NAMA:…… TINGKATAN: ……

BAHAGIAN PENGURUSAN SEKOLAH BERASRAMA PENUH DAN SEKOLAH KECEMERLANGAN
KEMENTERIAN PENDIDIKAN MALAYSIA
http://cikguadura.wordpress.com/

PENTAKSIRAN DIAGNOSTIK AKADEMIK SBP 2013
SIJIL PELAJARAN MALAYSIA

CHEMISTRY

KERTAS 2

2 JAM 30 MINIT

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

Arahan:

1. Tuliskan Nama dan Tingkatan pada ruang yang disediakan.
2. Jawab semua soalan daripada **Bahagian A**. Tuliskan jawapan anda dalam ruang yang disediakan.
3. Jawab satu soalan daripada **Bahagian B** dan satu soalan daripada **Bahagian C**
4. Anda diminta menjawab dengan lebih terperinci untuk Bahagian B dan Bahagian C. Jawapan mestilah jelas dan logik. Persamaan, gambar rajah, jadual, graf dan cara lain yang sesuai untuk menjelaskan jawapan anda boleh digunakan.
5. Penggunaan kalkulator saintifik yang tidak boleh diprogramkan adalah dibenarkan.

Untuk Kegunaan Pemeriksa			
Bahagian	**Soalan**	**Markah penuh**	**Markah diperoleh**
A	**1**	**9**	
	2	**9**	
	3	**10**	
	4	**10**	
	5	**11**	
	6	**11**	
B	**7**	**20**	
	8	**20**	
C	**9**	**20**	
	10	**20**	
Jumlah			

Kertas ini mengandungi **26** halaman bercetak

Section A
Bahagian A

[60 marks]
[60 *markah*]

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

1. (a) Diagram 1 shows the set-up of the apparatus an experiment to study Process I.
Rajah 1 menunjukkan susunan radas bagi satu eksperimen bagi mengkaji Proses I.

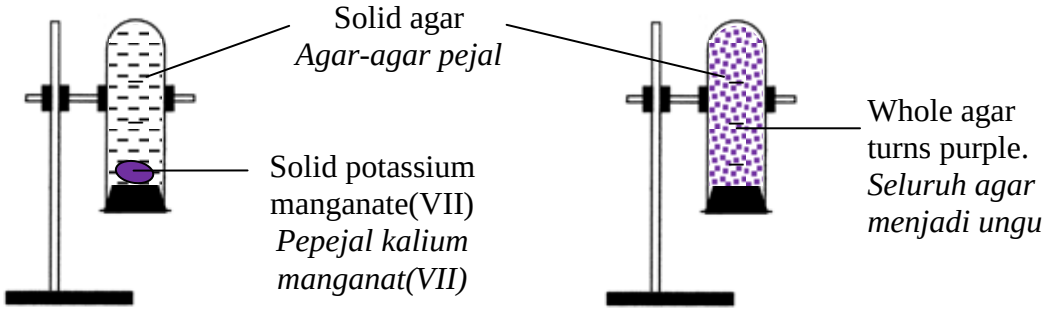


Diagram 1.1
Rajah 1.1

(i) Name the process involved in this experiment?
Namakan proses yang terlibat?

……..
[1 mark]

(ii) State the type of particles present in potassium manganate(VII).
Nyatakan jenis zarah dalam kalium manganat(VII).

……..
[1 mark]

(iii) Explain the observation in this experiment based on the kinetic theory of matter.
Terangkan pemerhatian dalam eksperimen ini berdasarkan teori kinetik jirim.

……..

……

……
[3 marks]

(b) Diagram 1.2 shows the symbols for three atoms of carbon.
Rajah 1.2 menunjukkan simbol bagi tiga atom karbon.

Atom ***Atom***	**Proton number** ***Nombor proton***	**Nucleon number** ***Nombor nukleon***
${}^{12}_{6}C$	6	12
${}^{13}_{6}C$	6	13
${}^{14}_{6}C$	6	14

Diagram 1.2
Rajah 1.2

(i) Name **one** subatomic particles present in the nucleus of carbon atom.
*Namakan **satu** zarah subatom yang terdapat dalam nukleus atom karbon.*

……..
[1 mark]

(ii) ${}^{12}_{6}C$, ${}^{13}_{6}C$ and ${}^{14}_{6}C$ are isotopes.
What is meant by isotope?
${}^{12}_{6}C$, ${}^{13}_{6}C$ *dan* ${}^{14}_{6}C$ *adalah isotop.*
Apakah yang dimaksudkan dengan isotop?

……..
[1 mark]

(iii) Determine the number of neutrons for the isotope of carbon-14, ${}^{14}_{6}C$.
Tentukan bilangan neutron bagi isotop karbon-14, ${}^{14}_{6}C$.

……..
[1 mark]

(iv) State **one** use of carbon-14, ${}^{14}_{6}C$
*Nyatakan **satu** kegunaan karbon-14,* ${}^{14}_{6}C$.

……..
[1 mark]

2 Diagram 2 shows the symbol of atoms of magnesium, aluminium and chlorine.
Rajah 2 menunjukkan simbol atom-atom bagi magnesium, aluminium dan klorin.

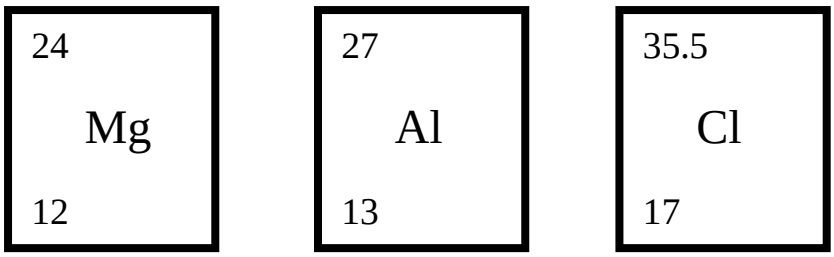


Diagram 2
Rajah 2

(a) (i) Write the electron arrangement of magnesium atom.
Tuliskan susunan elektron bagi atom magnesium.

……..
[1 mark]

(ii) State the position of magnesium in the Periodic Table of Elements.
Nyatakan kedudukan magnesium dalam Jadual Berkala Unsur.

…….
[1 mark]

(b) What is the physical state of chlorine at room condition?
Apakah keadaan fizik bagi klorin pada keadaan bilik?

……
[1 mark]

(c) Which element forms an acidic oxide?
Unsur manakah membentuk oksida yang bersifat asid?

……..
[1 mark]

(d) Aluminium reacts with oxygen to form aluminium oxide.
Aluminium bertindak balas dengan oksigen membentuk aluminium oksida.

(i) Write the chemical formula of aluminium oxide.
Tuliskan formula kimia bagi aluminium oksida.

……..
[1 mark]

(ii) State the type of bond in aluminium oxide.
Nyatakan jenis ikatan di dalam aluminium oksida.

…….
[1 mark]

(e) 2.4 g magnesium reacts with chlorine to form 9.5 g magnesium chloride. Determine the empirical formula of magnesium chloride.
2.4 g magnesium bertindak balas dengan klorin membentuk 9.5 g magnesium klorida. Tentukan formula empirik bagi magnesium klorida.

[Relative atomic mass : Mg = 24, Cl = 35.5]
[*Jisim atom relatif : Mg = 24, Cl = 35.5]*

[3 marks]

3 Diagram 3 shows the series of reactions that involve copper(II) nitrate.
Rajah 3 menunjukkan siri tindak balas yang melibatkan kuprum(II) nitrat.

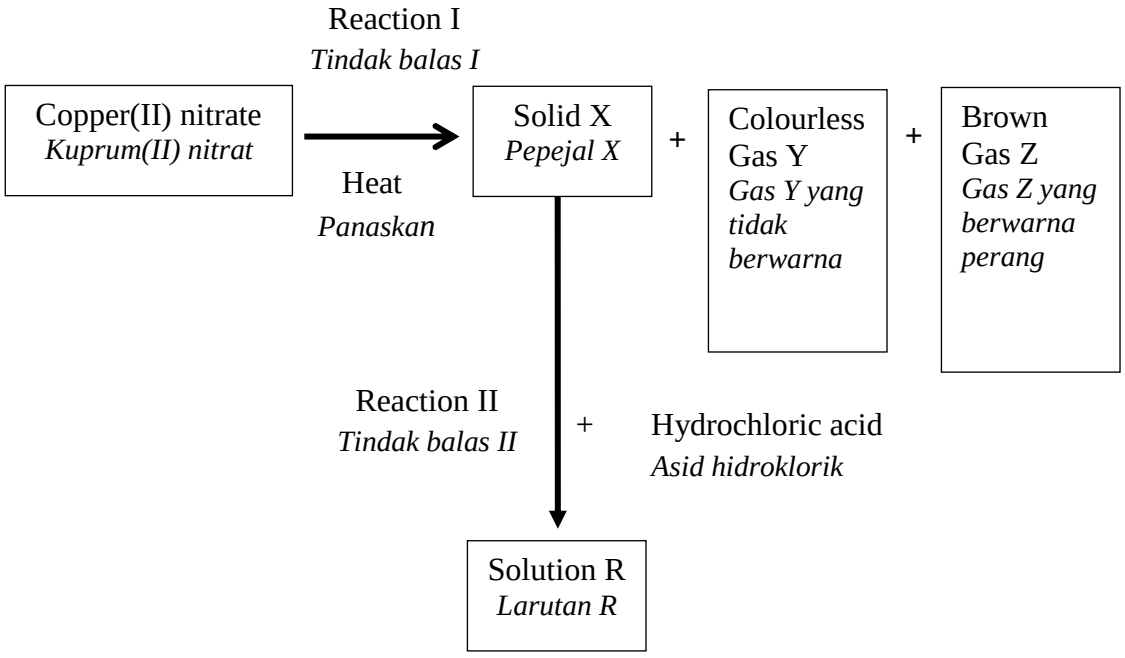


Diagram 3
Rajah 3

(a) Copper(II) nitrate is a salt.
Kuprum(II) nitrat adalah sejenis garam.

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

……..……..
[1 mark]

(ii) State the colour of copper(II) nitrate.
Nyatakan warna kuprum(II) nitrat.

……
[1 mark]

(b) In Reaction I, copper(II) nitrate is heated strongly to form solid X, gas Y and gas Z.
Dalam tindak balas I, kuprum(II) nitrat dipanaskan dengan kuat untuk menghasilkan pepejal X, gas Y dan gas Z.

(i) Name gas Y.
Namakan gas Y.

…….....
[1 marks]

(ii) Write the chemical formula of gas Z.
Tuliskan formula kimia bagi gas Z.

…….....
[1 mark]

(iii) Write the chemical formula of solid X.
Tuliskan formula kimia bagi pepejal X.

…….....
[1 mark]

(c) In Reaction II, solid X is added into a test tube containing hydrochloric acid to form solution R.
Dalam Tindak balas II, pepejal X ditambah ke dalam sebuah tabung uji yang mengandungi asid hidroklorik untuk membentuk larutan R.

The equation represents the reaction.
Persamaan mewakili tindak balas itu.

$$X + 2HCl \rightarrow R + H_2O$$

(i) Name the cation in solution R.
Namakan kation dalam larutan R.

……
[1 mark]

(ii) State another substance that can be used to replace solid X to produce solution R.
Nyatakan bahan lain yang boleh digunakan untk menggantikan pepejal X untuk menghasilkan larutan R.

……
[1 mark]

(iii) 20 cm^3 of 0.5 mol dm^{-3} hydrochloric acid reacts with excess solid X.
Calculate the number of molecules of water produced.
[Avogadro constant = 6.02 x 10^{23} mol^{-1}]
20 cm^3 asid hidroklorik 0.5 mol dm^{-3} bertindak balas dengan pepejal X berlebihan.
Hitung bilangan molekul air yang terbentuk.
[Pemalar Avogadro = 6.02 x 10^{23} mol^{-1}]

[3 marks]

4 Diagram 4 shows the apparatus set-up for an experiment to determine the heat of displacement.
Rajah 4 menunjukkan susunan radas bagi satu eksperimen untuk menentukan haba penyesaran.

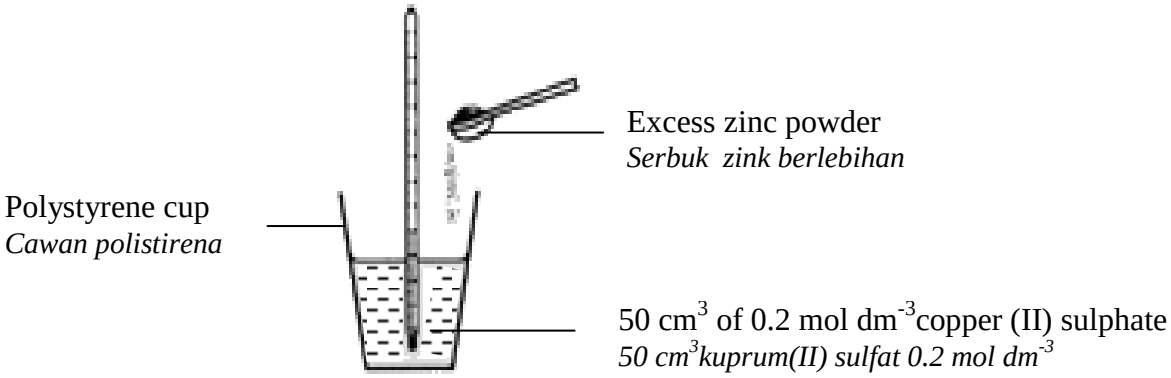


Diagram 4
Rajah 4

Based on the experiment,

(a) State the meaning of heat of displacement.
Nyatakan maksud haba penyesaran.

……..

……..……
[1 mark]

(b) Give **one** reason why polystyrene cup is used in the experiment.
*Berikan **satu** sebab mengapa cawan polistirena digunakan dalam eksperimen ini.*

……
[1 mark]

(c) The thermochemical equation below represents the displacement reaction.
Persamaan termokimia di bawah mewakili tindak balas penyesaran itu.

$$Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu \qquad \Delta H = -210 \text{ kJ mol}^{-1}$$

Calculate:
Hitung:

(i) the number of moles of copper(II) ion.
bilangan mol ion kuprum.

[1 mark]

(ii) the heat released during the reaction.
haba yang dibebaskan semasa tindak balas.

[2 marks]

(iii) the change of temperature in the experiment.
[Specific heat capacity of solution = 4.2 J g^{-1} $^oC^{-1}$;
Density of solution = 1 g cm^{-3}]
perubahan suhu dalam eksperimen ini.
[*Muatan haba tentu larutan = 4.2 J* g^{-1} $^oC^{-1}$*;*
Ketumpatan larutan =1 g cm^{-3}]

[1 mark]

(d) The experiment is repeated using magnesium powder to replace zinc powder. The volume and concentration of copper (II) sulphate used is remained the same.
Eksperimen diulang dengan menggunakan serbuk magnesium menggantikan serbuk zink. Isi padu dan larutan kuprum(II) sulfat yang digunakan adalah sama.

(i) Predict the heat of displacement for the reaction.
Ramalkan haba penyesaran bagi tindak balas itu.

..……

[1 mark]

(ii) Give a reason for your answer in **4**(d)(i).
*Beri sebab bagi jawapan di **4**(d(i).*

……

……

[1 mark]

(e) Draw the energy level diagram for the reaction.
Lukis gambar rajah aras tenaga bagi tindak balas ini.

[2 marks]

5 Diagram 5.1 and Diagram 5.2 shows the apparatus set-up to investigate the factor that affects the rate of reaction.
Rajah 5.1 dan 5.2 menunjukkan susunan radas bagi mengkaji faktor yang mempengaruhi kadar tindak balas.

Experiment I
Eksperimen I

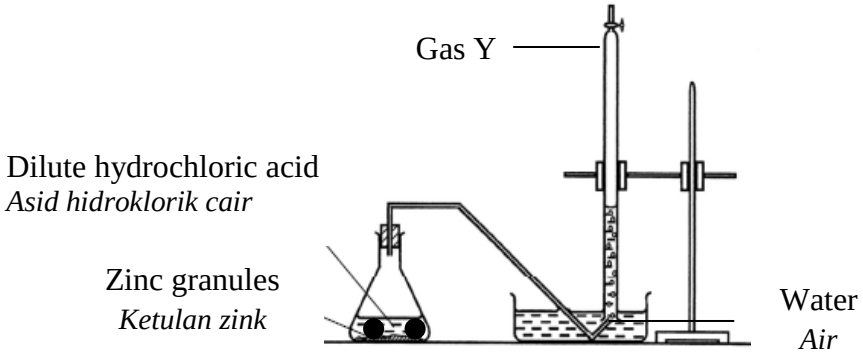


Diagram 5.1
Rajah 5.1

Table 5.1 shows the result obtained for Experiment I.
Jadual 5.1 menunjukkan keputusan yang diperolehi bagi Eksperimen I.

Time (s) *Masa* (s)	0	20	40	60	80	100	120	140	160	180
Volume of gas released (cm^3) *Isi padu gas terbebas* (cm^3)	0.00	6.50	12.50	17.80	23.50	27.20	31.80	35.00	35.00	35.00

Table 5.1
Jadual 5.1

Experiment II
***Eksperimen* II**

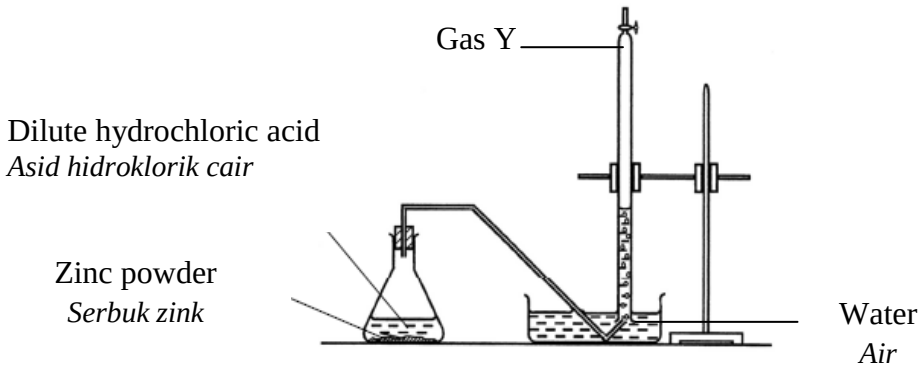


Diagram 5.2
Rajah 5.2

Table 5.2 shows the result obtained for Experiment II.
Jadual 5.2 menunjukkan keputusan yang diperolehi bagi Eksperimen II.

Time (s) *Masa* (s)	0	20	40	60	80	100	120	140	160	180
Volume of gas released (cm^3) *Isi padu gas terbebas* (cm^3)	0.00	8.50	15.50	21.00	26.80	31.50	35.00	35.00	35.00	35.00

Table 5.2
Jadual 5.2

(a) (i) Name gas Y.
Namakan gas Y.

……

[1 mark]

(ii) Describe a chemical test to verify gas Y.
Jelaskan satu ujian kimia untuk mengesahkan gas Y.

……

……..

[2 marks]

(b) (i) Calculate the average rate of reactions for Experiment I and Experiment II.
Hitung kadar tindak balas purata untuk tindak balas bagi Eksperimen I dan Eksperimen II.

Experiment 1:
Eskperimen* I*:

Experiment II:
Eksperimen I1:

[2 marks]

(ii) Compare the rate of reaction of Experiment I and Experiment II.
Bandingkan kadar tindak balas bagi Eksperimen I dan Ekesperimen II.

……

……

[1 mark]

(iii) Explain the answer in **5**(b)(ii) with reference to the collision theory.
*Terangkan jawapan di **5**(b)(ii) dengan merujuk kepada teori perlanggaran.*

……

……

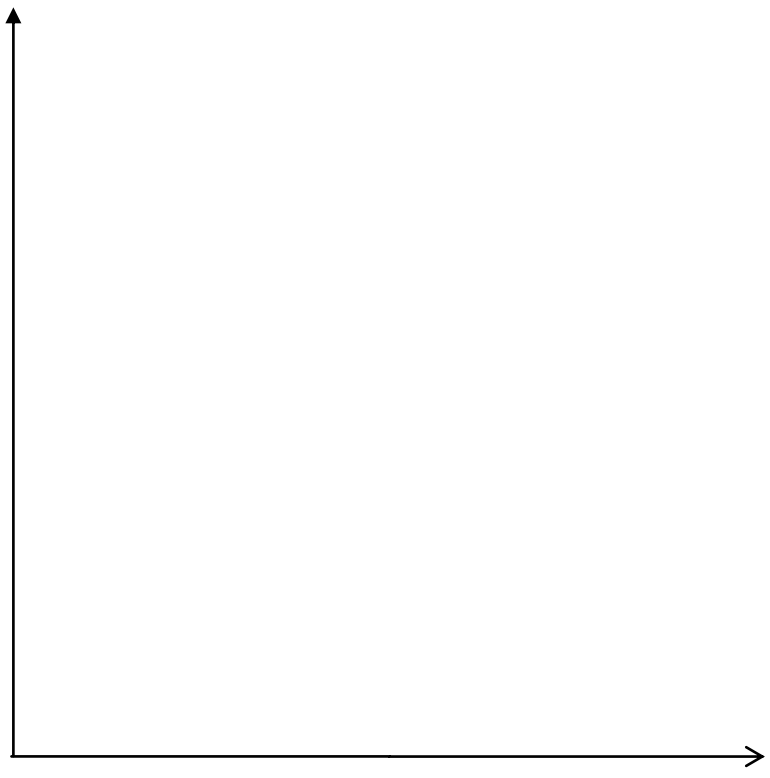
……

……

[3marks]

(c) Sketch the graph of volume of gas Y produced against time for both experiments on the same axes.
Lakar graf isipadu gas Y yang dihasilkan melawan masa bagi kedua-dua eksperimen.

Volume of gas Y (cm^3)
Isi padu gas Y (cm^3)



[2marks]

6 (a) Diagram 6 shows the apparatus set-up to study the displacement of halogen between bromine water and potassium iodide solution.
Rajah 6 menunjukkan susunan radas untuk mengkaji tindak balas penyesaran halogen di antara air bromin dan larutan kalium iodida.

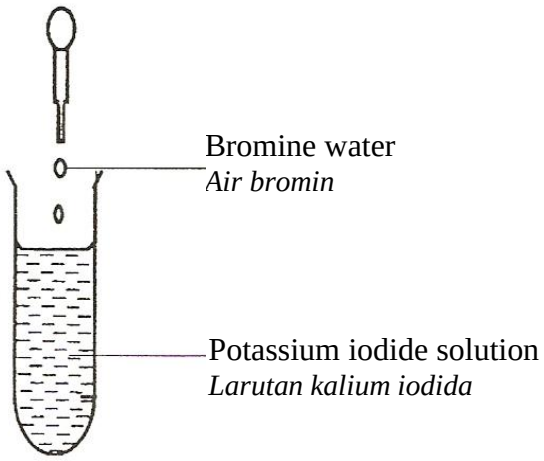


Diagram 6
Rajah 6

1,1,1-trichloroethane is added into the mixture and shaken thoroughly.
1,1,1-trikloroetana ditambah ke dalam campuran itu dan digoncang lagi dengan sempurna.

(i) State the function of bromine water.
Nyatakan fungsi air bromin.

……..
[1 mark]

(ii) State one observation after 1,1,1-trichloroethane is added to the mixture.
Nyatakan satu pemerhatian setelah 1,1,1-trichloroetana ditambah kepada campuran.

……..
[1 mark]

(iii) Write the ionic equation for the reaction.
Tuliskan persamaan ion bagi tindak balas ini.

……..
[2 marks]

(iv) State the change in the oxidation number of iodine.
Nyatakan perubahan nombor pengoksidaan bagi iodin.

……..
[1 mark]

(v) Name another reagent that can replace bromine water.
Namakan reagen lain yang boleh menggantikan air bromin.

……..

[1 mark]

(b) An experiment is carried out to study the reactivity of metals with oxygen.
Satu eksperimen telah dijalankan untuk mengkaji kereaktifan logam terhadap oksigen.

Table 6 shows the observations and the colour of the residue for each metal.
Jadual 6 menunjukkan pemerhatian dan warna baki pemanasan bagi setiap logam itu.

Metal ***Logam***	**Observation** ***Pemerhatian***	**Colour of Residue** ***Warna Baki***
W	Glow brightly *Membara terang*	Yellow when hot white when cold *Kuning semasa panas* *putih semasa sejuk*
X	Glow faintly *Membara malap*	Black *Hitam*
Y	Burn brightly *Menyala terang*	White *Putih*

Table 6
Jadual 6

(i) Draw the diagram of the apparatus set-up for the experiment.
Lukiskan diagram bagi susunan radas bagi eksperimen ini.

[2 marks]

(ii) Suggest metal W.
Cadangkan logam W.

……..
[1 mark]

(iii) Based on your answer in **6**(b)(ii),
Write the chemical equation for the reaction between metal W and oxygen.
Berdasarkan jawapan anda dalam 6(b)(ii),
Tuliskan persamaan kimia bagi tindak balas antara metal W dan oksigen.

……..
[1 mark]

(iv) Based on the observations, arrange metals W, X and Y in descending order of the reactivity towards oxygen.
Berdasarkan kepada pemerhatian, susunkan logam-logam W, X and Y *mengikut tertib menurun dalam kereaktifan terhadap oksigen.*

……..
[1 mark]

Section B
Bahagian B

[20 marks]
[20 markah]

Answer any **one** questions from this section.
*Jawab mana-mana **satu** soalan daripada bahagian ini*

7. (a) Diagram 7.1 shows a frying pan and a water pipe.
Rajah 7.1 menunjukkan sebuah kuali dan sebatang paip air.

Diagram 7.1
Rajah 7.1

State the type of glass and polymer to make the glass lid and the water pipe.
Give a reason to each of your answer based on the property of each material.
Nyatakan jenis kaca dan polimer untuk membuat penutup kaca dan paip air itu.
Berikan satu sebab bagi setiap jawapan anda berdasarkan sifat setiap bahan itu.

[4 marks]

(b) Sulphuric acid is manufactured in industry through Contact Process. The process consists of three stages.
Asid sulfurik dihasilkan dalam industri melalui Proses Sentuh. Proses itu terdiri daripada tiga peringkat.

Stage 1 *Peringkat 1*	Molten sulphur is burnt in dry air to produce sulphur dioxide. *Leburan sulfur dibakar dalam udara untuk menghasilkan sulfur dioksida.* $S + O_2 \rightarrow SO_2$
Stage 2 *Peringkat 2*	Sulphur dioxide and excess oxygen gas are reacted to produce sulphur trioxide. *Sulfur dioksida dan gas oksigen berlebihan bertindak balas untuk menghasilkan sulfur trioksida.* $2SO_2 + O_2 \rightleftharpoons 2SO_3$
Stage 3 *Peringkat 3*	Sulphur trioxide is first reacted with concentrated sulphurid acid to form oleum. The oleum is then diluted with water to produce sulphuric acid. *Sulfur trioksida pada mulanya bertindak balas dengan asid sulfurik pekat untuk membentuk oleum. Kemudian oleum itu dicairkan dengan air untuk menghasilkan asid sulfurik.*

Table 7.1
Jadual 7.1

(i) 8 g of sulphur is burnt completely in Stage 1. Calculate the volume of sulphur dioxide produced.
[Relative atomic mass: S = 32 ; Molar volume = 24 dm^3 mol^{-1} at room condition]
8 g sulfur dibakar dengan lengkap dalam Peringkat 1. Hitungkan isi padu sulfur dioksida yang dihasilkan.
[Jisim atom relatif: S = 32 ; Isi padu molar = 24 dm^3 mol^{-1} pada keadaan bilik]

[2 marks]

(ii) Describe how sulphur dioxide gas can cause environmental pollution and state two effects of pollution cause by sulphur dioxide gas.
Huraikan bagaimana gas sulfur dioksida boleh menyebabkan pencemaran alam sekitar dan nyatakan dua kesan pencemaran yang disebabkan oleh gas sulfur dioksida.

[3 marks]

(iii) Write the chemical equation for the formation of oleum in Stage 3.
Tuliskan persamaan kimia bagi pembentukan oleum dalam Peringkat 3.

[1 mark]

(c) Diagram 7.2 shows two experiments to investigate the effectiveness of the cleansing action between cleaning agents X and Y.
Rajah 7.2 menunjukkan dua eksperimen untuk mengkaji keberkesanan tindakan pencucian antara agen pencuci X dan agen pencuci Y.

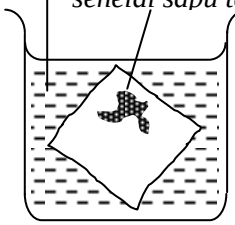
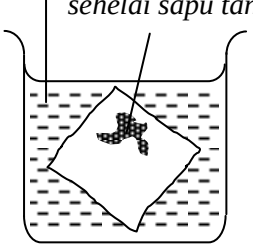
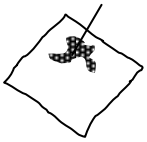
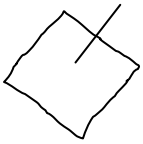
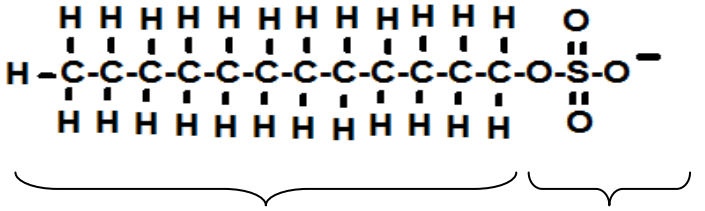
Experiment *Eksperimen*	**I**	**II**
Cleaning agent *Agen pencuci*	**X**	**Y**
Chemical formula *Formula kimia*	$CH_3(CH_2)_{14}COO^-K^+$	$CH_3(CH_2)_{11}OSO_3^-K^+$
Cleaning in hard water *Pencucian dalam air liat*	Hard water + cleaning agent X *Air liat + agen pencuci X* Oil stain on a handkerchief *Kotoran bergris pada sehelai sapu tangan* 	Hard water + cleaning agent Y *Air liat + agen pencuci Y* Oil stain on a handkerchief *Kotoran bergris pada sehelai sapu tangan* 
Observation *Pemerhatian*	Oil stain remains *Kesan minyak kekal* 	Oil stain is removed *Kesan minyak hilang* 

Diagram 7.2
Rajah 7.2

(i) Based on Diagram 7.2, compare and contrast the effectiveness of the cleansing action between cleaning agent X and cleaning agent Y in hard water. Explain your answer.
Berdasarkan Rajah 7.2, banding dan bezakan keberkesanan tindakan pencucian antara agen pencuci X dan agen pencuci Y dalam air liat. Terangkan jawapan anda.

[5 marks]

(ii) Diagram 7.3 shows the structure of a particle of agent Y.
Rajah 7.3 menunjukkan struktur bagi suatu zarah agen Y.



Part P
Bahagian P

Part Q
Bahagian Q

Diagram 7.3
Rajah 7.3

State the name of part P and part Q. Explain the role of part P and part Q in the cleansing action.
Nyatakan nama bahagian P dan bahagian Q. Terangkan peranan bahagian P dan bahagian Q dalam tindakan pencucian.

[5 marks]

8 (a) Diagram 8.1 shows a chemical cell and an electrolytic cell. Metal P is situated below zinc in the electrochemical series.
Rajah 8.1 menunjukkan satu sel kimia dan satu sel elektrolisis. Logam P terletak di bawah zink dalam siri elektrokimia.

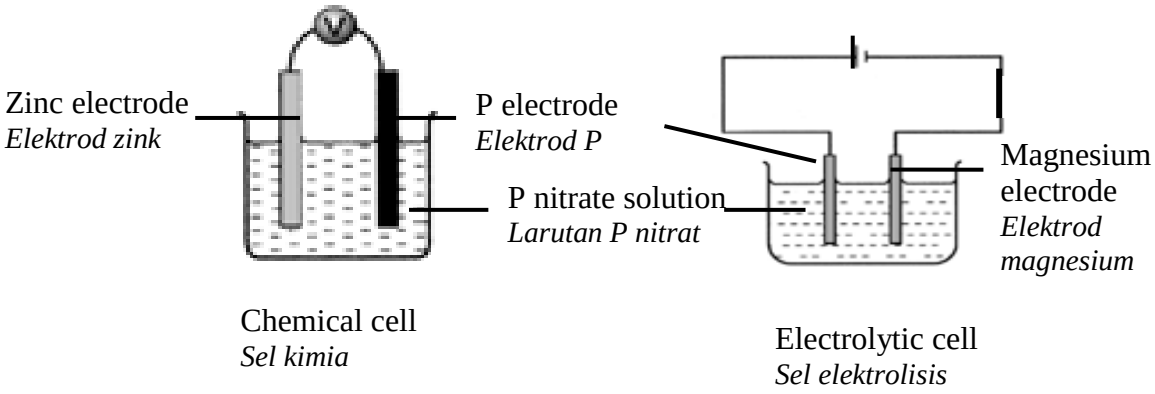


Diagram 8.1
Rajah 8.1

Based on Diagram 8.1, state:
Berdasarkan Rajah 8.1, nyatakan:

- the negative terminal for chemical cell and electrolytic cell.
terminal negatif untuk sel kimia dan sel elektrolisis tersebut.

- the flow of direction of electron for the chemical cell and electrolytic cell.
arah pengaliran elektron bagi sel kimia dan sel elektrolisis tersebut.

[4 marks]

(b) A student wants to electroplate iron spoon with silver metal to make it more shining and attractive. The following are materials that used in the electroplating process.
Seorang pelajar ingin menyadur sudu besi dengan logam argentum agar kelihatan berkilat dan menarik. Berikut adalah bahan-bahan yang digunakan dalam proses penyaduran tersebut.

- Silver plate
  Kepingan argentum
- Iron spoon
  Sudu besi
- Silver sulphate solution
  Larutan argentum sulfat

Referring to the above materials, plan one laboratory experiment to electroplate the iron spoon. Your answer should include the following :
Merujuk pada bahan-bahan di atas, rancangkan satu eksperimen makmal bagi proses penyaduran sudu besi tersebut. Jawapan anda perlu mengandungi perkara berikut:

- A labelled diagram showing the apparatus set-up.
  Gambar rajah berlabel menunjukkan susunan radas.

- Procedure of experiment
  Prosedur eksperimen

- The half-equations for the reaction at cathode ***or*** anode.
  *Setengah persamaan bagi tindak balas yang berlaku di katod **atau** di anod.*

[6 marks]

(c) Diagram 8.2 shows the set-up of apparatus for a chemical cell. Metal Q is placed above copper in the electrochemical series and act as a positive terminal in the chemical cell.
Rajah 8.2 menunjukkan susunan radas bagi satu sel kimia. Logam Q terletak di atas kuprum dalam siri elektrokimia dan berfungsi sebagai terminal positif dalam sel kimia itu.

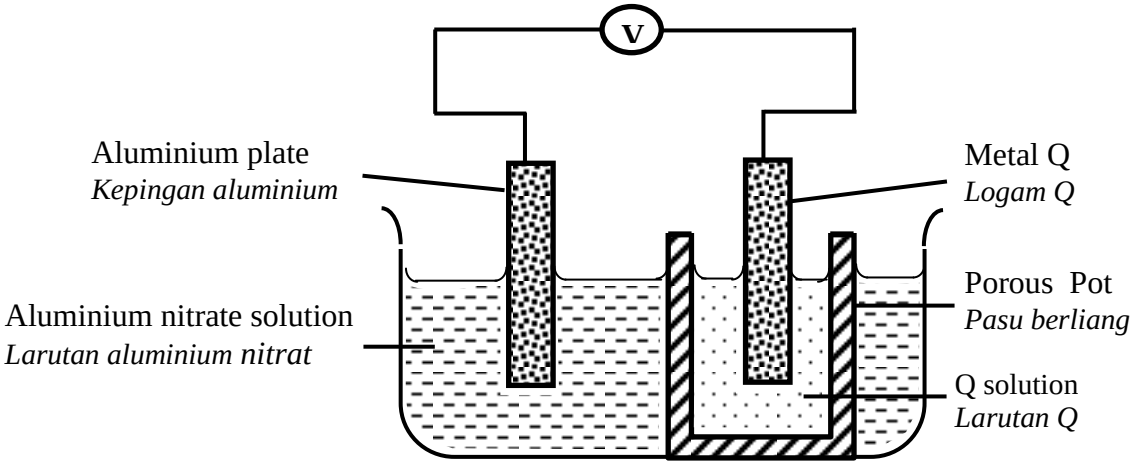


Diagram 8.2
Rajah 8.2

Describe how the set-up of apparatus can be function as a chemical cell. Your answer should include :
Terangkan bagaimana susunan radas itu boleh berfungsi sebagai sel kimia. Jawapan anda haruslah mengandungi:

- the suitable name of metal Q and Q solution
  nama logam Q dan larutan Q yang sesuai
- the direction of flow of electrons
  arah pengaliran elektron
- the half equations for the reaction at positive and negative terminals
  setengah persamaan tindak balas yang berlaku di terminal positif dan negatif
- an ionic equation for the reaction
  persamaan ion bagi tindak balas
- the function of porous pot
  fungsi pasu berliang
- the observations after 30 minutes the reaction occur
  pemerhatian selepas 30 minit tindak balas berlaku

[10 marks]

9. (a) By using suitable examples, state two applications of neutralisation in daily life .
Dengan menggunakan contoh yang sesuai, nyatakan dua aplikasi peneutralan dalam kehidupan harian.

[4 marks]

(b) Diagram 9 shows the pH values for solutions of alkali Q and alkali R which have same concentration.
Rajah 9 menunjukkan nilai pH bagi alkali Q dan alkali R yang mempunyai kepekatan yang sama.

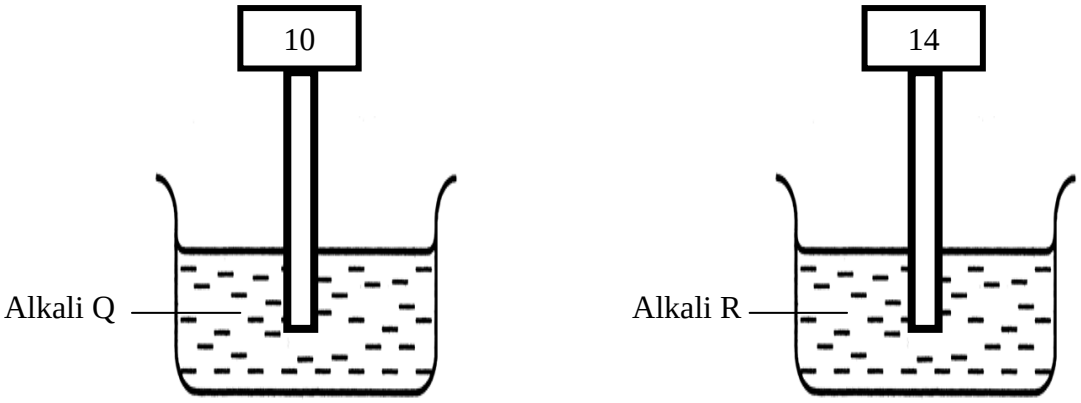


Diagram 9
Rajah 9

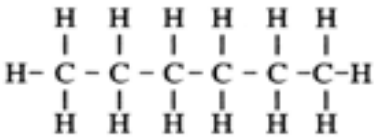
By using one named example for each alkali, explain why the pH values of the alkalis are different.
Dengan menamakan satu contoh bagi setiap alkali, terangkan mengapa nilai pH bagi setiap alkali itu berbeza.

[6 marks]

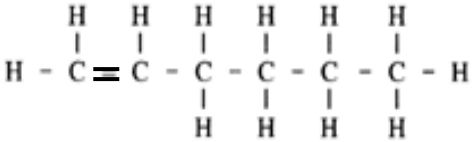
(c) Solution X and solution Y are used to prepare barium carbonate salt.
Describe the preparation of barium carbonate salt in the laboratory.
In your description, include the chemical equation involved.
Larutan X dan larutan Y digunakan untuk menyediakan garam barium karbonat.
Huraikan penyediaan garam barium karbonat dalam makmal.
Dalam huraian anda, sertakan persamaan kimia yang terlibat.

[10 marks]

10(a) Diagram 10.1 shows the structural formulae of compound A and compound B.
Rajah 10.1 menunjukkan formula struktur bagi sebatian A dan sebatian B.



Compound A
Sebatian A



Compound B
Sebatian B

Diagram 10.1
Rajah 10.1

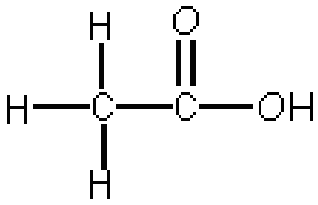
Compound A and compound B are burnt completely in oxygen to produce carbon dioxide gas and water.
Sebatian A dan sebatian B terbakar lengkap dalam oksigen menghasilkan gas karbon dioksida dan air.

(i) Name compound B.
Namakan sebatian B.

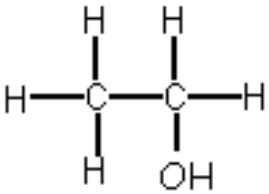
(ii) Compound B produced more soot than compound A when burnt in oxygen. Explain why.
Sebatian B menghasilkan lebih jelaga daripada sebatian A apabila terbakar dalam oksigen. Terangkan mengapa.
[Relative molecular mass of: A = 86, B = 84]
[*Jisim molekul relatif: A = 86, B = 84*]

[4 marks]

(b) Diagram 10.2 shows the structural formulae of compound J and compound K.
Rajah 10.2 menunjukkan formula struktur bagi sebatian J dan sebatian K.



Compound J
Sebatian J



Compound K
Sebatian K

Diagram 10.2
Rajah 10.2

State one physical property of compound K . Describe briefly a chemical test to differentiate between compound J and compound K.
Nyatakan satu sifat fizik Sebatian K. Huraikan secara ringkas satu ujian kimia untuk membezakan antara sebatian J dan sebatian K.

[6 marks]

(c) Alcohols undergo dehydration reaction to produce alkenes and water.
Describe how to prepare an alkene from a named alcohol through dehydration process. In your description, include the diagram of the apparatus set-up and balanced chemical equation for the reaction.
Alkohol mengalami tindak balas pendehidratan untuk menghasilkan alkena dan air. Huraikan bagaimana satu alkena disediakan daripada alkohol yang dinamakan melalui proses pendehidratan. Dalam huraian anda, sertakan gambar rajah bagi susunan radas dan persamaan kimia seimbang bagi tindak balas itu.

[10 marks]

END OF QUESTION PAPER
KERTAS SOALAN TAMAT