Nama Murid : .....

Tingkatan : .....

MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
CAWANGAN KELANTAN

PEPERIKSAAN PERCUBAAN SPM 2022 — 4541/2

KIMIA

Kertas 2

2 ½ Jam — **Dua Jam Tiga Puluh Minit**

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. *Tulis nama dan tingkatan pada ruang yang disediakan.*
2. *Kertas soalan ini mengandungi tiga bahagian, Bahagian **A**, **B** dan **C**.*
3. *Jawapan handaklah ditulis pada ruang jawapan yang disediakan di dalam kertas peperiksaan ini.*
4. *Kertas peperiksaan ini dalam bahasa Melayu dan bahasa Inggeris.*
5. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
6. *Kerja mengira anda hendaklah ditunjukkan dengan jelas bagi mengelak kehilangan markah.*
7. *Kertas peperiksaan ini hendaklah diserahkan kepada pengawas pada akhir peperiksaan.*

Untuk kegunaan Pemeriksa			
Pemeriksa :			
Bahagian	**Soalan**	**Markah Penuh**	**Markah Diperoleh**
A	1	5	
	2	5	
	3	6	
	4	7	
	5	8	
	6	9	
	7	10	
	8	10	
B	9	20	
	10	20	
C	11	20	
JUMLAH			

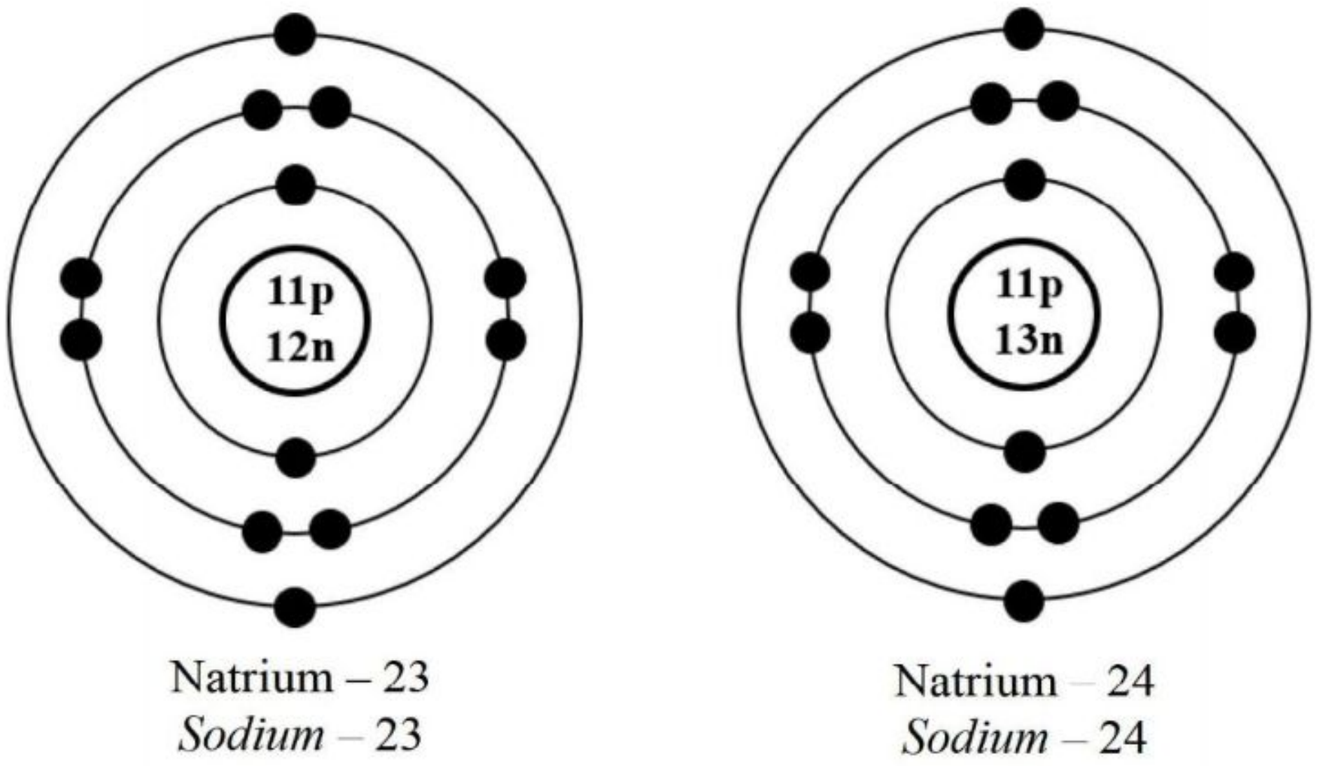
Kertas peperiksaan ini mengandungi **46** halaman bercetak

Selamat mengulangkaji dari telegram@soalanpercubaanspm

Bahagian A
[60 markah]
Jawab semua soalan bahagian ini.

1. Rajah 1 menunjukkan struktur atom bagi sepasang isotop natrium.

Diagram 1 *shows the atomic structure of a pair of isotopes of sodium*



Natrium – 23
Sodium – 23

Natrium – 24
Sodium – 24

Rajah 1
Diagram 1

(a) Apakah yang dimaksudkan dengan isotop?

What is meant by isotope?

.....

.....

[1 markah]
[1 *mark*]

(b) Tuliskan perwakilan piawai bagi atom Natrium-23

Write the standard representative for Sodium-23 *atom*

.....

[1 markah]
[1 *mark*]

(c) Nyatakan kegunaan Natrium – 24 .

State the use of Sodium-24.

.....

[1 markah]
[1 *mark*]

(d) Bandingkan sifat kimia kedua-dua atom natrium dalam Rajah 1.
Jelaskan jawapan anda.

Compare the chemical properties of the two sodium atoms in Diagram 1.
Explain your answer.

.....

.....

[2 markah]
[2 *marks*]

2. Jadual 1 menunjukkan maklumat sebahagian unsur yang terdapat dalam Kala 3 Jadual Berkala Unsur.

Table 1 *shows information about some of the elements found in Period* 3 *of the Periodic Table of Elements*

Unsur *Element*	Natrium *Sodium*	Magnesium *Magnesium*	Aluminium *Aluminium*	Silikon *Silicon*	Klorin *Chlorine*
Nombor proton *Proton number*	11	12	13	14	17

Jadual 1
Table 1

Berdasarkan Jadual 1

Based on Table 1

(a) Apakah maksud kala dalam Jadual Berkala Unsur ?

What is meant by period in Periodic Table of Element.

.....

[1 markah]
[1 *mark*]

(b) Nyatakan unsur yang wujud sebagai molekul dwiatom.

State the element that exists as diatomic molecule

.....

[1 markah]
[1 *mark*]

(c) Tuliskan susunan elektron bagi atom Aluminium

Write the electron arrangement for Aluminium atom

.....

[1 markah]
[1 *mark*]

(d) Terangkan mengapa saiz atom natrium lebih besar berbanding atom klorin.

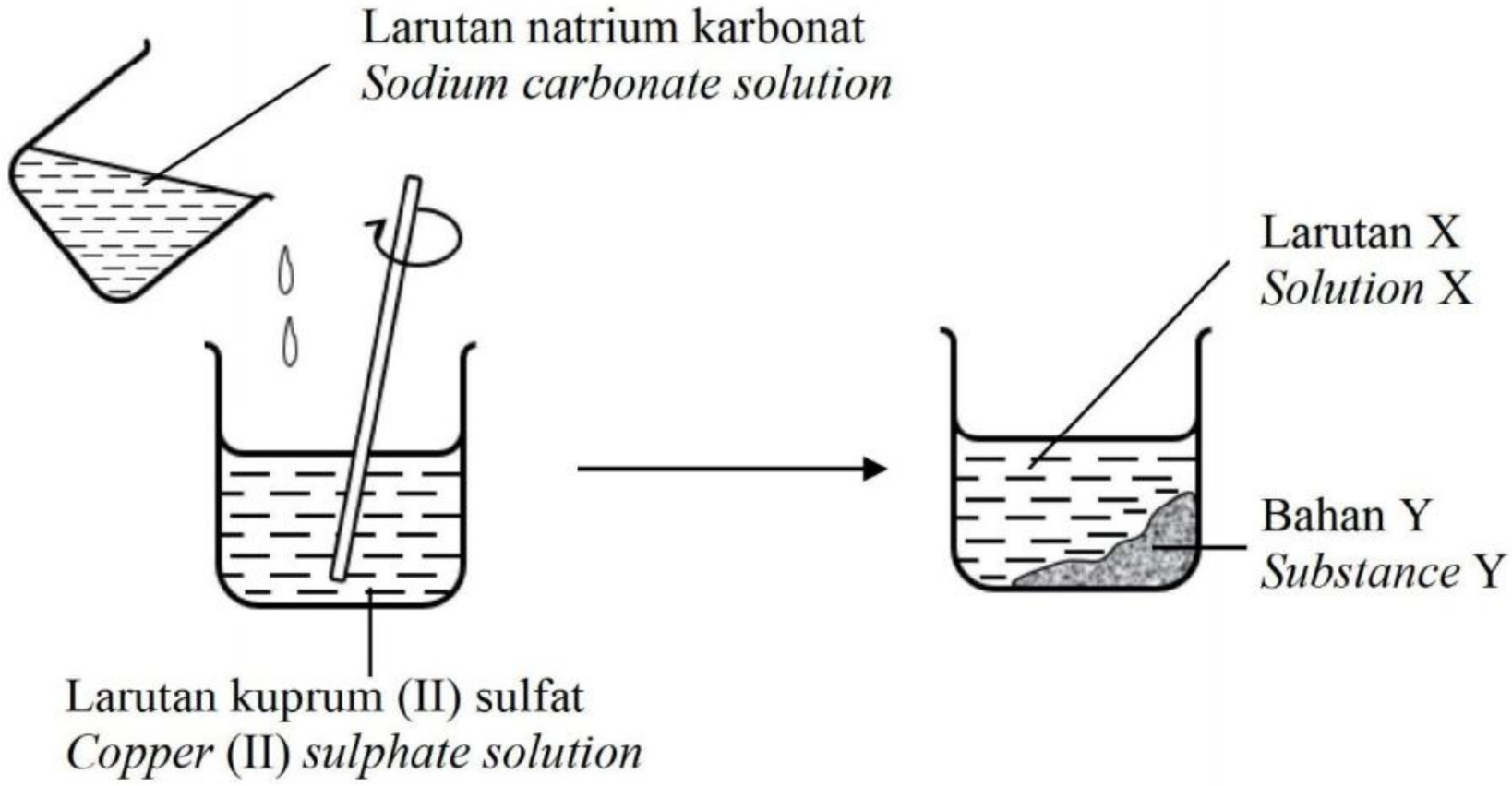
Explain why size of sodium atoms are larger than chlorine atoms

.....

.....

[2 markah]
[2 *marks*]

3. Rajah 2 menunjukkan satu tindak balas bagi menghasilkan garam tak terlarutkan.
Diagram 2 shows a reaction to produce an insoluble salt.



Rajah 2
Diagram 2

(a) Nyatakan maksud garam
State the meaning of salt.

.....

.....

[1 markah]
[1 *mark*]

(b) (i) Kenalpasti
Identify

Larutan X :.....
Solution X

Bahan Y :.....
Substance Y

[2 markah]
[2 *marks*]

(ii) Apakah warna bahan Y

What is the colour of substance Y

.....

[1 markah]
[1 *mark*]

(c) Tindak balas dalam Rajah 2 diwakili dengan persamaan kimia berikut

The reaction in Diagram 2 is represented by the following chemical equation

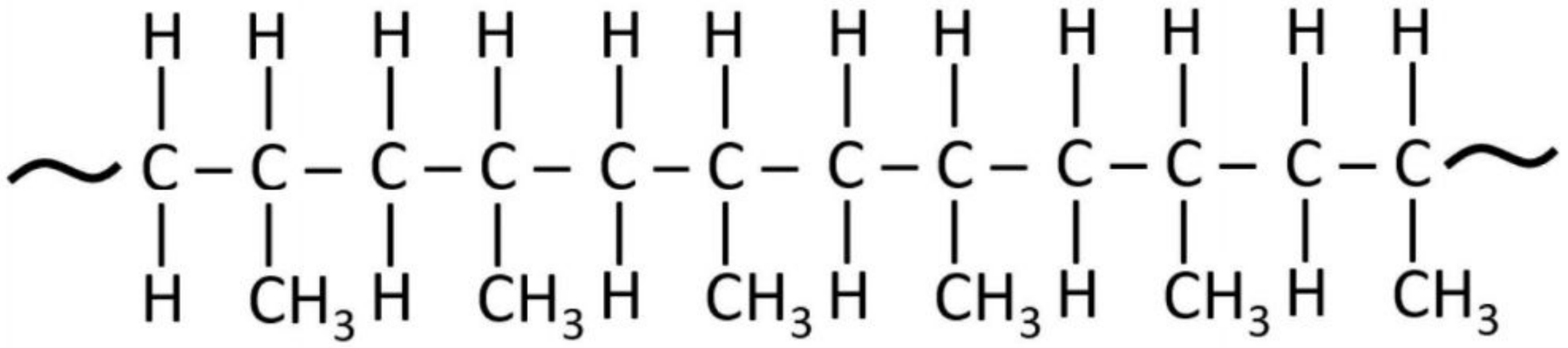
$$Na_2CO_3 + CuSO_4 \longrightarrow X + Y$$

Jika larutan natrium karbonat di tambahkan berlebihan ke dalam 0.2 mol larutan kuprum (II) sulfat, hitungkan jisim bahan Y yang terhasil.
[Jisim molar bahan Y = 124 g mol^{-1}]

If sodium carbonate solution is added in excess to 0.2 mol of copper (II) sulphate solution, calculate the mass of substance Y that produced.
[*Molar mass of substance* Y = 124 g mol^{-1}]

[2 markah]
[2 *marks*]

4. (a) Rajah 3 menunjukkan sebahagian formula struktur bagi polimer X.
Diagram 3 *shows part of the structural formula for polymer* X.



Rajah 3
Diagram 3

Berdasarkan Rajah 3

Based on Diagram 3

(i) Kenal pasti polimer X

Identify the polymer X

.....

[1 markah]
[1 *mark*]

(ii) Tuliskan persamaan kimia bagi menghasilkan polimer X

Write the chemical equation to produce polymer X.

[2 markah]
[2 *marks*]

(b) Jadual 2 menunjukkan sifat bagi dua jenis getah Y dan Z.

Table 2 *shows the properties of two type of rubber* Y *and* Z.

Jenis getah ***Type of rubber***	**Sifat** ***Properties***
Y	• Kekuatan adalah tinggi *More strength* • Lebih tahan terhadap pengoksidaan *More resistant towards oxidation* • Setelah diregangkan, getah Y dapat kembali semula kepada bentuk asal *After stretched, rubber* Y *able to get back to its original position*
Z	• Kekuatan adalah rendah *Low strength* • Lebih mudah teroksida *Easier to be oxidised* • Setelah diregangkan, getah Z lebih panjang daripada panjang asal *After stretched, rubber* Z *is longer than its original position*

Jadual 2
Table 2

Berdasarkan Jadual 2

Based on Table 2

(i) Kenal pasti getah Y dan getah Z

Identify rubber Y *and* Z.

.....

.....

[2 markah]
[2 *marks*]

(ii) Bandingkan kekenyalan getah Y dan getah Z.
Terangkan jawapan anda.

Compare the elasticity of rubber Y *and* Z.
Explain your answer

.....

.....

.....

[2 markah]
[2 *marks*]

5. Rajah 4 menunjukkan dua bahan utama yang digunakan dalam pembuatan sabun.
Figure 4 *shows the two main ingredients used in soap making.*

Minyak masak
Cooking oil

Larutan natrium hidroksida
Sodium hydroxide solution

Rajah 4
Diagram 4

(a) (i) Namakan proses pembuatan sabun

Name the soap making process

.....

[1 markah]
[1 *mark*]

(iii) Cadangkan satu bahan lain yang boleh menggantikan larutan natrium hidroksida pekat.

Suggest other substance that can be used to replace concentrated sodium hydroxide solution.

.....

[1 markah]
[1 *mark*]

(b) (i) Asid palmitik dari minyak sawit dicampurkan dengan larutan natriun hidroksida pekat untuk menghasilkan sabun X, $CH_3(CH_2)_{14}COONa$.
Persamaan berikut mewakili tindak balas yang berlaku.
Palmitic acid from palm oil is mixed with concentrated sodium hydroxide solution to produce soap X, $CH_3(CH_2)_{14}COONa$.
The following equation represents the reaction that occurs.

$$CH_3(CH_2)_{14}COOH + NaOH \longrightarrow CH_3(CH_2)_{14}COONa + H_2O$$

Sekiranya 0.2 mol asid palmitic digunakan dalam tindak balas ini.
Hitungkan jisim sabun yang terhasil
[Jisim molar $CH_3(CH_2)_{14}COONa = 278\ g\ mol^{-1}$]

If 0.2 moles of palmitic acid were used in this reaction.
Calculate the mass of soap is produced
[*Molar mass of* $CH_3(CH_2)_{14}COONa = 278\ g\ mol^{-1}$]

[2 markah]
[2 *marks*]

(ii) Namakan sabun X

Name the soap X

.....

[1 markah]
[1 *marks*]

(c) Semasa menyertai perkhemahan di pantai, Rafiq mendapati bajunya kotor kerana tertumpah kuah kari semasa makan tengah hari. Rafiq cuba mencuci bajunya dengan sabun di pantai tersebut.
Adakah kesan kotoran pada baju Rafiq boleh dibersihkan? Terangkan jawapan anda.

While participating in the camping on the beach, Rafiq found his shirt dirty because he spilled curry sauce during lunch. Rafiq tried to wash his clothes with soap on the beach.
Can the stains on Rafiq's shirt be cleaned? Explain your answer.

.....

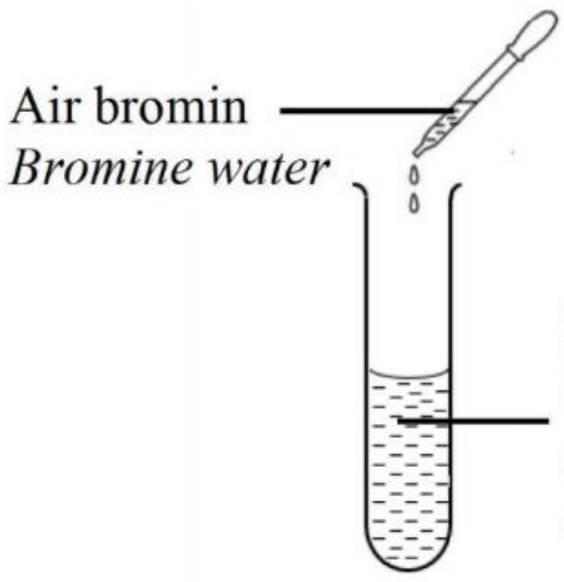
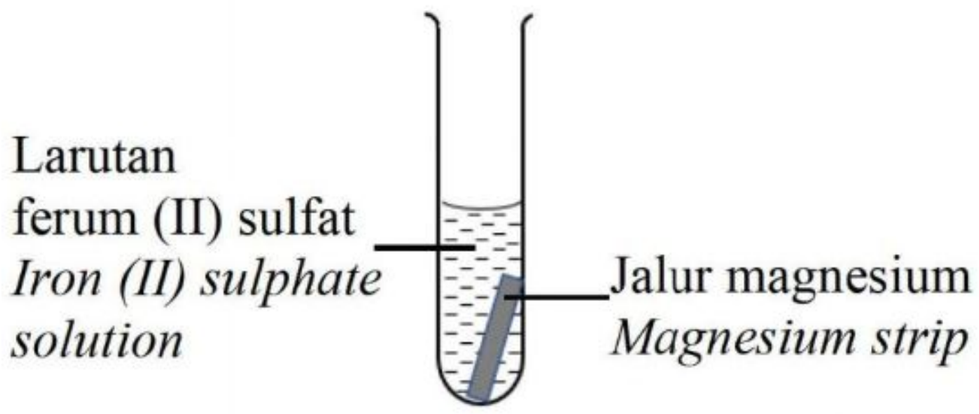
.....

.....

[3 markah]
[3 *marks*]

6. Seorang pelajar menjalankan dua set eksperimen bagi mengkaji tentang tindak balas redoks. Maklumat eksperimen ditunjukkan dalam Jadual 3.

A student conducts two sets of experiments to study redox reactions. The experimental information is shown in Table 3.

Set *Set*	Tindak balas *Reaction*	Pemerhatian *Observation*
I		Larutan berwarna hijau berubah menjadi perang *The green solution turn to brown*
II		Enpan pepejal kelabu terenap pada kepingan magnesium *Grey solid deposited on magnesium strip*

Jadual 3
Table 3

(a) Nyatakan maksud tindak balas redoks

State the meaning of redox reaction

.....

.....

[1 markah]
[1 *mark*]

(b) Berdasarkan Set I

Based on Set I

(i) Terangkan perubahan yang berlaku

Explain the changes that occurred

.....

.....

.....

[2 markah]
[2 *marks*]

(ii) Berdasarkan pemerhatian, huraikan satu ujian kimia bagi mengesahkan kehadiran ion yang menyebabkan warna perang terbentuk.

Based on the observations, describe a chemical test to confirm the presence of ions that cause the brown colour to form.

.....

.....

.....

[2 markah]
[2 *marks*]

(c) (i) Tuliskan setengah persamaan bagi tindak balas penurunan dalam

Write the half equation for the reduction reaction in

Set I :.....
Set I

Set II :.....
Set II

[2 markah]
[2 *marks*]

(ii) Nyatakan fungsi larutan ferum (II) sulfat dalam

State the function of iron (II) *sulphate solution in*

Set I :.....
Set I

Set II :.....
Set II

[2 markah]
[2 *marks*]

7. (a) Jadual 4.1 menunjukkan maklumat eksperimen tindak balas peneutralan antara asid X dan alkali Y yang menghasilkan garam natrium klorida dan air.

Table 4.1 *shows the experimental information of the neutralization reaction between acid* X *and alkali* Y *that produces sodium chloride salt and water.*

Bahan tindak balas *Reactants*	Suhu awal bahan tindak balas / °C *Initial temperature of reactants* / °C	Suhu maksimum campuran / °C *Maximum temperature of muxture* / °C
25 cm^3 asid X 1.0 mol dm^{-3} + 25 cm^3 alkali Y 1.0 mol dm^{-3} 25 cm^3 1.0 mol dm^{-3} *acid* X + 25 cm^3 1.0 mol dm^{-3} *alkali* Y	29.0	35.0

Jadual 4.1
Table 4.1

(i) Nyatakan maksud haba peneutralan

State the meaning of heat of neutralisation

.....

.....

[1 markah]
[1 *mark*]

(ii) Namakan

Name

Asid X :.....
Acid X

Alkali Y :.....
Alkali Y

[2 markah]
[2 *marks*]

(iii) Hitungkan haba peneutralan bagi tindak balas dalam Jadual 4.1

Calculate the heat of neutralisation for the reaction in Table 4.1

[Muatan haba tentu larutan, C=4.2 Jg^{-1} $^oC^{-1}$; ketumpatan larutan = 1 g cm^{-3}]
[*Specific heat capacity of solution*, C=4.2 Jg^{-1} $^oC^{-1}$; *density of solution* = 1 g cm^{-3}]

[3 markah]
[3 *marks*]

(iv) Lukis gambar rajah aras tenaga bagi tindak balas tersebut.
Draw an energy level diagram for the reaction.

[2 markah]
[2 *marks*]

(b) Jadual 4.2 menunjukkan haba tindak balas bagi dua tindak balas kimia.
Diagram 4.2 *shows heat of reaction for two chemical reactions.*

Tindak balas *Reaction*	Persamaan Ion *Ionic equation*	Haba tindak balas, *Heat of reaction* ($kJ\ mol^{-1}$)
I	$NH_4Cl \longrightarrow NH_4^+ + Cl^-$	+ 15.1
II	$NH_4NO_3 \longrightarrow NH_4^+ + NO_3^-$	+25.7

Jadual 4.2
Table 4.2

Tindak balas yang manakah sesuai dijadikan sebagai bahan dalam pek sejuk untuk meredakan kesakitan otot. Terangkan jawapan anda.

Which reaction is suitable as an ingredient in a cold pack to relieve muscle pain? Explain your answer.

.....

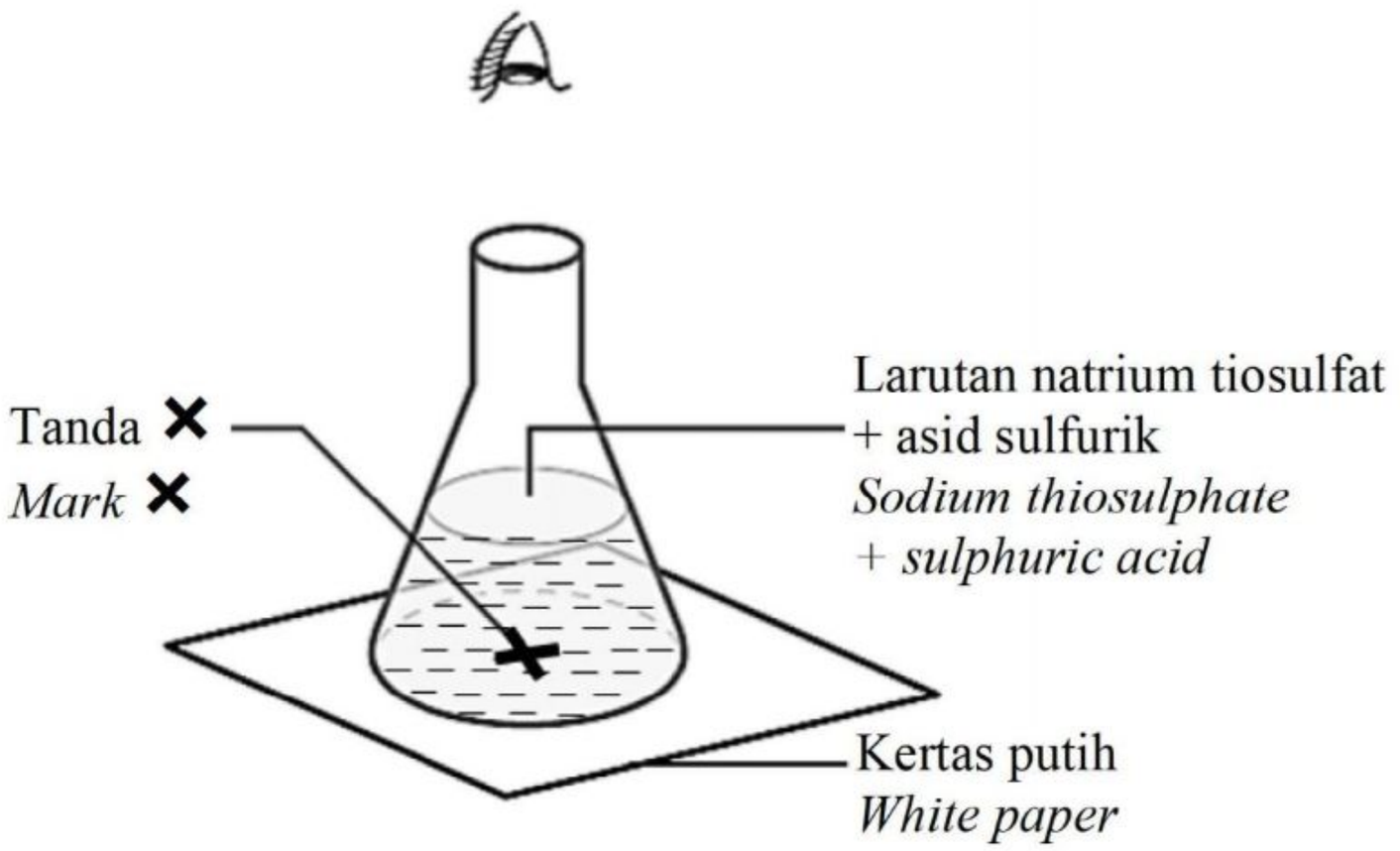
.....

.....

[2 markah]
[2 *marks*]

8. (a) Rajah 5 menunjukkan susunan radas bagi Eksperimen I dan EksperimenII pada suhu yang berbeza untuk menentukan kadar tindak balas antara natrium tiosulfat dengan asid sulfurik.

Diagram 5 shows the apparatus set up for Experiment I and II at different temperatures to determine the rate of reaction between sodium thiosulphate with sulphuric acid.



Rajah 5
Diagram 5

Jadual 5 menunjukkan keputusan dua eksperimen itu.

Table 5 shows the result of the experiment.

Eksperimen ***Experiment***	**Bahan tindak balas** ***Reactants***	**Masa untuk tanda "X" hilang dari penglihatan / s** ***Time taken for the mark "X" to disappear from sight / s***
I	50 cm^3 larutan natrium tiosulfat 0.2 $moldm^{-3}$ + asid sulfurik 1.0 $moldm^{-3}$ berlebihan pada 30°C 50 cm^3 of 0.2 $moldm^{-3}$ *sodium thiosulphate solution* + 1.0 $modm^{-3}$ *excess sulphuric acid at* 30°C	40
II	50 cm^3 larutan natrium tiosulfat 0.2 $moldm^{-3}$ + asid sulfurik 1.0 $moldm^{-3}$ berlebihan pada 40°C 50 cm^3 of 0.2 $moldm^{-3}$ *sodium thiosulphate solution* + 1.0 $modm^{-3}$ *excess sulphuric acid at* 40°C	20

Jadual 5
Table 5

Berdasarkan Rajah 5 dan Jadual 5

Based on Diagram 5 and Table 5

(i) Apakah warna mendakan sulfur.

What is the colour of sulphur precipitate.

.....

[1 markah]
[1 *mark*]

(ii) Hitungkan kadar tindak balas bagi :

Calculate the average rate of reaction.

Eksperimen I

Experimen I

Eksperimen II

Experimen II

[2 markah]
[2 *marks*]

(iii) Bandingkan kadar tindak balas Eksperimen I dan Eksperimen II

Compare the rate of reaction of Experiment I *and Experiment* II

.....

[1 markah]
[1 *mark*]

(iv) Terangkan jawapan anda di (a)(iii) menggunakan teori perlanggaran

Explain your answer in (a)(iii) *using collision theory*

.....

.....

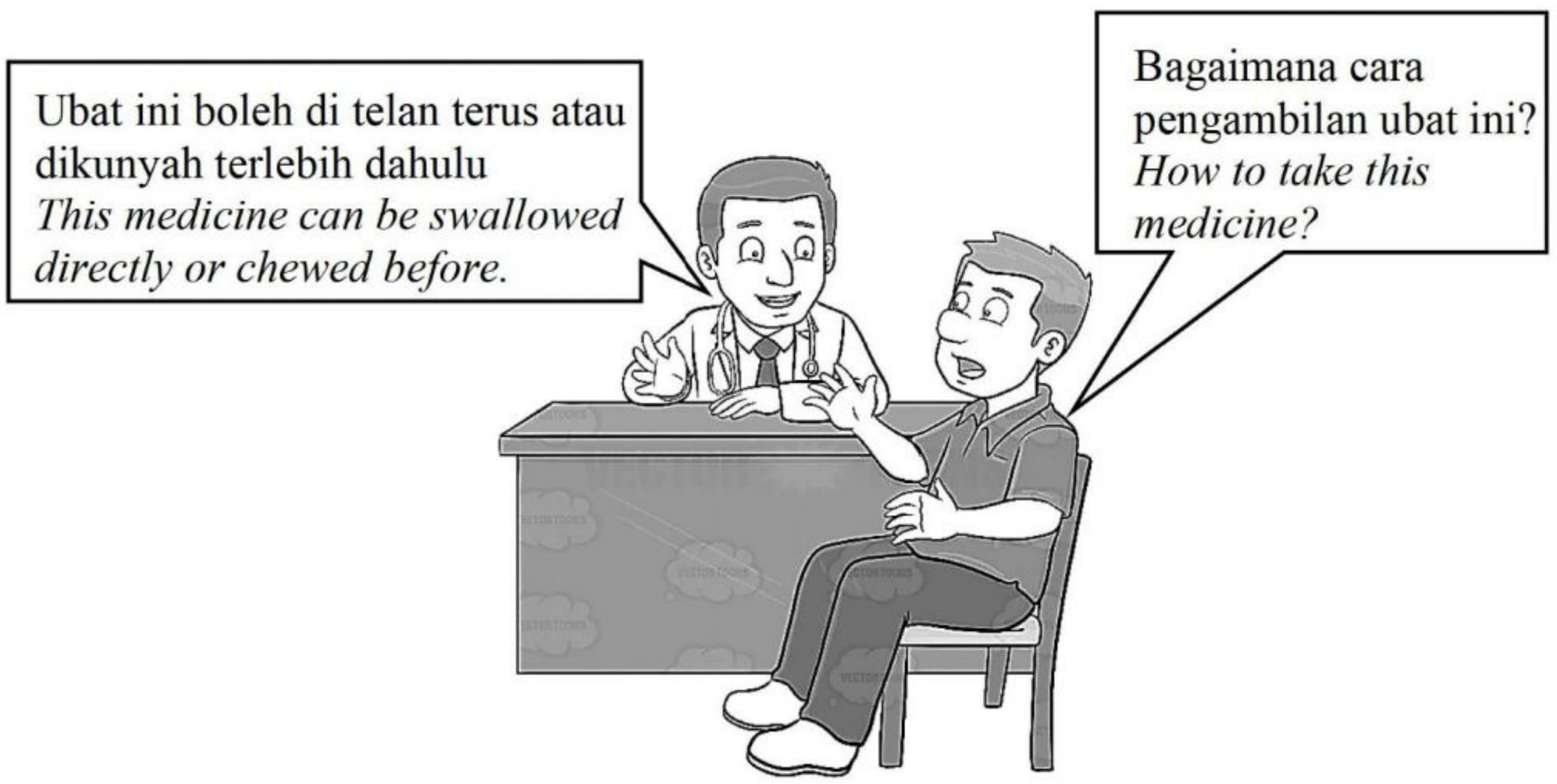
.....

.....

[3 markah]
[3 *marks*]

(b) Rajah 6 menunjukkan perbualan antara doktor dengan pesakit gastrik tentang cara pengambilan ubat.

Diagram 6 shows a conversation between a doctor and a gastric patient about how to take medicine.



Rajah 6
Diagram 6

Berdasarkan perbualan dalam Rajah 6, bagaimanakah cara pengambilan ubat yang berkesan untuk meredakan kesakitan pesakit tersebut.
Terangkan jawapan anda.

Based on the conversation in Diagram 6, what is the effective way to take medication to relieve the patient's pain.
Explain your answer.

.....

.....

.....

.....

[3 markah]
[3 *marks*]

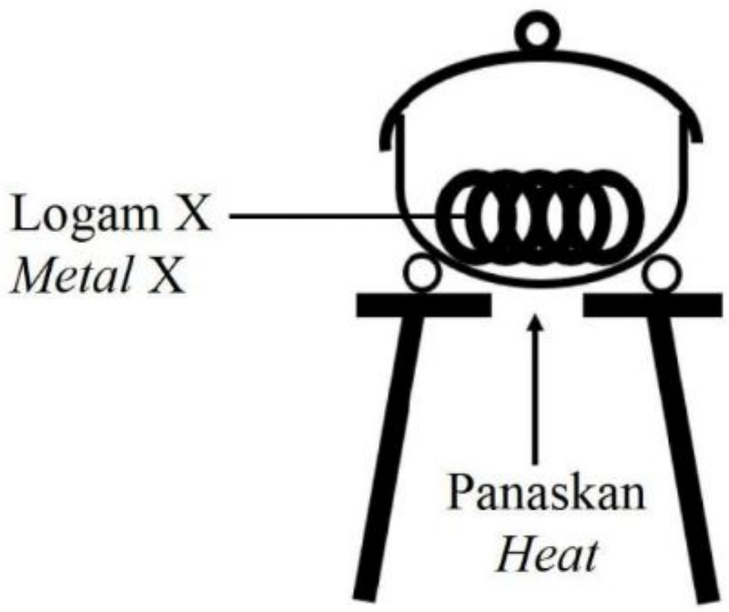
Bahagian B

[20 markah]

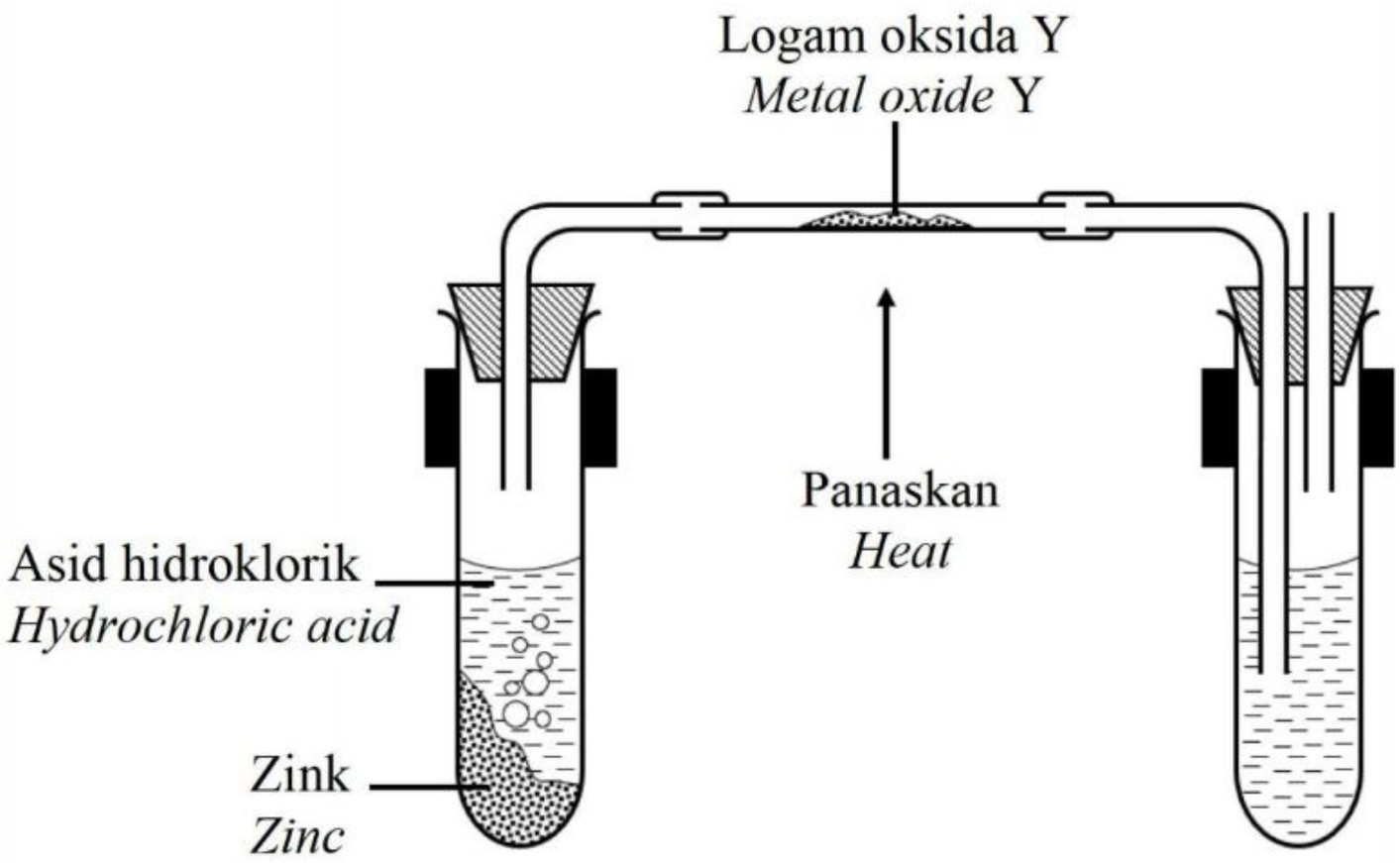
*Jawab mana-mana **satu** soalan dalam bahagian ini.*

9. (a) Rajah 7.1 dan 7.2 menunjukkan dua kaedah digunakan untuk menentukan formula empirik bagi oksida logam X dan oksida logam Y

Diagram 7.1 *and* 7.2 *show two methods used to determine the empirical formula for metal oxide* X *and metal oxide* Y



Rajah 7.1
Diagram 7.1



Rajah 7.2
Diagram 7.2

(i) Apakah maksud formula empirik ?

What is meant by empirical formula ?

[1 markah]
[1 *mark*]

(ii) Cadangkan logam X dan logam Y
Terangkan mengapa logam tersebut dipilih.

Suggest metal X and metal Y
Explain why the metal was chosen

[4 markah]
[4 *marks*]

(iii) Berdasarkan Rajah 7.2 tuliskan persamaan kimia bagi tindak balas yang berlaku antara asid hidroklorik dan zink.
Hitungkan jisim zink yang diperlukan dalam tindak balas tersebut bagi menghasilkan 100 cm^3 gas untuk digunakan dalam tindak balas menentukan formula empirik logam oksida Y.

Based on Figure 7.2, *write the chemical equation for the reaction that occurs between hydrochloric acid and zinc.*
Calculate the mass of zinc required in the reaction to produce 100 cm^3 *of gas to be used in the reaction to determine the empirical formula of metal oxide* Y.

[Jisim atom relatif Zn = 65; Isipadu molar gas = 24 dm^3 mol^{-1} pada keadaan bilik]
[*Relative atomic mass* Zn = 65; *Molar volume of gas* = 24 dm^3 mol^{-1} *at room condition*]

[5 markah]
[5 *marks*]

(b) Berikut adalah maklumat komposisi suatu hidrokarbon P yang boleh digunakan bagi menentukan formula molekulnya.

The following is information on the composition of a hydrocarbon P *which can be used to determine the molecular formula.*

- Karbon 85.70 %
  Carbon
- Hidrogen 14.30 %
  Hydrogen
- Jisim molekul relatif = 56
  Relative mollecular mass

(i) Berdasarkan maklumat di atas, tentukan

Based on the information above, determine

- Formula empirik hidrokarbon P
  Empirical formula of hydrocarbon P
- Formula molekul hidrokarbon P
  Molecular formula of hydrocarbon P

[Jisim atom relatif : H=1, C=12]
[*Relative atomic mass* H=1, C=12]

[5 markah]
[5 *marks*]

(ii) Hidrokarbon P boleh terbakar dengan lengkap dalam udara. Tuliskan persamaan kimia bagi pembakaran lengkap hidrokarbon P dan terangkan maklumat yang dapat diperolehi dari persamaan kimia tersebut secara kualitatif dan kuantitatif.

Hydrocarbon P *can burn completely in air.*
Write the chemical equation for the complete combustion of hydrocarbon P *and explain the information that can be obtained from the chemical equation qualitatively and quantitatively.*

[5 markah]
[5 *marks*]

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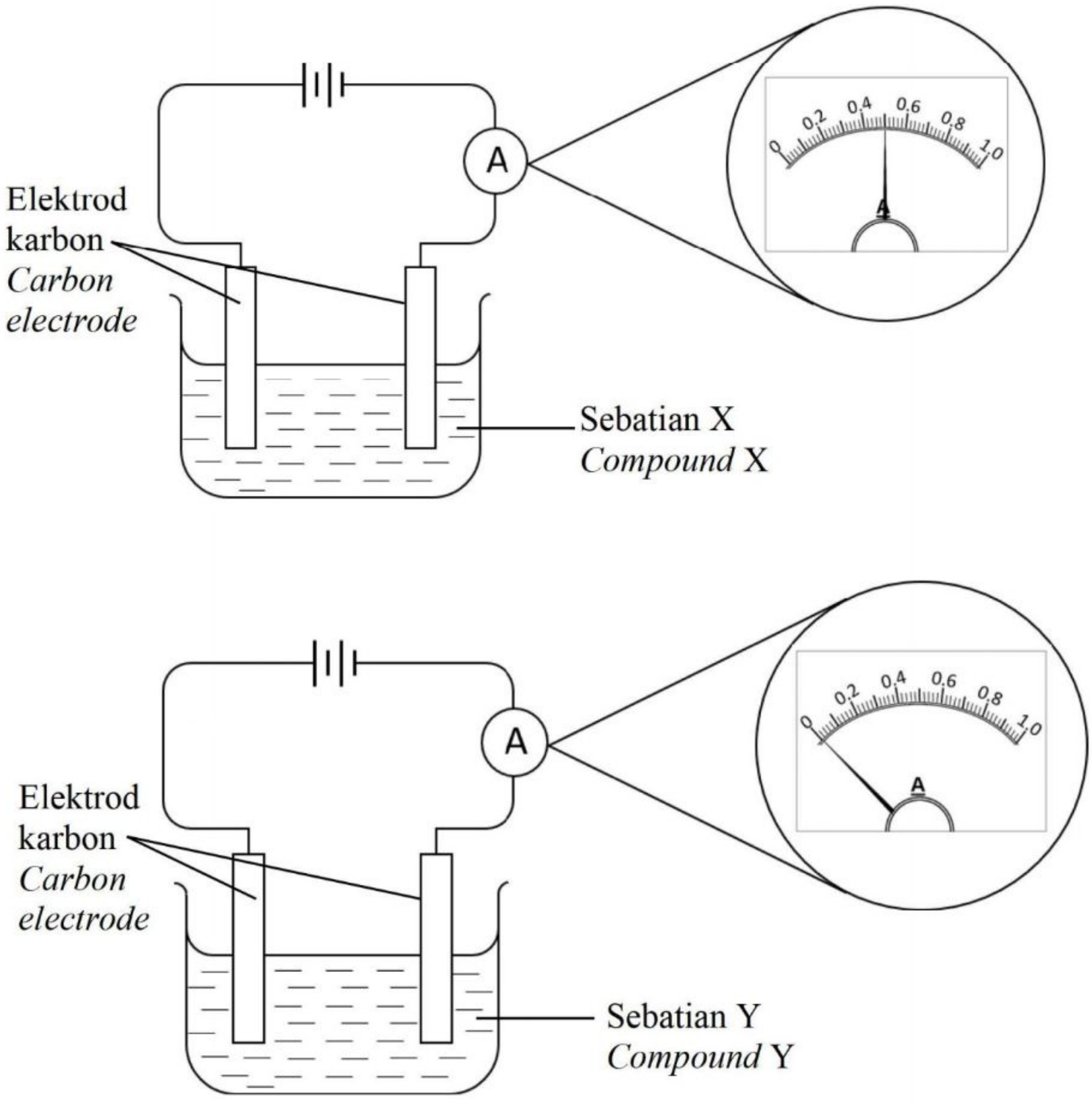
10. (a) Rajah 8.1 menunjukkan susunan radas mengkaji kekonduksian elektrik bagi sebatian X dan sebatian Y

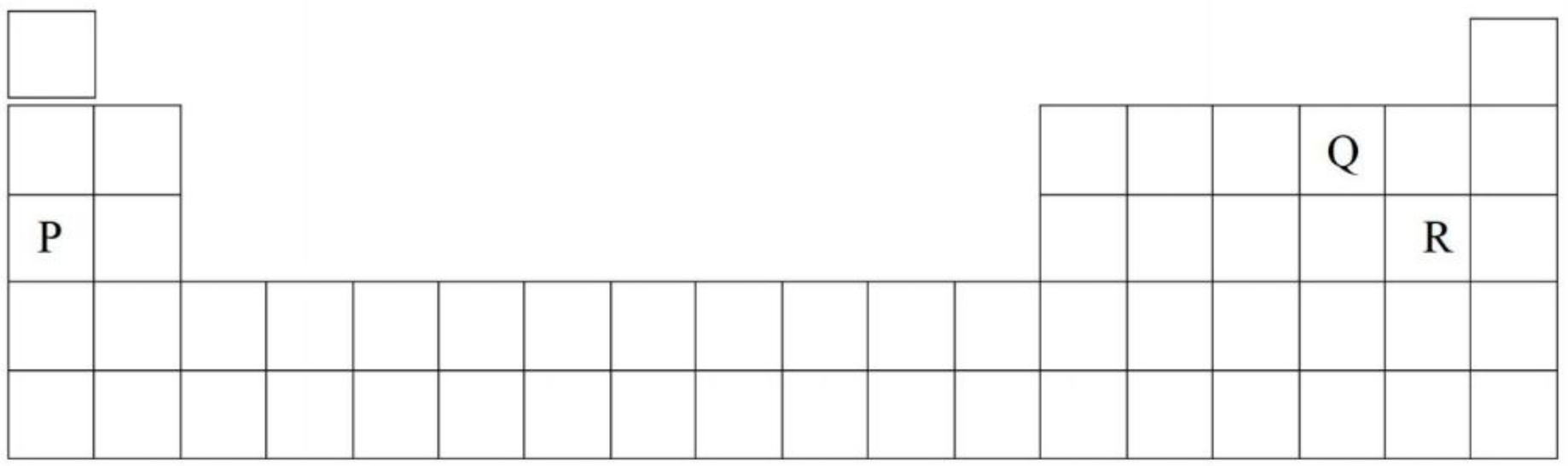
Diagram 8.1 *shows the arrangement of apparatus to study the electrical conductivity of compound* X *and compound* Y.



Rajah 8.1
Diagram 8.1

Manakala Rajah 8.2 menunjukkan kedudukan unsur P, Q dan R dalam Jadual Berkala Unsur.

While Diagram 8.2 *shows the position of elements* P, Q *and* R *in the Periodic Table of Elements.*



Rajah 8.2
Diagram 8.2

Berdasarkan Rajah 8.1 dan 8.2

Based on Diagram 8.1 *and* 8.2

(i) Nyatakan jenis sebatian X dan Y serta jenis zarah yang terdapat dalam kedua-dua sebatian tersebut.

State the types of compounds X *and* Y *and the types of particles found in both compounds.*

[4 markah]
[4 *marks*]

(ii) Pilih unsur-unsur yang bertindak balas membentuk sebatian X dan sebatian Y dan tuliskan formula kimia bagi sebatian X dan sebatian Y.
Huraikan bagaimana ikatan terbentuk dalam sebatian X

Choose the elements that react to form compound X and compound Y and write the chemical formula for compound X and compound Y.
Describe how bonds are formed in compound X.

[9 markah]
[9 *marks*]

(iii) Persamaan kimia berikut menunjukkan bagaimana kalium bertindak balas dengan Q untuk membentuk suatu sebatian.

The following chemical equation shows how potassium reacts with Q to form a compound.

$$4K + Q_2 \longrightarrow 2K_2Q$$

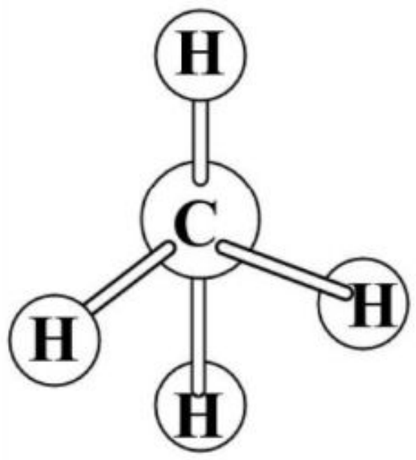
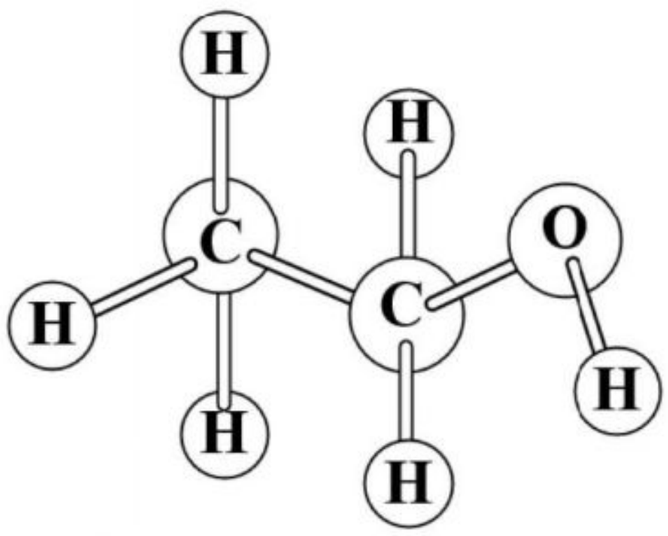
Hitungkan jisim hasil yang terbentuk di akhir tindak balas jika 7.8 g kalium bertindak balas dengan Q yang berlebihan.

Calculate the mass of product formed at the end of the reaction if 7.8 g *of potassium reacts with excess* Q.

[Jisim atom relatif : Q=16, K=39]
[*Relative atomic mass* : Q=16, K=39]

[3 markah]
[3 *marks*]

(b) Jadual 6 menunjukkan maklumat bagi sebatian M dan sebatian N.
Table 6 *shows information for compounds* M *and compounds* N

Formula struktur *Structural formula*	Takat didih / °C *Boiling point* /°C
 Sebatian M *Compound* M	-161.6
 Sebatian N *Compound* N	78.3

Jadual 6
Table 6

Bandingkan takat didih bagi sebatian M dan N. Jelaskan jawapan anda.
Compare the boiling points of compounds M *and* N. *Explain your answer.*

[4 markah]
[4 *marks*]

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Bahagian C
[20 markah]
*Jawab **semua** soalan dalam bahagian ini*

11. (a) Jadual 7 menunjukkan jadual bagi dua jenis sebatian karbon S dan T.

Table 7 shows a table for two types of carbon compounds S and T.

Sebatian *Compound*	Maklumat Hidrokarbon *Information of hydrocarbon*
S	• Hidrokarbon tepu *Saturated hydrocarbon* • Ahli keempat dalam siri homolognya *The fourth member of its homologous series*
T	• Hidrokarbon tak tepu dengan ikatan ganda dua antara atom karbon, *Unsaturated hydrocarbon with double bond between carbon atoms* • Ahli ketiga dalam siri homolognya *The third member of its homologous series*

Jadual 7
Table 7

(i) Apakah yang dimaksudkan dengan hidrokarbon tepu?

What is meant by saturated hydrocarbon?

[1 markah]
[1 *mark*]

(ii) Cadangkan nama bagi sebatian S dan T

Suggest a name for compounds S *and* T

[2 markah]
[2 *marks*]

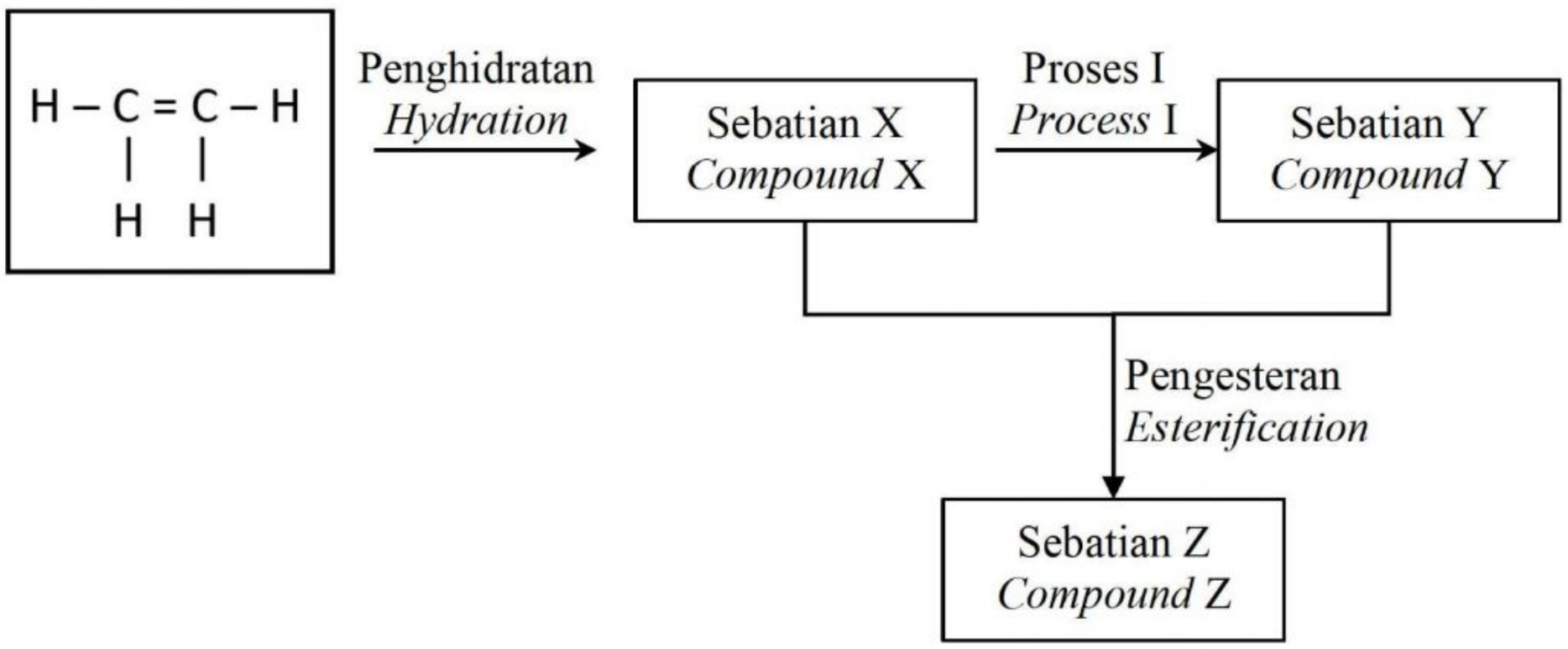
(iii) Sebatian S dan T boleh dijadikan sebagai bahan api di rumah.
Bahan api yang manakah kurang memberi kesan pencemaran kepada alam sekitar.
Tunjukkan pengiraan peratus karbon dan terangkan alasan anda.

Compounds S and T can be used as fuel at home.
Which fuel is less polluting to the environment?
Show the calculation of percentage of carbon atom and explain your reason.

[4 markah]
[4 *marks*]

(b) Rajah 9.1 menunjukkan penukaran bagi beberapa sebatian organic

Diagram 9.1 *shows the conversion of some organic compounds*



Rajah 9.1
Diagram 9.1

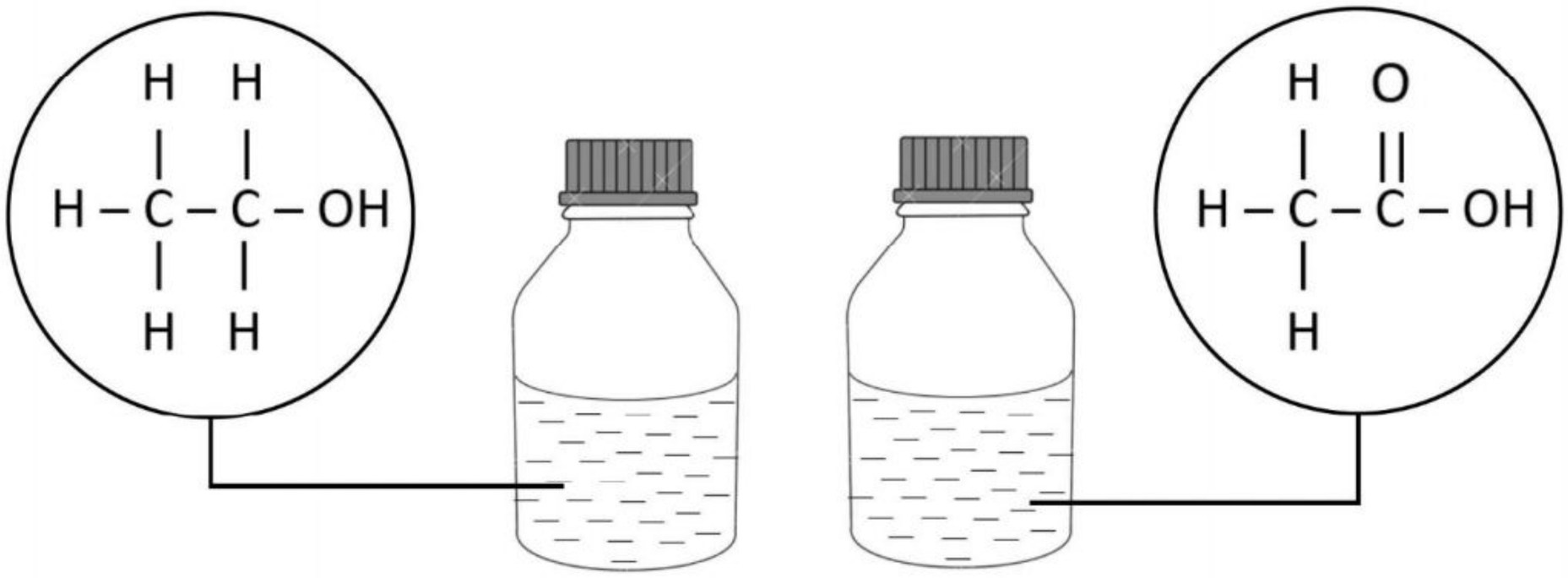
Nyatakan Proses I, siri homolog bagi sebatian X dan kumpulan berfungsi bagi sebatian Y. Namakan dan tuliskan formula molekul bagi sebatian Z

State Process I, *the homologous series of compound* X *and the functional group of compound* Y. *Name and write the molecular formula of compound* Z

[5 markah]
[5 *marks*]

(c) Rajah 9.2 menunjukkan 2 botol yang mengandungi cecair tak berwarna.

Diagram 9.2 *shows* 2 *bottles containing a colorless liquid.*



Botol A
Bottle A

Botol B
Bottle B

Rajah 9.2
Diagram 9.2

Dengan menggunakan serbuk natrium bikarbonat, huraikan satu ujian kimia bagaimana untuk membezakan kedua-dua cecair tersebut.
Nyatakan pemerhatian dan kelaskan bahan tersebut kepada siri homolog masing-masing.

Using sodium bicarbonate powder, describe a chemical test to tell the difference between the two liquids.
State the observations and classify the substances into their respective homologous series.

[8 markah]
[8 *marks*]

KERTAS PEPERIKSAAN TAMAT

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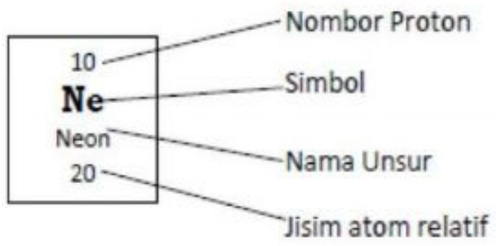
JADUAL BERKALA UNSUR



1 H Hidrogen																	2 He Helium 4
3 Li Litium 7	4 Be Berilium 9											5 B Boron 11	6 C Karbon 12	7 N Nitrogen 14	8 O Oksigen 16	9 F Flourin 19	10 Ne Neon 20
11 Na Natrium 23	12 Mg Magnesium 24											13 Al Aluminium 27	14 Si Silikon 28	15 P Fosforus 31	16 S Sulfur 32	17 Cl Klorin 35.5	18 Ar Argon 40
19 K Kalium 39	20 Ca Kalsium 40	21 Sc Skandium 45	22 Ti Titanium 48	23 V Vanadium 51	24 Cr Kromium 52	25 Mn Mangan 55	25 Fe Ferum 56	27 Co Kobalt 59	28 Ni Nikel 59	29 Cu Kuprum 64	30 Zn Zink 65	31 Ga Galium 70	32 Ge Germanium 73	33 As Arsenik 75	34 Se Selenium 79	35 Br Bromin 80	36 Kr Kripton 84
37 Rb Rubidium 86	38 Sr Strontium 88	39 Y Itrium 89	40 Zr Zirkonium 91	41 Nb Niobium 93	42 Mo Molibdenum 96	43 Tc Teknetium 98	44 Ru Rutenium 101	45 Rh Rodium 103	46 Pd Paladium 106	47 Ag Argentum 108	48 Cd Kadmium 112	49 In Indium 115	50 Sn Stanum 119	51 Sb Antimoni 122	52 Te Telurium 128	53 I Iodin 127	54 Xe Xenon 131
55 Cs Sesium 133	56 Ba Barium 137	57 La Lantanum 139	72 Hf Hafnium 179	73 Ta Tantalum 181	74 W Tungsten 184	75 Re Renium 186	76 Os Osmium 190	77 Ir Iridium 192	78 Pt Platinum 195	79 Au Aurum 197	80 Hg Merkuri 201	81 Tl Talium 204	82 Pb Plumbum 207	83 Bi Bismut 209	84 Po Polonium 210	85 At Astatin 210	86 Rn Radon 222
87 Fr Fransium 223	88 Ra Radium 226	89 Ac Aktinium 227	104 Unq Unnil-kuadium 257	105 Unp Unnil-pentium 260	106 Unh Unnil-heksium 263	107 Uns Unnil-Septium 262	108 Uno Unnil-oktium 265	109 Une Unnil-enium 266									

58 Ce Serium 140	59 Pr Praseodimium 141	60 Nd Neodimium 144	61 Pm Prometrium 147	62 Sm Samarium 150	63 En Europium 152	64 Gd Gadolinium 157	65 Tb Terbium 159	66 Dy Disprosium 163	67 Ho Holmium 165	68 Er Erbium 167	69 Tm Tulium 169	70 Yb Iterbium 173	71 Lu Lutetium 175
90 Th Torium 232	91 Pa Proaktinium 231	92 U Uranium 238	93 Np Neptunium 237	94 Pu Plutonium 244	95 Am Amerisium 243	96 Cm Kurium 247	97 Bk Berkelium 247	98 Cf Kalifornium 249	99 Es Einstenium 254	100 Fm Fermium 253	101 Md Mendelevium 256	102 No Nobelium 254	103 Lr Lawrensium 257

[LIHAT HALAMAN SEBELAH