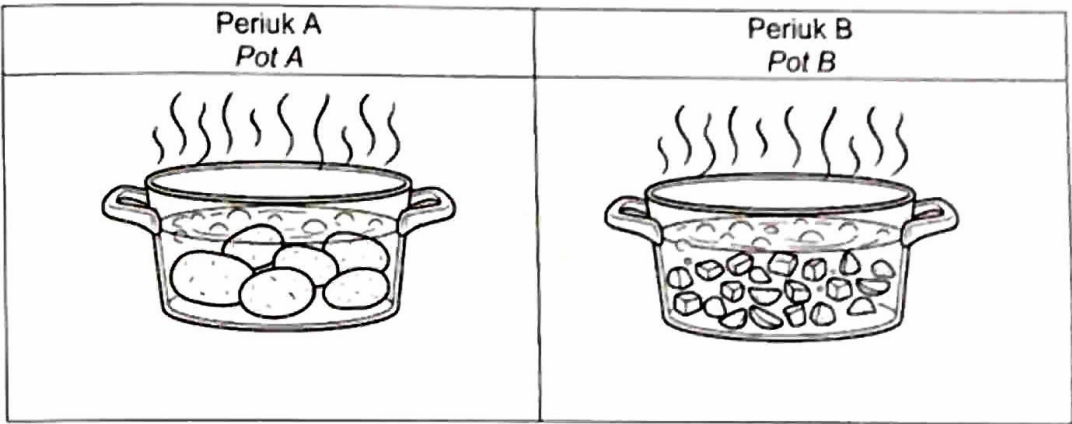
Total B10

7

Bahagian C
Section C
[22 markah]
[22 marks]

Jawab Soalan 11 dan sama ada Soalan 12 atau Soalan 13.
Answer Question 11 and either Question 12 or Question 13.

- 11 Rajah 11 menunjukkan dua situasi apabila Puan Maria merebus 1kg kentang di dalam dua periuk yang sama saiz. Dia mendapati kentang di dalam Periuk B lebih cepat masak berbanding Periuk A
Diagram 11 shows two situations when Mrs. Maria boiled 1kg of potatoes in two pots of the same size. She found that the potatoes in Pot B cooked faster than Pot A.



Rajah 11
Diagram 11

Berdasarkan situasi dalam rajah 11, rancang **satu** eksperimen di dalam makmal untuk menguji hipotesis anda dengan menggunakan ketulan marmar bersaiz besar, cebisan marmar bersaiz kecil, larutan asid hidroklorik cair dan bahan serta radas yang lain.
Based the situation in Diagram 11, plan **one** experiment in the laboratory to test your hypothesis using large pieces of marble chips, small pieces of marble chips, dilute hydrochloric acid solution and other materials and apparatus.

Perancangan anda haruslah mengandungi aspek-aspek berikut:
Your plan must contain the following aspects:

- | | |
|---|------------------------|
| (a) Pernyataan masalah
Problem statement | [1 markah]
[1 mark] |
| (b) Hipotesis
Hypothesis | [1 markah]
[1 mark] |

- (c) (i) Pemboleh ubah dimanipulasikan
Manipulated variable [1 markah]
[1 mark]
- (ii) Cara untuk mengawal pemboleh ubah dimanipulasikan
Ways to control manipulated variable [1 markah]
[1 mark]
- (d) Bahan dan radas
Materials and apparatus [2 markah]
[2 marks]
- (e) Penjadualan data
Tabulation of data. [2 markah]
[2 marks]
- (f) Dua langkah berjaga-jaga untuk mendapatkan keputusan yang jitu
Two precautionary steps to get an accurate result. 2 markah
[2 marks]

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

125

126

127

128

129

130

131

132

133

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

152

153

154

155

156

157

158

159

160

161

162

163

164

165

166

167

168

169

170

171

172

173

174

175

176

177

178

179

180

181

182

183

184

185

186

187

188

189

190

191

192

193

194

195

196

197

198

199

200

201

202

203

204

205

206

207

208

209

210

211

212

213

214

215

216

217

218

219

220

221

222

223

224

225

226

227

228

229

230

231

232

233

234

235

236

237

238

239

240

241

242

243

244

245

246

247

248

249

250

251

252

253

254

255

256

257

258

259

260

261

262

263

264

265

266

267

268

269

270

271

272

273

274

275

276

277

278

279

280

281

282

283

284

285

286

287

288

289

290

291

292

293

294

295

296

297

298

299

300

301

302

303

304

305

306

307

308

309

310

311

312

313

314

315

316

317

318

319

320

321

322

323

324

325

326

327

328

329

330

331

332

333

334

335

336

337

338

339

340

341

342

343

344

345

346

347

348

349

350

351

352

353

354

355

356

357

358

359

360

361

362

363

364

365

366

367

368

369

370

371

372

373

374

375

376

377

378

379

380

381

382

383

384

385

386

387

388

389

390

391

392

393

394

395

396

397

398

399

400

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

437

438

439

440

441

442

443

444

445

446

447

448

449

450

451

452

453

454

455

456

457

458

459

460

461

462

463

464

465

466

467

468

469

470

471

472

473

474

475

476

477

478

479

480

481

482

483

484

485

486

487

488

489

490

491

492

493

494

495

496

497

498

499

500

501

502

503

504

505

506

507

508

509

510

511

512

513

514

515

516

517

518

519

520

521

522

523

524

525

52

©2026 Hak Cipta MPSM Cawangan Perlis
1511/2

SULIT

Join SPM Study Group
<https://spmpaper.me/group>



- 12 (a) Puan Shanti kerap mengalami sakit kepala dan lenguh badan akibat tekanan kerja. Beliau secara konsisten mengambil ubat hospital yang dipreskripsikan oleh doktor. Pada masa yang sama, untuk melegakan lenguh-lenguh badan, beliau akan menjalani rawatan akupunktur di pusat kesihatan pada setiap hujung minggu. Berdasarkan situasi di atas, nyatakan **dua** kaedah perubatan yang diamalkan oleh Puan Shanti.

Mrs. Shanti frequently experiences headaches and body aches due to work stress. She consistently takes prescribed medication from the hospital as advised by her doctor. At the same time, to relieve her body aches, she undergoes acupuncture treatment at a health centre every weekend.

*Based on the situation above, state **two** types of medical treatment practised by Mrs. Shanti.*

[2 markah]
[2 marks]

- (b) Rajah 12.1 menunjukkan keadaan fizikal seorang pemuda berusia 25 tahun yang bekerja di tapak pembinaan.

Diagram 12.1 shows the physical condition of a 25 year old man who works at a construction site.

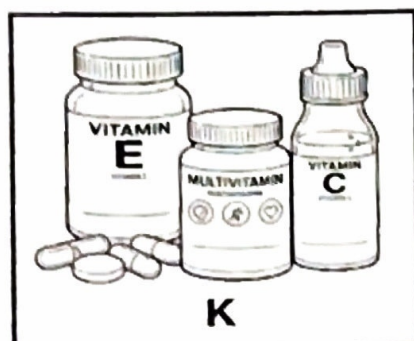


Rajah 12.1
Diagram 12.1

Berdasarkan situasi ini, nyatakan faktor yang menyebabkan keadaan fizikal pemuda ini.
Based on this situation, state the factors that caused this young man's physical condition.

[2 markah]
[2 marks]

- (c) Rajah 12.2 menunjukkan sumber yang diambil untuk mengekalkan kesihatan badan
Diagram 12.2 shows the resources taken to maintain body health



Rajah 12.2
Diagram 12.2

Berdasarkan rajah 12.2, banding bezakan sumber bahan K dan L.
Based on diagram 12.2, compare and contrast the sources of substances K and L.

[4 markah]
[4 marks]

- (d) Encik Syam, mempunyai jadual kerja yang sangat padat dan sering pulang lewat malam. Disebabkan kesuntukan masa, beliau jarang dapat menyediakan makanan seimbang atau mengambil buah-buahan segar yang mencukupi. Bagi menjaga kesihatannya, Encik Syam mengamalkan pengambilan pil suplemen setiap pagi selepas sarapan. Wajarkan tindakan beliau.
Mr. Syam, has a busy work schedule and often comes home late at night. Due to lack of time, he is rarely able to prepare a balanced meal or take enough fresh fruits. To take care of his health, Mr. Syam takes supplement every morning after breakfast. Justify his actions

[4 markah]
[4 marks]

Soalan 12

1. The first part of the document is a header section containing the title "THE HISTORY OF THE UNITED STATES OF AMERICA" and the author "BY JAMES M. SMITH, LL.D." followed by the publisher information "NEW YORK: PUBLISHED BY J. B. LIPPINCOTT & CO., 15 N. 2ND ST. 1854."

2. The second part of the document is a preface section, which begins with the words "PREFACE" and discusses the author's intention to provide a comprehensive history of the United States.

3. The third part of the document is the main body of the text, which is divided into several chapters. The first chapter is titled "THE DISCOVERY OF AMERICA" and discusses the early exploration of the continent.

4. The second chapter is titled "THE SETTLEMENT OF AMERICA" and discusses the early settlement of the continent by European colonists.

5. The third chapter is titled "THE REVOLUTIONARY WAR" and discusses the struggle for independence from British rule.

6. The fourth chapter is titled "THE CONSTITUTION" and discusses the establishment of the federal government.

7. The fifth chapter is titled "THE WESTERN EXPLORATION" and discusses the exploration of the western part of the continent.

8. The sixth chapter is titled "THE SLAVE TRADE" and discusses the role of the slave trade in the development of the United States.

9. The seventh chapter is titled "THE CIVIL WAR" and discusses the conflict between the North and the South.

10. The eighth chapter is titled "THE RECONSTRUCTION" and discusses the period following the Civil War.

11. The ninth chapter is titled "THE PRESENT" and discusses the current state of the United States.

12. The tenth chapter is titled "THE FUTURE" and discusses the author's predictions for the future of the United States.

- 13 (a) Lemak ialah sejenis sebatian karbon organik yang dapat membekalkan tenaga kepada manusia
Fat is a type of an organic carbon compound that can provide energy to humans

- (i) Nyatakan dua jenis lemak.
State two types of fat.

[2 markah]
[2 marks]

- (ii) Terangkan mengapa pengambilan lemak secara berlebihan boleh memudaratkan kesihatan.
Explain why excessive fat intake can be harmful to health.

[2 markah]
[2 marks]

- (iii) Banding beza dua lemak yang anda nyatakan di 13(a)(i).
Compare and contrast the two fats you mentioned in 13(a)(i).

[4 markah]
[4 marks]

- (b) Jadual 13 menunjukkan pengeluaran minyak sawit mentah Malaysia pada tahun 2024.

Table 13 shows Malaysia's crude palm oil production in 2024.

Bulan Month	Pengeluaran (Juta tan) Production (million tonnes)
Januari January	140
Februari February	126
Mac March	139
April April	155
Mei May	170
Jun June	162

Jadual 13

Table 13

(Sumber : Laporan Industri Sawit Malaysia)
(Source : Malaysia Palm Oil Industry Report)

- (i) Berdasarkan Jadual 13, huraikan pola pengeluaran minyak sawit Malaysia dari Januari hingga Jun 2024.
Based on Table 13, describe the pattern of Malaysia's palm oil production from January to June 2024.

[2 markah]

[2 marks]

- (ii) Jelaskan faktor yang menyebabkan pengeluaran paling rendah pada Februari 2024.

Explain the factors that caused the lowest production in February 2024.

[2 markah]

[2 marks]

