



**PROGRAM GEMPUR KECEMERLANGAN
SIJIL PELAJARAN MALAYSIA 2018
ANJURAN BERSAMA
MAJLIS PENGETUA SEKOLAH MALAYSIA
NEGERI PERLIS
DAN
MAJLIS GURU CEMERLANG NEGERI PERLIS**



SIJIL PELAJARAN MALAYSIA 2018

4541/1

KIMIA

Kertas 1

Ogos

1 ¼ jam

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

Arahan:

- 1. Kertas soalan ini mengandungi **50** soalan.*
- 2. Jawab **semua** soalan.*
- 3. Tiap-tiap soalan diikuti oleh empat pilihan jawapan iaitu **A, B, C dan D**. Bagi tiap-tiap soalan, pilih **satu** jawapan sahaja. **Hitamkan** jawapan anda pada kertas jawapan objektif yang disediakan.*

Kertas soalan ini mengandungi 28 halaman bercetak.

[Lihat halaman sebelah

SULIT

- 1 Which substance is an atom?
Bahan manakah yang merupakan suatu atom?
- A Helium gas
Gas helium
 - B Oxygen gas
Gas oksigen
 - C Hydrogen gas
Gas hidrogen
 - D Ammonia gas
Gas Ammonia
- 2 What is the meaning of melting point?
Apakah yang dimaksudkan dengan takat lebur?
- A The temperature at which a substance changes from solid to liquid at a particular pressure.
Suhu di mana suatu bahan berubah daripada pepejal kepada cecair pada tekanan tertentu.
 - B The temperature at which a substance changes from liquid to solid at a particular pressure.
Suhu di mana suatu bahan berubah daripada cecair kepada pepejal pada tekanan tertentu.
 - C The point at which a substance changes from solid to liquid at a particular pressure.
Takat di mana suatu bahan berubah daripada pepejal kepada cecair pada tekanan tertentu.
 - D The point at which a substance changes from liquid to solid at a particular pressure.
Takat di mana suatu bahan berubah daripada cecair kepada pepejal pada tekanan tertentu.
- 3 Which chemical cell is **not** rechargeable?
*Sel kimia manakah yang **tidak boleh** dicas semula?*
- A Mercury cell
Sel merkuri
 - B Lithium-ion cell
Sel ion litium
 - C Nickel-cadmium cell
Sel nikel-kadmium
 - D Lead-acid accumulator cell
Sel akumulator asid -plumbum

- 4 The following information shows some characteristics of tuberculosis.
Maklumat berikut menunjukkan beberapa ciri mengenai penyakit batuk kering.

- Suffer from a dry cough and sputum containing blood.
Mengalami batuk kering dan mengeluarkan kahak berdarah
- Caused by bacteria
Disebabkan oleh bakteria

Which of the following can be used to treat tuberculosis?

Antara berikut, yang manakah dapat digunakan untuk merawat batuk kering?

- A** Streptomycin
Streptomisin
- B** Paracetamol
Parasetamol
- C** Barbiturate
Barbiturat
- D** Penicillin
Penisilin
- 5 What are the major components used in the making of soda-lime glass?
Apakah komponen utama untuk pembuatan kaca soda kapur?
- A** Silicon dioxide
Silikon dioksida
- B** Silicon dioxide and boron oxide
Silikon dioksida dan boron oksida
- C** Silicon dioxide and lead(II) oxide
Silikon dioksida dan plumbum(II) oksida
- D** Silicon dioxide, sodium oxide and calcium oxide
Silikon dioksida, natrium oksida dan kalsium oksida
- 6 Which of the following is an isomer for pentane, C₅H₁₂?
Antara berikut yang manakah merupakan satu isomer bagi pentana, C₅H₁₂?
- A** 2-methylpropane
2-metilpropana
- B** 2-methylpentane
2-metilpentana
- C** 2,2-dimethylbutane
2,2-dimetilbutana
- D** 2,2-dimethylpropane
2,2-dimetilpropana

[Lihat halaman sebelah

SULIT

- 7 Diagram 1 shows the set-up of the apparatus to determine the empirical formula of a metal oxide.
Rajah 1 menunjukkan susunan radas untuk menentukan formula empirik suatu oksida logam.

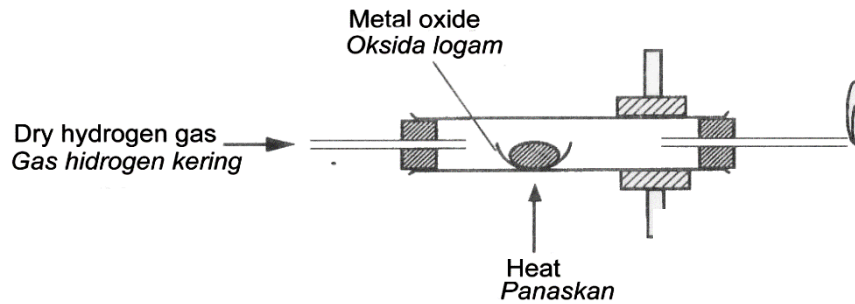


Diagram 1
Rajah 1

- Which of the following metal oxides is suitable to be used in Diagram 1?
Antara oksida logam berikut, yang manakah sesuai digunakan dalam Rajah 1?
- A Zinc oxide
Zink oksida
 - B Ferum oxide
Ferum oksida
 - C Aluminium oxide
Aluminium oksida
 - D Magnesium oxide
Magnesium oksida
- 8 Which of the following is the correct change in property of elements when going down Group 18 in the Periodic Table of Elements?
Antara berikut, yang manakah betul mengenai perubahan sifat unsur apabila menuruni Kumpulan 18 dalam Jadual Berkala Unsur?
- A Density decreases
Ketumpatan berkurang
 - B Can conduct electricity
Boleh mengkonduksi arus elektrik
 - C The relative atomic mass decreases
Jisim atom relatif berkurang
 - D Melting points and boiling points increases
Takat lebur dan takat didih bertambah

- 9 Which of the following is the property of aluminium oxide?
Antara berikut, yang manakah sifat aluminium oksida?
- A Soluble in water
Larut dalam air
- B Soluble in organic solvent
Larut dalam pelarut organik
- C High melting and boiling points
Takat lebur dan takat didih tinggi
- D Can conduct electricity in solid and molten state
Boleh mengkonduksi elektrik dalam keadaan pepejal dan leburan
- 10 Which substance is an acid?
Bahan manakah adalah suatu asid?
- A SO_2
- B MgO
- C KOH
- D Al(OH)_3
- 11 Which pair is correct about voltaic cell and electrolytic cell?
Pasangan yang manakah betul tentang sel voltan dan sel elektrolisis?

	Voltaic cell <i>Sel voltan</i>	Electrolytic cell <i>Sel elektrolisis</i>
A	Does not contain electrolyte <i>Tidak mengandungi elektrolit</i>	Contain electrolyte <i>Mengandungi elektrolit</i>
B	Electron flow from cathode to anode <i>Elektron mengalir dari katod ke anod</i>	Electron flow from anode to cathode <i>Elektron mengalir dari anod ke katod</i>
C	Two different type of metals used as electrodes <i>Dua logam yang berlainan jenis digunakan sebagai elektrod</i>	The same type of metals used as electrodes <i>Logam yang sama jenis digunakan sebagai elektrod</i>
D	Convert electrical energy to chemical energy <i>Menukarkan tenaga elektrik kepada tenaga kimia</i>	Convert chemical energy to electrical energy <i>Menukarkan tenaga kimia kepada tenaga elektrik</i>

[Lihat halaman sebelah

SULIT

12 Which characteristic is similar for all elements of Group 17 in the Periodic Table of Elements?

Ciri manakah yang sama bagi semua unsur Kumpulan 17 dalam Jadual Berkala Unsur?

- A** Can act as catalyst
Boleh bertindak sebagai mangkin
- B** Low melting and boiling points
Takat lebur dan takat didih yang rendah
- C** Exist as gas at room temperature
Wujud sebagai gas pada suhu bilik
- D** Dissolve in water to form acidic solution
Larut dalam air untuk membentuk larutan berasid

13 Which statement is correctly describe a strong acid?

Pernyataan yang manakah menerangkan asid kuat dengan betul?

- I** Has high pH value
Mempunyai nilai pH yang tinggi
 - II** Ionizes completely in water
Mengion dengan lengkap dalam air
 - III** Has high concentration of hydrogen ions
Mempunyai kepekatan ion hidrogen yang tinggi
 - IV** Exists as molecules in water
Wujud sebagai molekul dalam air
- A** I and II
I dan II
 - B** II and III
II dan III
 - C** I and IV
I dan IV
 - D** III and IV
III dan IV

- 14 Table 1 shows the observations for three sets of test towards solution Y.
Jadual 1 menunjukkan pemerhatian bagi tiga set ujian terhadap larutan Y.

Set / set	Test / ujian	Observation / pemerhatian
I	Add sodium hydroxide solution until excess <i>Tambah larutan natrium hidroksida sehingga berlebihan</i>	White precipitate which dissolves in excess sodium hydroxide solution <i>Mendakan putih larut dalam larutan natrium hidroksida berlebihan</i>
II	Add ammonia solution until excess <i>Tambah larutan ammonia sehingga berlebihan</i>	White precipitate dissolves in excess ammonia solution <i>Mendakan putih larut dalam larutan ammonia berlebihan</i>
III	Add 2 cm ³ of dilute nitric acid and a few drops of silver nitrate solution <i>Tambah 2 cm³ asid nitrik cair dan beberapa titis larutan argentum nitrat</i>	White precipitate formed <i>Mendakan putih terbentuk</i>

Table 1
Jadual 1

What is Y?

Apakah Y?

- A Zinc chloride
Zink klorida
- B Zinc sulphate
Zink sulfat
- C Aluminium chloride
Aluminium klorida
- D Aluminium sulphate
Aluminium sulfat
- 15 Which ion forms a white precipitate that dissolves in excess ammonia solution?
Ion yang manakah membentuk satu mendakan putih yang larut dalam larutan ammonia berlebihan?
- A Al³⁺
- B Mg²⁺
- C Pb²⁺
- D Zn²⁺

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SULIT

16 Which statements are correct about vulcanized rubber?

Pernyataan yang manakah betul tentang getah tervulkan?

- I Easily oxidized
Mudah dioksidakan
 - II Not heat resistant
Tiada ketahanan terhadap haba
 - III Stronger than unvulcanized rubber
Lebih kuat daripada getah tak tervulkan
 - IV More elastic than unvulcanized rubber
Lebih kenyal daripada getah tak tervulkan
- A I and II
I dan II
- B I and III
I dan III
- C II and IV
II dan IV
- D III and IV
III dan IV

17 Which substance can be used to convert Fe^{2+} to Fe^{3+} ?

Bahan manakah yang boleh digunakan untuk menukar Fe^{2+} kepada Fe^{3+} ?

- A Zinc
Zink
- B Chlorine water
Air klorin
- C Sulphur dioxide gas
Gas sulfur dioksida
- D Potassium bromide solution
Larutan kalium bromida

- 18 Diagram 2 shows the condition of a homemade bread after being left for a few days in the kitchen cabinet.

Rajah 2 menunjukkan keadaan roti buatan sendiri selepas dibiarkan beberapa hari di dapur.



Diagram 2

Rajah 2

Which substance should be added to prevent the bread from turning bad quickly?

Apakah bahan yang perlu ditambah untuk mengelakkan roti itu daripada cepat rosak?

- A** Antioxidant
Pengantioksida
- B** Preservatives
Pengawet
- C** Flavourings
Perisa
- D** Stabilisers
Penstabil
- 19 The rate of reaction increases when a few drops of copper(II) sulphate is added to a mixture of magnesium powder and dilute nitric acid.
Kadar tindakbalas meningkat apabila beberapa titis larutan kuprum(II) sulfat ditambah kepada campuran serbuk magnesium dan asid nitrik cair,
Which statement best explains why the rate of reaction increase?
Pernyataan manakah yang terbaik menerangkan mengapa kadar tindakbalas meningkat?
- A** The activation energy is lowered
Tenaga pengaktifan dikurangkan
- B** The kinetic energy of the reactant particles increases
Tenaga kinetik zarah-zarah bahan tindak balas bertambah
- C** The total surface area of the reactant particles increases
Jumlah luas permukaan zarah-zarah bahan tindak balas bertambah
- D** The total number of reactant particles per unit volume increases
Jumlah bilangan zarah-zarah bahan tindak balas per unit isi padu bertambah

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SULIT

- 20 Diagram 3 shows the energy level diagram for the decomposition of calcium carbonate.
Rajah 3 menunjukkan gambar rajah aras tenaga bagi penguraian kalsium karbonat.

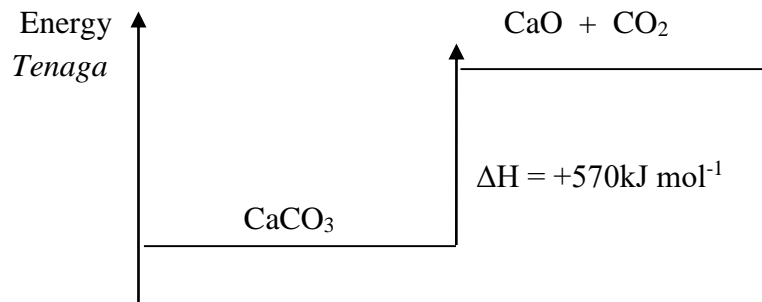


Diagram 3
Rajah 3

Which statement is correct about the Diagram 3?

Pernyataan manakah betul mengenai Rajah 3?

- A The reaction is exothermic
Tindak balas tersebut adalah eksotermik
- B Heat is released in the reaction
Haba dibebaskan dalam tindak balas tersebut
- C The reactant has lower energy than the products
Bahan tindak balas mempunyai tenaga yang lebih rendah daripada hasil tindak balas
- D Total energy of the reactant and the products is 570 kJ
Jumlah tenaga bagi bahan tindak balas dan hasil tindak balas adalah 570 kJ
- 21 The following ionic equation represents a redox reaction.
Persamaan ion berikut mewakili satu tindak balas redoks.



Which of the following is correct about the equation?

Manakah berikut adalah betul mengenai persamaan itu?

- A The oxidation number of copper changes from 0 to +2
Nombor pengoksidaan kuprum berubah dari 0 kepada +2
- B Zinc is a oxidizing agent
Zink adalah agen pengoksidaan
- C Cooper(II) ion is oxidized
Ion kuprum(II) dioksidakan
- D Zinc atom donates electrons
Atom zink menderma elektron

- 22 Diagram 4 shows a musical instrument made from alloy X.
Rajah 4 menunjukkan satu alat muzik yang diperbuat daripada aloi X.



Diagram 4
Rajah 4

- What is alloy X?
Apakah aloi X?
- A Bronze
Gangsa
 - B Brass
Loyang
 - C Pewter
Peuter
 - D Steel
Keluli
- 23 An electrolysis of 1.0 mol dm^{-3} copper(II) chloride solution is carried out by using carbon electrodes.
What is formed at anode?
Satu elektrolisis larutan kuprum(II) klorida 1.0 mol dm^{-3} telah dijalankan dengan menggunakan elektrod karbon.
Apakah yang dihasilkan di anod?
- A Copper
Kuprum
 - B Oxygen
Oksigen
 - C Chlorine
Klorin
 - D Hydrogen
Hidrogen

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SULIT

- 24 Diagram 5 shows the electron arrangement of compound XY_2 .
Rajah 5 menunjukkan susunan elektron bagi sebatian XY_2 .

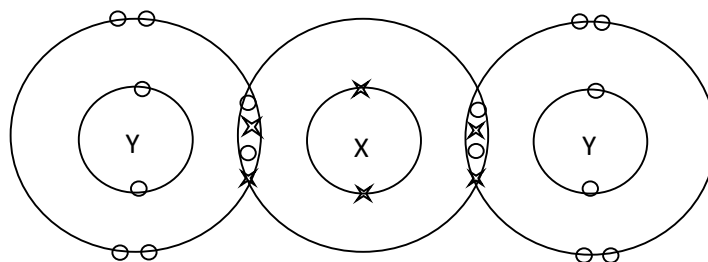
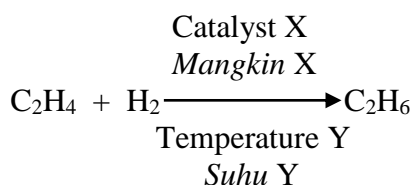


Diagram 5
Rajah 5

- Which of the following is the correct about compound XY_2 ?
Antara berikut, yang manakah betul mengenai sebatian XY_2 ?
- A Compound XY_2 soluble in organic solvent
Sebatian XY_2 larut dalam pelarut organik
- B The electron arrangement of atom X is 2.8
Susunan elektron bagi atom X ialah 2.8
- C Two atoms Y donate two electrons to an atom X
Dua atom Y menderma dua elektron kepada satu atom X
- D One atom X share four pairs of electrons with one atom Y
Satu atom X berkongsi empat pasang elektron dengan satu atom Y
- 25 The following chemical equation represents the conversion of ethene to ethane.
Persamaan kimia berikut mewakili penukaran etena kepada etana.



- Which of the following represent catalyst X and temperature Y?
Antara berikut, yang manakah mewakili mangkin X dan suhu Y?

	Catalyst X Mangkin X	Temperature Y (°C) Suhu Y (°C)
A	Fe	100
B	Ni	180
C	H ₃ PO ₄	300
D	MnO ₂	450

- 26 Diagram 6 shows the chemical formula a compound.
Rajah 6 menunjukkan formula kimia bagi satu sebatian.

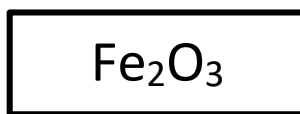


Diagram 6

Rajah 6

What is the IUPAC name and oxidation number of ferum element in the compound?
Apakah nama IUPAC dan nombor pengoksidaan bagi unsur ferum dalam sebatian itu?

	Name of compound <i>Nama sebatian</i>	Oxidation number of ferum element <i>Nombor pengoksidaan unsur ferum</i>
A	Ferum(II) oxide <i>Ferum(II) oksida</i>	+2
B	Ferum(II) oxide <i>Ferum(II) oksida</i>	+3
C	Ferum(III) oxide <i>Ferum(III) oksida</i>	+2
D	Ferum(III) oxide <i>Ferum(III) oksida</i>	+3

- 27 A substance has the following characteristics
Suatu bahan mempunyai ciri-ciri berikut.

<ul style="list-style-type: none"> • Decolourised acidified potassium manganate(VII) solution <i>Menyahwarnakan larutan kalium manganat(VII) berasid</i> • Both moist blue and red litmus papers remained unchanged <i>Kedua-dua kertas litmus biru dan merah lembap kekal tidak berubah</i> • Reacts with carboxylic acid produces sweet fruity smell <i>Bertindak balas dengan asid karboksilik menghasilkan bau manis buah-buahan</i>

What is the molecular of the substance?
Apakah fomula molekul bagi bahan itu?

- A C_2H_6
- B $\text{C}_2\text{H}_5\text{OH}$
- C $\text{C}_2\text{H}_5\text{COOH}$
- D $\text{C}_2\text{H}_5\text{COOC}_2\text{H}_5$

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SULIT

- 28 Diagram 7 shows a chemical cell.
Rajah 7 menunjukkan satu sel kimia

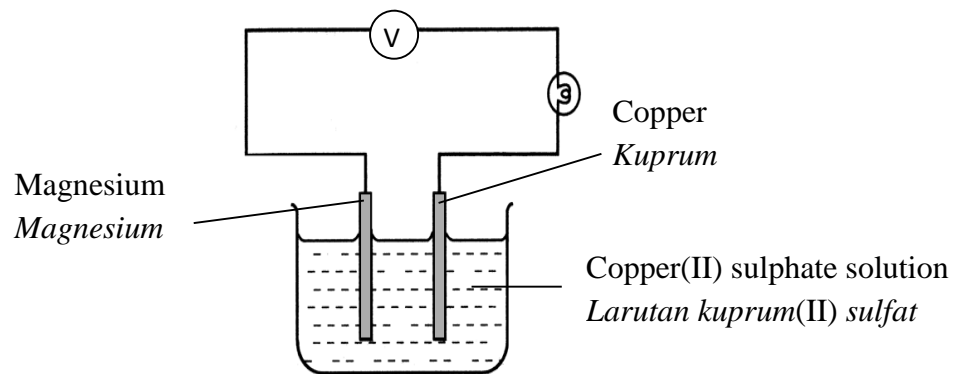


Diagram 7
Rajah 7

Which of the following statement is correct if magnesium is replaced by silver plate?
Pernyataan manakah benar jika magnesium digantikan dengan argentum?

- A The intensity of blue colour copper(II) sulphate decreases
Keamatan warna biru larutan kuprum(II) sulfat berkurang
- B Electrons flow from silver to copper
Elektron bergerak dari argentum ke kuprum
- C Silver becomes a positive terminal
Argentum menjadi terminal positif
- D Copper become thicker
Kuprum menjadi tebal
- 29 Which substance is a covalent compound?
Bahan yang manakah merupakan sebatian kovalen?
- A Manganese(IV) oxide
Mangan(IV) oksida
- B Silicon(IV) oxide
Silikon(IV) oksida
- C Copper(II) oxide
Kuprum(II) oksida
- D Lead(II) oxide
Plumbum(II) oksida

- 30 Table 2 shows the substances used in two sets of experiment to study the rate of reaction.

Jadual 2 menunjukkan bahan-bahan yang digunakan dalam dua set eksperimen untuk mengkaji kadar tindak balas.

Experiment <i>Eksperimen</i>	Substances <i>Bahan</i>
I	Excess calcium carbonate granules and 50 cm ³ of 1.0 mol dm ⁻³ hydrochloric acid. <i>Ketulan kalsium karbonat berlebihan dan 50 cm³ asid hidroklorik 1.0 mol dm⁻³.</i>
II	Excess calcium carbonate powder and 50 cm ³ of 1.0 mol dm ⁻³ hydrochloric acid. <i>Serbuk kalsium karbonat berlebihan dan 50 cm³ asid hidroklorik 1.0 mol dm⁻³.</i>

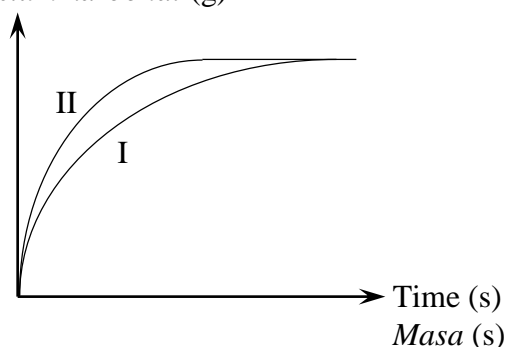
Table 2

Jadual 2

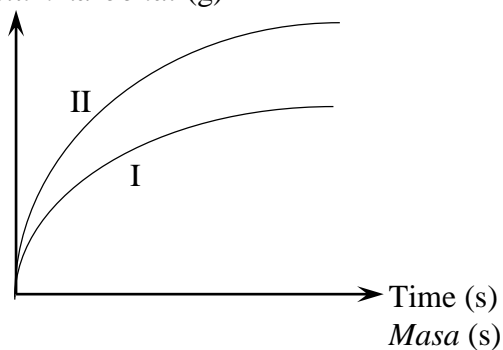
Which graph shows the correct changes in mass of calcium carbonate against time?

Graf manakah yang betul menunjukkan perubahan jisim kalsium karbonat melawan masa?

- A Mass of calcium carbonate (g)
Jisim kalsium karbonat (g)



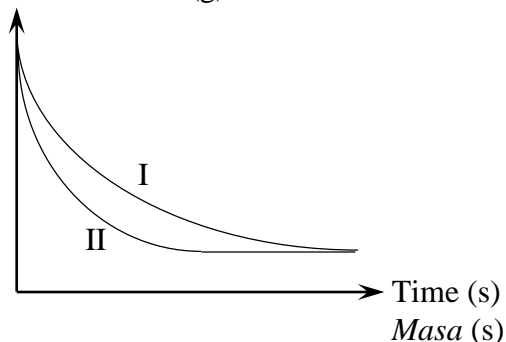
- B Mass of calcium carbonate (g)
Jisim kalsium karbonat (g)



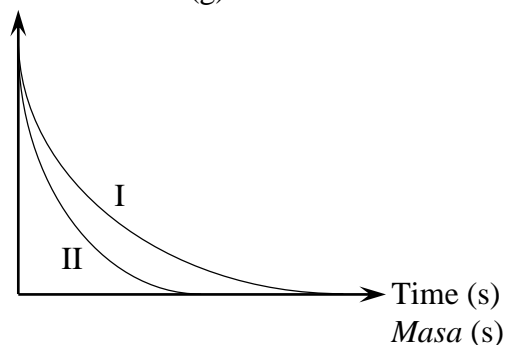
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- C Mass of calcium carbonate (g)
Jisim kalsium karbonat (g)



- D Mass of calcium carbonate (g)
Jisim kalsium karbonat (g)



- 31 Which of the following is the characteristic of a catalyst?
Antara berikut, yang manakah adalah sifat bagi satu mangkin?

- A Changes the rate of reaction.
Mengubah kadar tindak balas.
- B Changes the amount of the product.
Mengubah kuantiti hasil tindak balas.
- C Its amount decreases after the reaction.
Kuantitinya berkurangan selepas tindak balas.
- D Changes chemically at the end of the reaction.
Berubah secara kimia pada akhir tindak balas.

- 32 Four atoms of element X have the same mass with 11 atoms of sulphur, S.

What is the relative atomic mass of element X?

[Relative atomic mass: S=32]

Empat atom unsur X mempunyai jisim yang sama dengan 11 atom sulfur, S.

Berapakah jisim atom relatif X?

[Jisim atom relatif: S=32]

- A 44
- B 88
- C 128
- D 352

- 33 Diagram 8 shows the apparatus set-up to investigate the reactivity of halogen when react with iron.

Rajah 8 menunjukkan susunan radas untuk mengkaji kereaktifan halogen apabila bertindak balas dengan besi.

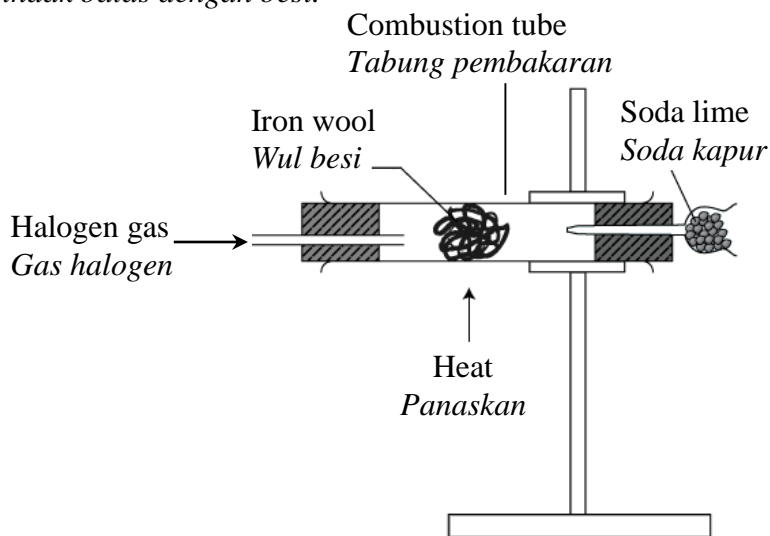


Diagram 8
Rajah 8

Table 3 shows the observation of each reaction.

Jadual 3 menunjukkan pemerhatian bagi setiap tindak balas.

Halogen <i>Halogen</i>	Observation <i>Pemerhatian</i>
X	Iron wool glows brightly. <i>Wul besi berbara terang.</i>
Y	Iron wool burnt brightly. <i>Wul besi terbakar dengan terang.</i>
Z	Iron wool glows faintly. <i>Wul besi berbara malap.</i>

Table 3
Jadual 3

Which of the following is the correct descending order of their reactivity?

Antara berikut, yang manakah tertib secara menurun yang betul bagi kereaktifannya?

- A X, Y, Z
- B X, Z, Y
- C Y, X, Z
- D Y, Z, X

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SULIT

- 34 Table 4 shows the information about two solutions.
Jadual 4 menunjukkan maklumat mengenai dua larutan.

Solution <i>Larutan</i>	Concentration (mol dm⁻³) <i>Kepekatan (mol dm⁻³)</i>
Hydrochloric acid <i>Asid hidroklorik</i>	0.5
Ethanoic acid <i>Asid etanoik</i>	0.5

Table 4
Jadual 4

Which statement is correct based on the information?
Pernyataan yang manakah betul berdasarkan maklumat tersebut?

- A The strength of both acids is the same.
Kekuatan kedua-dua asid adalah sama.
- B The pH value of hydrochloric acid is higher than ethanoic acid.
Nilai pH bagi asid hidroklorik lebih tinggi daripada asid etanoik.
- C The concentration of hydrogen ions in hydrochloric acid is lower than in ethanoic acid.
Kepekatan ion hidrogen dalam asid hidroklorik lebih rendah daripada asid etanoik.
- D The degree of dissociation of hydrochloric acid in water is higher than in ethanoic acid.
Darjah penceraian asid hidroklorik dalam air lebih tinggi daripada asid etanoik.
- 35 Decomposition of copper(II) nitrate produces copper(II) oxide, nitrogen dioxide and oxygen.
 Which of the following is the balanced chemical equation for the reaction?
Penguraian kuprum(II) nitrat menghasilkan kuprum(II) oksida, nitrogen dioksida dan oksigen.
Antara yang berikut, yang manakah persamaan kimia seimbang bagi tindak balas tersebut?

- A $\text{Cu}(\text{NO}_3)_2 \longrightarrow \text{CuO}_2 + 2\text{NO} + \text{O}_2$
- B $\text{Cu}(\text{NO}_3)_2 \longrightarrow \text{CuO} + 2\text{NO} + \text{O}_3$
- C $2\text{Cu}(\text{NO}_3)_2 \longrightarrow 2\text{CuO} + 4\text{NO}_2 + \text{O}_2$
- D $3\text{Cu}(\text{NO}_3)_2 \longrightarrow 3\text{CuO} + 6\text{NO}_2 + \text{O}_3$

- 36 Table 5 shows the temperature change when copper(II) sulphate solutions with different concentrations react with excess zinc.

Jadual 5 menunjukkan perubahan suhu apabila larutan kuprum(II) sulfat berlainan kepekatan bertindak balas dengan zink yang berlebihan.

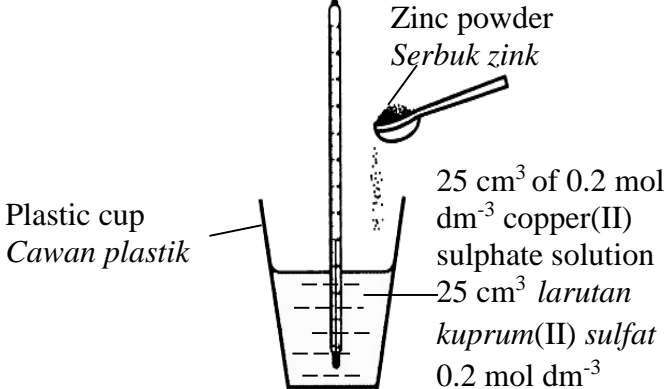
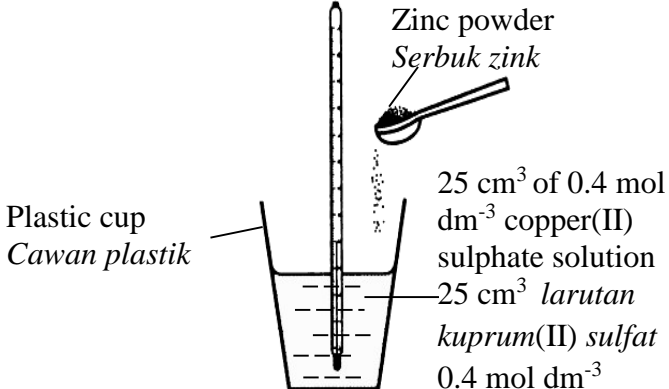
<p style="text-align: center;">Reactants <i>Bahan tindak balas</i></p>	<p style="text-align: center;">Temperature change(°C) <i>Perubahan suhu (°C)</i></p>
	<p>θ</p>
	<p>X</p>

Table 5
Jadual 5

What is X?

Apakah X?

- A $\frac{1}{2}\theta$
- B θ
- C 2θ
- D 4θ

[Lihat halaman sebelah

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- 37 What is the percentage of carbon atom by mass in hexane?
[Relative atomic mass: C=12, H=1]
Berapakah peratus atom karbon mengikut jisim dalam heksana?
[Jisim atom relatif: C=12, H=1]
- A 13.95%
- B 14.29%
- C 83.72%
- D 85.71%

- 38 Diagram 9 shows an archeologist intends to estimate age of object X.
Rajah 9 menunjukkan seorang ahli arkeologi ingin menganggar usia objek X.



Diagram 9
Rajah 9

- Which of following is suitable to be used?
Antara berikut, yang manakah sesuai digunakan?
- A Carbon-14
Karbon-14
- B Cobalt-60
Kobalt-60
- C Sodium-24
Natrium-24
- D Phosphorus-32
Fosforus-32

- 39** Milk of magnesia is an antacid used to relieve heartburn. The antacid consists of magnesium hydroxide which neutralises stomach acid to form a salt.
Which substances can be used to produce the salt in the laboratory?
Susu magnesia adalah sejenis antasid yang di gunakan untuk meredakan pedih ulu hati. Antasid tersebut terdiri daripada magnesium hidroksida yang boleh meneutralkan asid dalam perut membentuk garam.
Bahan manakah boleh digunakan untuk menghasilkan garam tersebut dalam makmal?
- A** Magnesium and copper(II) chloride
Magnesium dan kuprum(II) klorida
- B** Magnesium carbonate and hydrochloric acid
Magnesium karbonat dan asid hidroklorik
- C** Magnesium sulphate and potassium chloride
Magnesium sulfat dan kalium klorida
- D** Magnesium nitrate and sodium chloride
Magnesium nitrat dan natrium klorida
- 40** Diagram 10 shows that latex coagulates after several hours.
Rajah 10 menunjukkan susu getah menggumpal selepas beberapa jam.



Diagram 10

Rajah 10

What substance should be added into the latex to prevent it from coagulation?
Apakah bahan yang perlu ditambah ke dalam susu getah untuk mengelakkannya daripada menggumpal?

- A** Ethanoic acid
Asid etanoik
- B** Ascorbic acid
Asid askorbik
- C** Ammonia solution
Larutan ammonia
- D** Sodium chloride solution
Larutan natrium klorida

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- 41 Diagram 11 shows a graph the volume of gas released against time for the reaction between nitric acid with excess marble chips.
Rajah 11 menunjukkan graf isipadu gas yang terbebas melawan masa bagi tindak balas antara asid nitrik dengan ketulan marmar berlebihan.

Volume of gas released (cm^3)

Isipadu gas yang terbebas (cm^3)

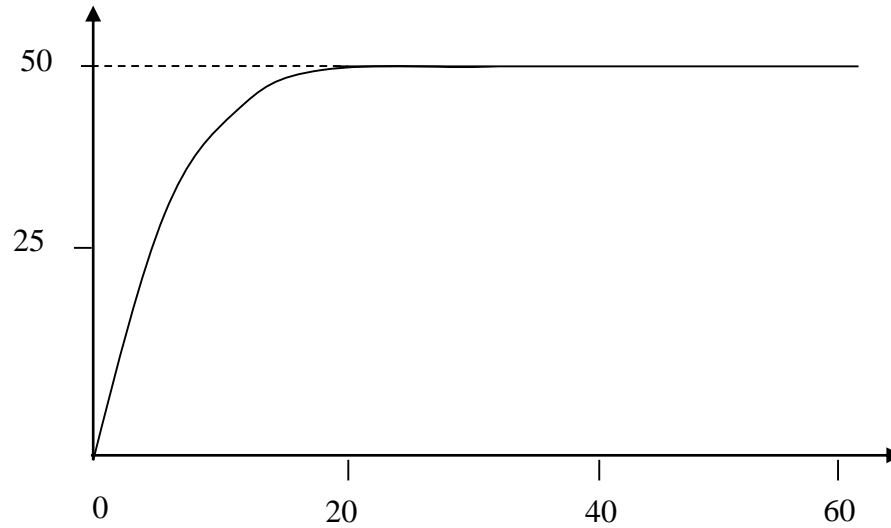


Diagram 11

Rajah 11

Time (s)

Masa (s)

What is the average rate of reaction?

Berapakah kadar tindak balas purata bagi tindak balas itu?

- A $0.63 \text{ cm}^3 \text{ s}^{-1}$
- B $0.83 \text{ cm}^3 \text{ s}^{-1}$
- C $1.25 \text{ cm}^3 \text{ s}^{-1}$
- D $2.50 \text{ cm}^3 \text{ s}^{-1}$

- 42 Diagram 12 shows the pH value of the soil in the two different mango plantations.
Rajah 12 menunjukkan nilai pH bagi tanah di dua ladang mempelam yang berbeza.

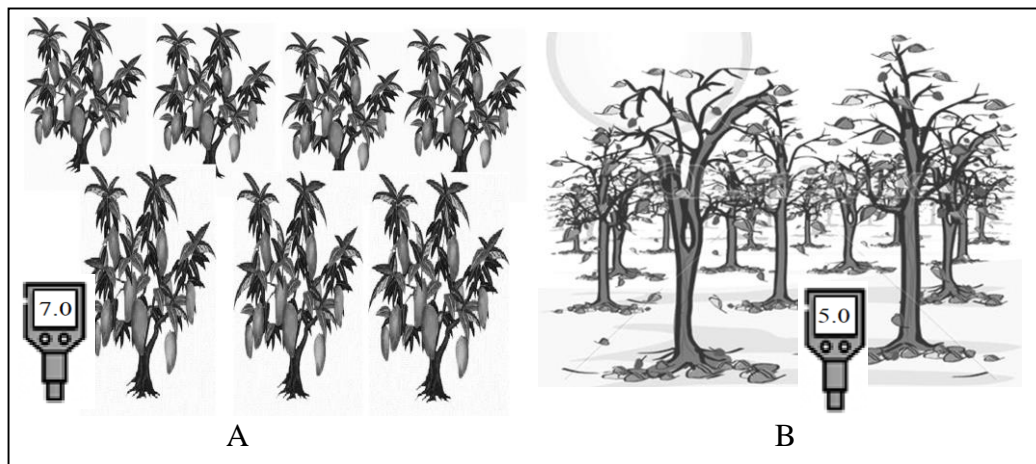


Diagram 12

Rajah 12

What substance Encik Aidid should add to neutralise the soil in his plantation B to get the same yield like plantation A.

Apakah bahan yang perlu Encik Aidid tambah untuk meneutralkan tanah d ladang B supaya mendapat hasil yang sama seperti ladang A?

- A Vinegar
Cuka
- B Compost
Kompos
- C Table salt
Garam dapur
- D Soda lime
Kapur tohor

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- 43 Diagram 13 shows the conversation between two students while carrying out an experiment.

Rajah 13 menunjukkan perbualan antara dua orang murid semasa menjalankan eksperimen.

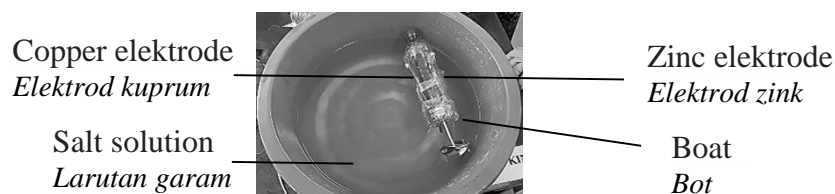


Diagram 13

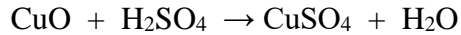
Rajah 13

What can the students do to overcome the problem?

Apakah yang boleh dilakukan oleh murid itu untuk mengatasi masalah tersebut?

- A Pour water into salt solution
Tuangkan air ke dalam larutan garam
- B Pour benzene into salt solution
Tuangkan benzena ke dalam larutan garam
- C Replace salt solution with glucose solution
Gantikan larutan garam dengan larutan glukosa
- D Replace zinc electrode with magnesium electrode
Gantikan elektrod zink dengan elektrod magnesium

- 44 The following equation represents the reaction between 100 cm³ of 1.0 mol dm⁻³ sulphuric acid and 10 g copper(II) oxide.
Persamaan berikut mewakili tindak balas antara 100 cm³ asid sulfurik 1.0 mol dm⁻³ dan 10 g kuprum(II) oksida.



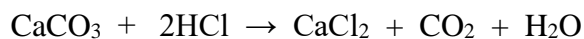
What is the mass of copper(II) oxide that remain unreacted.

[Relative atomic mass: Cu = 64, O = 16]

Berapakah jisim kuprum(II) oksida yang masih tidak bertindak balas?

[*Jisim atom relatif* : Cu = 64, O = 16]

- A 2 g
B 4 g
C 8 g
D 10 g
- 45 A group of 5ST students carry out an experiment to study the reaction between hydrochloric acid with sea shell.
The following equation represents the reaction between 50 cm³ of 1.0 mol dm⁻³ hydrochloric acid with sea shell.
Satu kumpulan pelajar 5ST menjalankan eksperimen untuk mengkaji tindak balas antara asid hidroklorik dengan cengkerang siput.
Persamaan berikut mewakili tindak balas antara 50 cm³ asid hidroklorik 1.0 mol dm⁻³ dengan cengkerang siput.



What is the number of carbon dioxide molecules released?

[Avogadro constant: 6.02 x 10²³]

Berapakah bilangan molekul karbon dioksida yang dibebaskan?

[*Pemalar Avogadro*: 6.02 x 10²³]

- A 0.025 x 6.02 x 10²³
B 0.05 x 6.02 x 10²³
C 1 x 6.02 x 10²³
D 2 x 6.02 x 10²³

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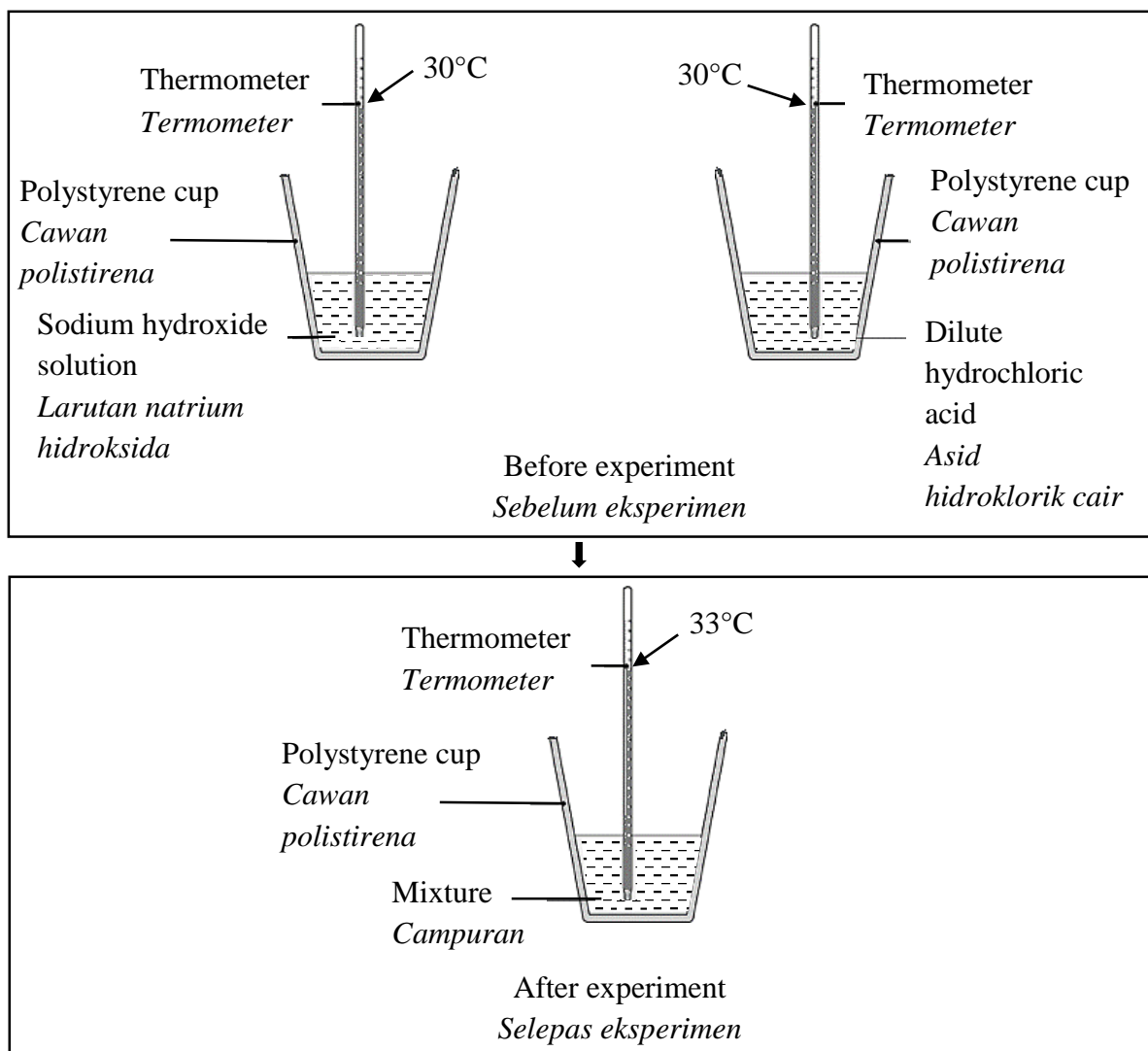


Diagram 14

Rajah 14

Diagram 14 shows thermometer readings when 50 cm^3 of 0.5 mol dm^{-3} hydrochloric acid is added into 50 cm^3 of 0.5 mol dm^{-3} sodium hydroxide in a polystyrene cup.

What is the heat of neutralisation for the reaction?

[Specific heat capacity of water = $4.2 \text{ J g}^{-1} \text{ C}^{-1}$; Density of water = 1.0 g cm^{-3}]

Rajah 14 menunjukkan bacaan termometer apabila 50 cm^3 asid hidroklorik 0.5 mol dm^{-3} ditambahkan ke dalam 50 cm^3 natrium hidroksida 0.5 mol dm^{-3} dalam cawan polistirena.

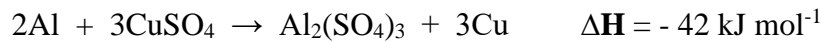
Berapakah haba peneutralan bagi tindak balas itu?

[Muatan haba tentu air = $4.2 \text{ J g}^{-1} \text{ C}^{-1}$; Ketumpatan air = 1.0 g cm^{-3}]

- A $-25.2 \text{ kJ mol}^{-1}$
- B $-50.4 \text{ kJ mol}^{-1}$
- C -630 kJ mol^{-1}
- D $-1260 \text{ kJ mol}^{-1}$

- 47 The thermochemical equation represents the reaction between aluminium and copper(II) sulphate solution.

Persamaan termokimia mewakili tindak balas antara aluminium dan larutan kuprum(II) sulfat.



What is the temperature change when excess aluminium powder is added to 50 cm³ of 0.5 mol dm⁻³ copper(II) sulphate solution in a polystyrene cup?

[Specific heat capacity of water = 4.2 Jg⁻¹ C⁻¹ ; Density of water = 1.0 g cm⁻³]

Berapakah perubahan suhu apabila serbuk aluminium berlebihan ditambah kepada 50 cm³ larutan kuprum(II) sulfat 0.5 mol dm⁻³?

[Muatan haba tentu air = 4.2 Jg⁻¹ C⁻¹ ; Ketumpatan air = 1.0 g cm⁻³]

- A 2 °C
 B 3 °C
 C 5 °C
 D 6 °C
- 48 Diagram 15 shows the formation of brown solid at iron window frame.
Rajah 15 menunjukkan pembentukan pepejal perang pada bingkai tingkap besi.

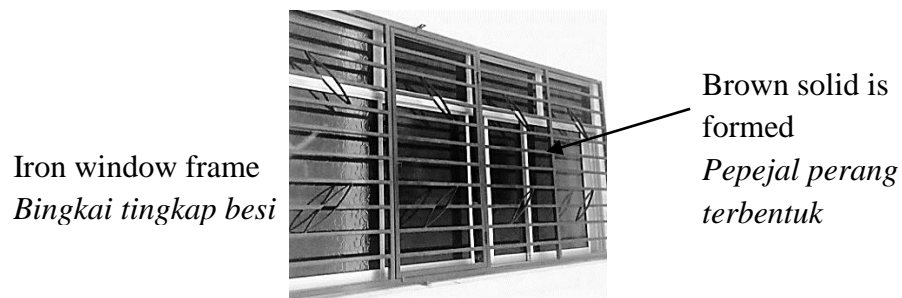


Diagram 15

Rajah 15

What is the metal that can protect the iron window frame from the formation of brown solid?

Apakah logam yang dapat melindungi bingkai tingkap besi itu daripada pembentukan pepejal perang?

- A Lead
Plumbum
- B Silver
Argentum
- C Copper
Kuprum
- D Aluminium
Aluminium

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- 49 The following equation represents the reaction between hydrogen and chlorine.
Persamaan berikut mewakili tindak balas antara hidrogen dan klorin.

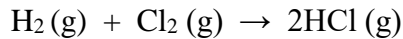


Table 6 shows the energy content for some chemical bonds.

Jadual 6 menunjukkan kandungan tenaga bagi beberapa ikatan kimia.

Chemical bond	Energy content (kJ mol ⁻¹)
Cl – Cl	242
H – H	436
H – Cl	862

Table 6

Jadual 6

What is the heat of the reaction?

Berapakah haba tindak balas?

- A +184 kJ mol⁻¹
 B -184 kJ mol⁻¹
 C +1046 kJ mol⁻¹
 D -1046 kJ mol⁻¹
- 50 Diagram 16 shows that soap produce bubbles in the water.
Rajah 16 menunjukkan sabun menghasilkan buih di dalam air.



Diagram 16

Rajah 16

What is the role of the soap bubbles?

Apakah peranan buih sabun itu?

- A Remove dirty colours
Menyingkirkan warna kotoran
- B Float the dirt in the water
Mengapungkan kotoran di dalam air
- C Help to remove a blood stain
Membantu menghilangkan kotoran darah
- D Reduce the surface tension of water
Mengurangkan ketegangan permukaan air

END OF QUESTION PAPER

SOALAN TAMAT