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CHEMISTRY
Kertas 1
Ogos
2011
1 ¼ jam



BAHAGIAN PENGURUSAN
SEKOLAH BERASRAMA PENUH DAN SEKOLAH KECEMERLANGAN
KEMENTERIAN PELAJARAN MALAYSIA

PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA 2011

CHEMISTRY
Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

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 setiap soalan, pilih **satu jawapan sahaja**. Hitamkan jawapan anda pada kertas jawapan objektif yang disediakan.
4. Jika anda hendak menukar jawapan, padamkan tanda yang telah dibuat, kemudian hitamkan jawapan yang baru.
5. Rajah yang mengiringi soalan tidak dilukiskan mengikut skala kecuali dinyatakan
6. Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogramkan.

Kertas soalan ini mengandungi **29** halaman bercetak

- 1 What is the first step in a scientific investigation?
Apakah langkah pertama dalam suatu penyelidikan sains?
- A Making a hypothesis
Membuat hipotesis
 - B Making an observation
Membuat pemerhatian
 - C Identifying the problem
Mengenal pasti masalah
 - D Planning an experiment
Merancang eksperimen
- 2 Given the formulae for aluminium ion is Al^{3+} and sulphate ion is SO_4^{2-} . Choose the correct chemical formula of aluminium sulphate.
Diberi formula ion aluminium ialah Al^{3+} dan ion sulfat ialah SO_4^{2-} . Pilih formula kimia yang betul bagi aluminium sulfat.
- A $\text{Al}(\text{SO}_4)_3$
 - B $\text{Al}_2(\text{SO}_4)_3$
 - C $\text{Al}_3(\text{SO}_4)_2$
 - D AlSO_4
- 3 Elements are arranged in the modern Periodic Table based on their
Unsur-unsur disusun dalam Jadual Berkala moden berdasarkan
- A atomic radius
jejari atom
 - B nucleon number
nombor nukleon
 - C number of protons
bilangan proton
 - D number of neutrons
bilangan neutron

- 4 Which substance is an ionic compound?
Bahan manakah adalah sebatian ionik?

- A Ammonia, NH_3
Ammonia, NH_3
- B Ethanol, $\text{C}_2\text{H}_5\text{OH}$
Etanol, $\text{C}_2\text{H}_5\text{OH}$
- C Nitrogen dioxide, NO_2
Nitrogen dioksida, NO_2
- D Magnesium oxide, MgO
Magnesium oksida, MgO

- 5 Diagram 1 shows the set up of the apparatus for electrolysis
Rajah 1 menunjukkan susunan radas yang digunakan dalam elektrolisis

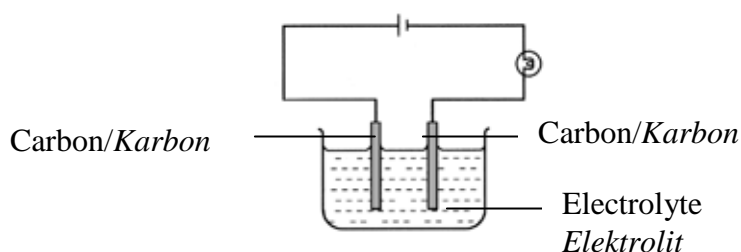


Diagram 1
Rajah 1

Which of the following compound can be used as an electrolyte?
Antara sebatian berikut yang manakah boleh digunakan sebagai elektrolit.

- A Ammonia solution
Larutan ammonia
- B Glucose solution
Larutan glukosa
- C Naphthalene
Naftalena
- D Ethanol
Etanol

- 6 Which of the following is true of the pH of an acid?
Antara berikut yang manakah benar tentang pH sesuatu asid?
- A The more dilute the acid, the higher its pH
Lebih cair asid, lebih tinggi nilai pHnya
 - B The stronger the acid, the higher its pH
Lebih kuat asid, lebih tinggi nilai pHnya
 - C The higher the degree of dissociation, the higher its pH
Lebih tinggi darjah penguraian, lebih tinggi nilai pHnya
 - D The higher the concentration of hydrogen ions, the higher its pH
Lebih tinggi kepekatan ion hydrogen, lebih tinggi nilai pHnya
- 7 Which of the following is a salt and soluble in water?
Antara berikut yang manakah satu garam dan larut dalam air?
- A Sodium hydroxide
Natrium hidroksida
 - B Aluminium oxide
Aluminium oksida
 - C Magnesium nitrate
Magnesium nitrat
 - D Calcium carbonate
Kalsium karbonat
- 8 Which of the following is a fast reaction?
Antara berikut yang manakah tindak balas berlaku cepat?
- A Precipitation reaction
Tindak balas pemendakan
 - B Photosynthesis
Fotosentesis
 - C Fermentation
Penapaian
 - D Rusting
Pengaratan

- 9 The equation in Diagram 2 represents the reaction in the industrial preparation of ammonia.
Persamaan di dalam Rajah 2 mewakili tindak balas penghasilan ammonia dalam industri.

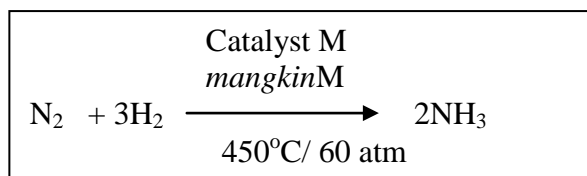


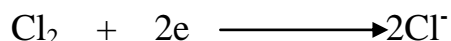
Diagram 2
Rajah 2

What is M?
Apakah M?

- A** Iron
Ferum
- B** Nickel
Nikel
- C** Copper(II) oxide
Kuprum(II) oksida
- D** Manganese(IV) oxide
Mangan(IV) Oksida
- 10 Which of the following pairs of homologous series and general formula is correct?
Antara berikut yang manakah pasangan siri homologus dan formula umumnya betul?

	Homologous series <i>Siri homologus</i>	General formula <i>Formula umum</i>
A	Alkane <i>Alkana</i>	C_nH_{n+2}
B	Alkene <i>alkena</i>	$\text{C}_n\text{H}_{2n+1}$
C	Alcohol <i>alkohol</i>	$\text{C}_n\text{H}_{2n+1}\text{OH}$
D	Carboxylic acid <i>Asid karboksilik</i>	$\text{C}_n\text{H}_{n+1}\text{COOH}$

- 11 The following is the half equation of a reaction.
Berikut adalah setengah persamaan bagi satu tindak balas.



What is meant by reduction reaction based on the equation?

Apakah yang dimaksudkan dengan tindak balas penurunan berdasarkan persamaan itu?

- A Electrons are received by chlorine
Elektron diterima oleh klorin
- B Electrons are donated by chlorine
Elektron diderma oleh klorin
- C Electrons are received by chloride ions
Elektron diterima oleh ion klorida
- D Electrons are donated by chloride ions
Elektron diderma oleh ion klorida
- 12 Diagram 3 shows the energy profile for the reaction between X and Y to produce Z.
Rajah 3 menunjukkan profil tenaga bagi satu tindak balas antara X dan Y menghasilkan Z.

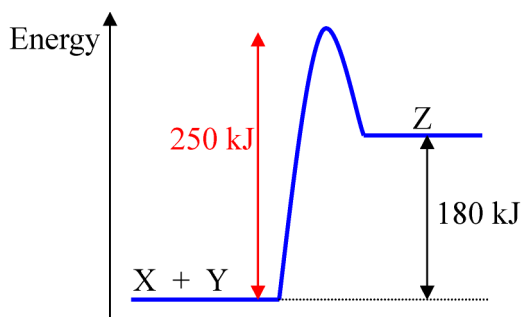


Diagram 3
Rajah 3

What is the activation energy of the reaction and the type of reaction?

Apakah tenaga pengaktifan tindak balas dan jenis tindakbalas itu?

	Activation energy / kJ <i>Tenaga pengaktifan / kJ</i>	Types of reaction <i>Jenis tindak balas</i>
A	250	Exothermic <i>Eksotermik</i>
B	250	Endothermic <i>Endotermik</i>
C	189	Exothermic <i>Eksotermik</i>
D	180	Endothermic <i>Endotermik</i>

- 13 Diagram 4 shows the structural formula of an organic compound.
Rajah 4 menunjukkan formula struktur bagi satu sebatian organik.

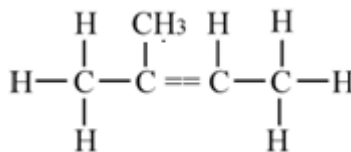


Diagram 4
Rajah 4

What is the IUPAC name for this compound?
Apakah nama IUPAC bagi sebatian ini?

- A 2-pentene
2-pentena
- B 2-methyl-1-butene
2-metil-1-butena
- C 2-methyl-2-butene
2-metil-2-butena
- D 3-methyl-3-butene
3-metil-2-butena
- 14 Which of the following shows the correct type of particle for each substance?
Antara berikut, yang manakah menunjukkan jenis zarah yang betul bagi setiap bahan?

	Atom <i>Atom</i>	Molecule <i>Molekul</i>
A	Carbon <i>Karbon</i>	Carbon dioxide <i>Karbon dioksida</i>
B	Sulphur dioxide <i>Sulfur dioksida</i>	Sulphuric acid <i>Asid sulfurik</i>
C	Sodium <i>Natrium</i>	Sodium chloride <i>Natrium klorida</i>
D	Silicon dioxide <i>Silikon dioksida</i>	Silicon <i>Silikon</i>

- 15 Diagram 5 shows the set-up of apparatus to determine the empirical formula of a metal oxide.

Rajah 5 menunjukkan susunan radas untuk menentukan satu formula empirik logam oksida.

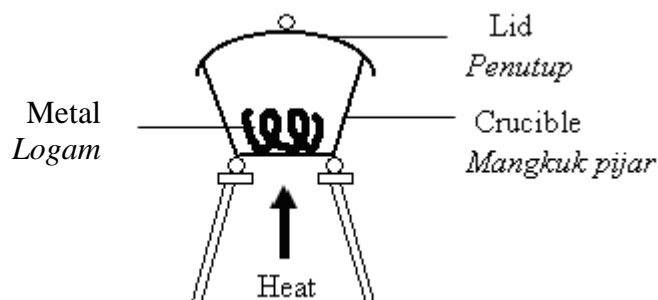


Diagram 5
Rajah 5

Which of the following metal is suitable to be used in the experiment?

Antara logam berikut yang manakah sesuai digunakan dalam eksperimen itu?

- A Lead
Plumbum
- B Copper
Kuprum
- C Aluminium
Aluminium
- D Stanum
Tin

- 16 Diagram 6 shows a Periodic Table with four elements represented by letters A, B, C and D. Which of these elements has an electron arrangement of 2.8?

Rajah 6 menunjukkan empat unsur yang diwakili oleh A,B,C dan D dalam Jadual Berkala. Antara unsur berikut yang manakah mempunyai susunan elektron 2.8?

1	2		13	14	15	16	17	18
A								D
							C	
	B							

Diagram 6
Rajah 6

- 17 What ions are present in sodium sulphate solution?
Apakah ion-ion yang hadir dalam larutan natrium sulfat?

A Na^+ , SO_4^{2-}
B Na^+ , S^{2-} , H^+ , OH^-
C Na^+ , SO_4^{2-} , H^+ , O^{2-}
D Na^+ , SO_4^{2-} , H^+ , OH^-

- 18 Copper(II) sulphate solution is electrolysed using copper electrodes. What can be observed at the anode and cathode after 30 minutes?

Larutan kuprum(II) sulfat dielektrolisiskan menggunakan elektrod kuprum. Apakah yang diperhatikan pada anod dan katod selepas 30 minit?

	Anode <i>Anod</i>	Cathode <i>Katod</i>
A	Copper plate becomes thinner <i>Plat kuprum menjadi nipis</i>	Copper plate becomes thicker <i>Plat kuprum menjadi tebal</i>
B	Copper plate becomes thinner <i>Plat kuprum menjadi nipis</i>	Gas bubbles are released <i>Gelembung-gelembung gas terbebas</i>
C	Copper plate becomes thicker <i>Plat kuprum menjadi tebal</i>	Copper plate becomes thinner <i>Plat kuprum menjadi nipis</i>
D	Gas bubbles are released <i>Gelembung-gelembung gas terbebas</i>	Copper plate becomes thicker <i>Plat kuprum menjadi tebal</i>

19 Which of the following properties is **true** about alkali?

*Antara berikut, yang manakah **benar** tentang alkali?*

- I Soluble in water
Larut dalam air
 - II Alkali is not corrosive
Alkali tidak menghakis
 - III Changes red litmus paper to blue
Menukarkan warna kertas litmus merah ke biru
 - IV Has pH more than 7
Mempunyai nilai pH lebih daripada 7
- A** I, II and III
I, II dan III
- B** I, II and IV
I, II dan IV
- C** I, III and IV
I, III dan IV
- D** II, III and IV
II, III dan IV

20 Which of the following substances are suitable to prepare copper(II) chloride?

Antara bahan berikut yang manakah sesuai untuk menyediakan kuprum(II) klorida?

- I Copper metal and hydrochloric acid
Logam kuprum dan asid hidroklorik
 - II Copper(II) nitrate and sodium chloride
Kuprum(II) nitrat dan natrium klorida
 - III Copper(II) oxide and hydrochloric acid
Kuprum(II) oksida dan asid hidroklorik
 - IV Copper(II) carbonate and hydrochloric acid
Kuprum(II) karbonat dan asid hidroklorik
- A** I and II
I dan II
- B** III and IV
III dan IV
- C** I, III and IV
I, III dan IV
- D** I, II, III and IV
I, II, III dan IV

- 21 Diagram 7 shows the structural formula of a polymer
Rajah 7 menunjukkan formula struktur satu polimer.

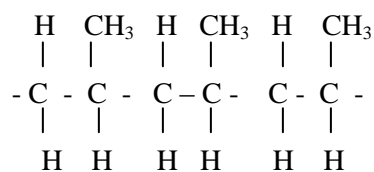
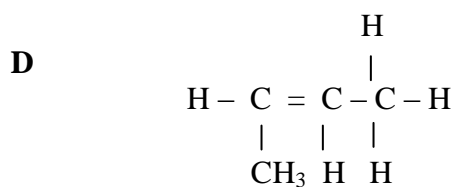
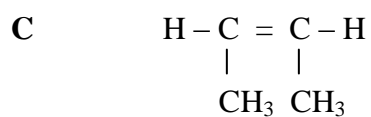
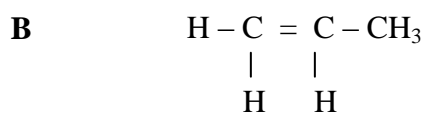
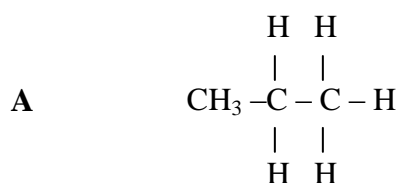


Diagram 7
Rajah 7

Which of the following is the structural formula for its monomer?
Antara berikut yang manakah formula struktur bagi monomernya?



- 22 Diagram 8 show the apparatus set up used to study the rate of reaction of calcium carbonate and hydrochloric acid
Rajah 8 menunjukkan susunan radas untuk mengkaji kadar tindak balas antara kalsium karbonat dengan asid hidroklorik

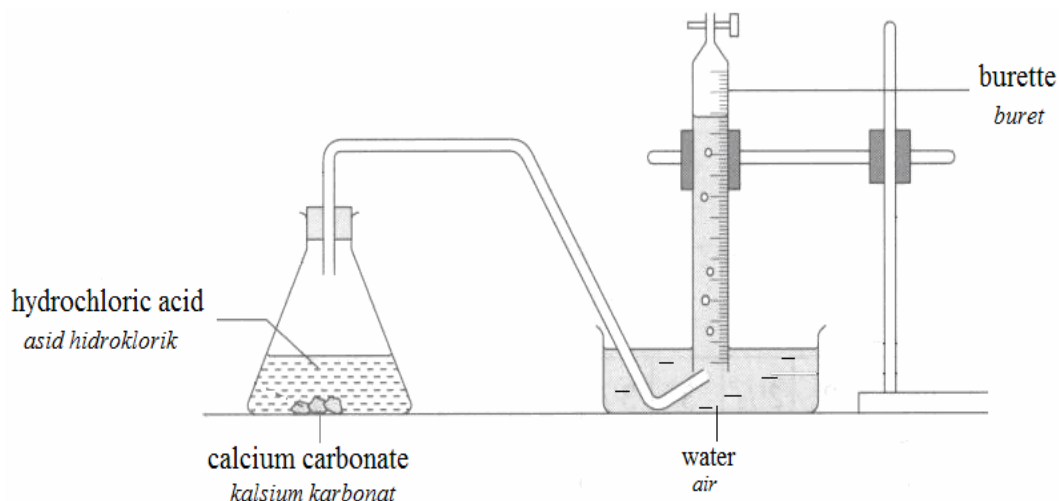


Diagram 8
Rajah 8

The rate of the above reaction can be increased by
Kadar bagi tindak balas di atas boleh ditingkatkan dengan

- A Grinding the marble chips
Menumbuk halus kalsium karbonat
- B Lowering the temperature of hydrochloric acid
Menurunkan suhu asid hidroklorik
- C Using a larger flask
Menggunakan kelalang yang lebih besar
- D Adding water to hydrochloric acid
Menambahkan air ke dalam asid

- 23 Diagram 9 shows the apparatus set up to determine the position of carbon in the Reactivity Series of Metals..

Rajah 9 menunjukkan susunan radas untuk menentukan kedudukan karbon dalam Siri Kereaktifan Logam.

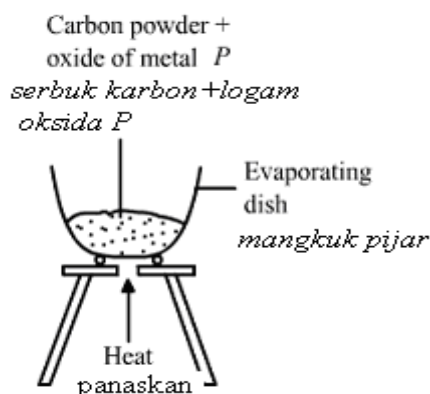


Diagram 9

Rajah 9

Excess carbon powder is mixed thoroughly with the powder oxide of metal *P* and then heated strongly. The experiment is repeated with oxides of metals *Q* and *R*. The following observations are obtained ,

Serbuk karbon yang berlebihan digaul rata bersama dengan serbuk oksida logam P dan seterusnya dipanaskan dengan kuat. Eksperimen diulang menggunakan oksida logam P dan oksida logam R. Pemerhatian berikut diperolehi,

Mixture / Campuran	Observation / Pemerhatian
Carbon + <i>P</i> metal oxide <i>Karbon + oksida logam P</i>	Burns brightly, grey powder is formed <i>Menyala dengan terang ,serbuk kelabu terhasil</i>
Carbon + <i>Q</i> metal oxide <i>Karbon + oksida logam Q</i>	Glow faintly, grey powder is formed <i>Membara dengan malap, serbuk kelabu terhasil</i>
Carbon + <i>R</i> metal oxide <i>Karbon+ oksida logam R</i>	No change <i>Tiada perubahan</i>

The position of carbon with respect to the metals *P*, *Q* and *R* in the reactivity series of metal in **descending order** is

Kedudukan karbon berbanding logam-logam P,Q dan R dalam Siri Kereaktifan Logam dalam turutan menurun ialah

- A P, Q, R, Carbon
- B P, Q, Carbon, R
- C Carbon, R, Q, P
- D R, Carbon, Q, P

- 24 A carbon compound Q has the characteristics below
- Colourless the brown colour of bromine water
 - Colourless the purple colour of acidified potassium manganate(VII)

What is Q?

- A Hexane
heksana
- B Hexene
heksena
- C Ethanoic acid
Asid etanoik
- D Ethyl ethanoate
Etil etanoat
- 25 Diagram 10 shows an energy level diagram for the displacement reaction
Rajah 10 menunjukkan rajah aras tenaga bagi satu tindak balas penyesaran

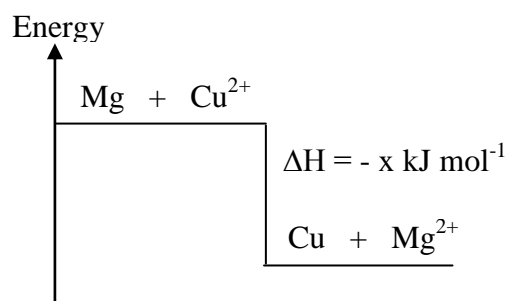


Diagram 10
Rajah 10

Which statement can be deduced from the Diagram 10?

Pernyataan manakah yang boleh dirumuskan daripada Rajah 10?

- A The heat of displacement is $- x \text{ kJ mol}^{-1}$
Haba penyesaran ialah $- x \text{ kJ mol}^{-1}$
- B $x \text{ kJ}$ of energy is needed for the reaction
 $x \text{ kJ}$ tenaga diperlukan untuk tindak balas ini
- C The products contain more energy than the reactants
Hasil tindak balas mengandungi lebih banyak tenaga daripada bahan tindak balas
- D The temperature at the end of the reaction is lower than that at the beginning of the reaction
Suhu akhir tindak balas lebih rendah daripada suhu awal tindak balas

26 Why detergents more effective than soaps?

Kenapakah detergen lebih berkesan berbanding dengan sabun?

- A** Detergents are biodegradable whereas soaps are non biodegradable.
Detergen boleh terbiodegradasi manakala sabun tidak terbiodegradasi.
- B** Detergents reduce the surface tension of water, whereas soaps do not.
Detergen merendahkan ketegangan permukaan air manakala sabun tidak merendahkan ketegangan permukaan air.
- C** Detergents do not form scum in hard water, whereas soaps form scum.
Detergen tidak membentuk kekat didalam air liat manakala sabun membentuk kekat.
- D** Detergents are soluble in grease, whereas soaps are insoluble in grease.
Detergen larut dalam gris manakala sabun tidak larut dalam gris.

27 Table 1 shows the number of neutrons for bromine isotopes.

Jadual 1 menunjukkan bilangan neutron bagi isotop-isotop bromin.

Isotope <i>Isotop</i>	Number of neutrons <i>Bilangan neutron</i>
Bromine-79	44
Bromine-81	X

Table 1
Jadual 1

What is the value of x?

Apakah nilai x?

- A** 35
- B** 37
- C** 44
- D** 46

- 28 In an experiment, 24 g of element X react with 32 g sulphur to form a compound.
What is the empirical formula of that compound ?
[Relative atomic mass ; X = 6, S = 32]

Dalam satu eksperimen, didapati 24 g unsur X bertindak balas dengan sulfur membentuk sebatian.

Apakah formula empirik sebatian itu?

[Jisim atom relatif ; X = 6, S = 32]

- A XS
- B X₂S
- C X₂S₃
- D X₄S

- 29 Element X is below potassium in the Periodic Table. We can predict that
Unsur X berada di bawah kalium dalam Jadual Berkala. Boleh diramalkan bahawa

- A Element X is less electropositive than potassium
Unsur X adalah kurang elektropositif daripada kalium
- B The size of atom X is smaller than potassium
Saiz atom X adalah lebih kecil daripada kalium
- C Atom of element X has more valence electrons than potassium
Atom unsur X mempunyai lebih banyak bilangan elektron valens daripada kalium
- D Element X reacts more vigorously than potassium in oxygen
Unsur X bertindak balas lebih cergas berbanding kalium dalam oksigen

- 30 Which statement explains why ionic compound has high melting point?
Pernyataan manakah menerangkan mengapa sebatian ion mempunyai takat lebur yang tinggi?

- A Covalent bond between atoms is strong.
Ikatan kovalen antara atom-atom adalah kuat.
- B Electrostatic force between ions is strong.
Daya elektrostatik antara ion-ion adalah kuat.
- C There are free moving ions in the compound.
Terdapat ion-ion yang bebas bergerak dalam sebatian itu.
- D More energy is needed to overcome the forces between molecules.
Lebih tenaga diperlukan untuk mengatasi daya antara molekul.

- 31** Table 2 shows the observation of electrolysis of a substance using carbon electrode .
Jadual 2 menunjukkan pemerhatian bagi elektrolisis suatu bahan menggunakan elektrod karbon.

Electrode <i>Elektrod</i>	Observation <i>Pemerhatian</i>
Anode <i>Anod</i>	A greenish-yellow gas released <i>Gas berwarna kuning kehijauan terbebas</i>
Cathode <i>Katod</i>	A colorless gas which burns with a 'pop' sound is released <i>Gas yang tidak berwarna dan terbakar dengan bunyi pop terbebas</i>

Table 2

Jadual 2

The electrolyte maybe

Elektrolit itu mungkin

- A** Dilute hydrochloric acid
Asid hidroklorik cair
- B** Concentrated potassium chloride solution.
Larutan kalium klorida pekat
- C** Copper (II) chloride solution.
Larutan kuprum(II) klorida
- D** Concentrated magnesium bromide solution
Larutan magnesium bromida pekat.
- 32** Acid rain causes the land to become acidic. Farmers neutralize acidity in the soil by adding
Hujan asid menyebabkan tanah menjadi berasid. Petani meneutralkan keasidan tanah dengan menambahkan
- A** Lime
Kapur
- B** Sulphur
Sulfur
- C** Zinc nitrate
Zink nitrat
- D** Ammonium sulphate
Ammonium sulfat

- 33 Diagram 11 shows the apparatus set-up for the heating salt J.
Rajah 11 menunjukkan susunan radas bagi pemanasan garam J.

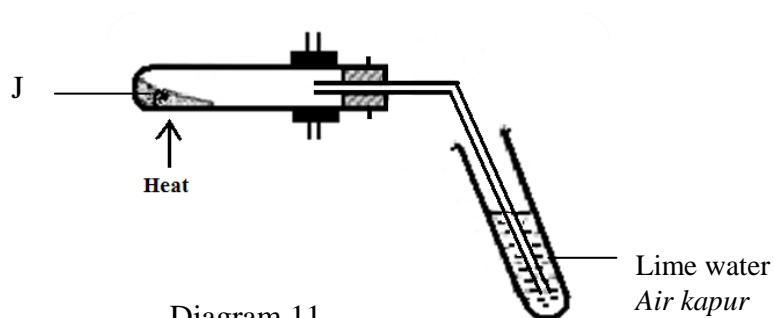


Diagram 11
Rajah 11

When J is heated, the lime water become milky and the hot residue is brown but turns yellow on cooling.
What is J?

Apabila J dipanaskan, air kapur menjadi keruh dan baki panas berwarna perang tetapi berubah kuning semasa sejuk.
Apakah J?

- A Lead(II) oxide
Plumbum(II) oxide
- B Zinc carbonate
Zink karbonat
- C Lead(II) carbonate
Plumbum(II) karbonat
- D Lead(II) nitrate
Plumbum(II) nitrat

- 34 A substance has the following properties:
Suatu bahan mempunyai ciri-ciri berikut:

- Hard and opaque
Keras dan tidak lutcahaya
- Good insulator of heat and electricity
Penebat haba dan elektrik yang baik
- Inert towards chemicals
Lengai terhadap bahan kimia

Which of following substances has the above properties?

Antara bahan-bahan berikut yang manakah mempunyai ciri-ciri seperti di atas?

- A Ceramics
Seramik
- B Glass
Kaca
- C Metal
Logam
- D Polymer
Polimer

- 35 Table 3 shows the volume of oxygen gas released from the decomposition of hydrogen peroxide:
Jadual 3 menunjukkan isipadu gas oksigen yang terbebas daripada penguraian hidrogen peroksida:

Time / minute <i>Masa / minit</i>	0	1	2	3	4	5	6
Volume of gas / cm³ <i>Isipadu gas / cm³</i>	0	5	10	13	15	15	15

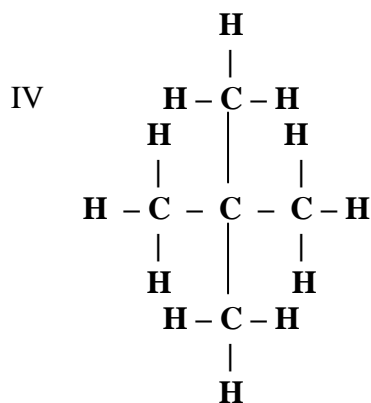
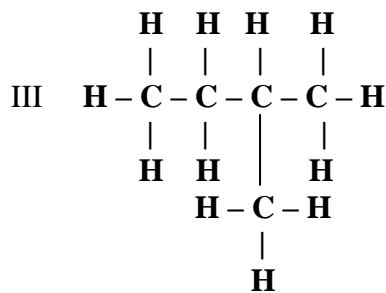
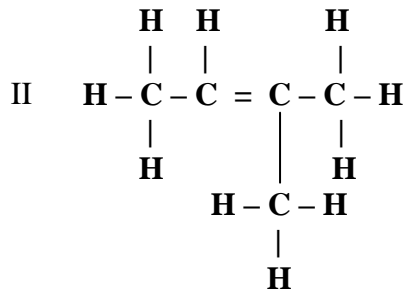
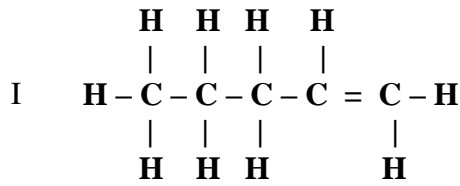
Table 3
Jadual 3

What is the average rate of decomposition of hydrogen peroxide for the first four minutes?

Berapakah kadar penguraian hidrogen peroksida bagi empat minit yang pertama?

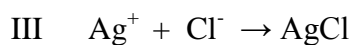
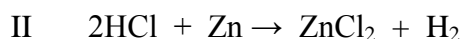
- A 2.50 cm³ min⁻¹
- B 3.00 cm³ min⁻¹
- C 3.75 cm³ min⁻¹
- D 15.00 cm³ min⁻¹

- 36 Which of the following are isomers of pentane
 Antara berikut yang manakah merupakan isomer bagi pentana



- A I and II
 I dan II
- B I and III
 I dan III
- C III and IV
 III dan IV
- D II, III and IV
 II, III dan IV

- 37 Which of the following equations represent a redox reaction?
Antara persamaan beriku, yang manakah mewakili tindak balas redok?



A I and II

I dan II

B II and IV

II dan IV

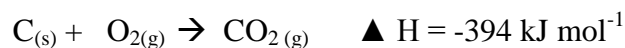
C I and III

I dan III

D III and IV

III dan IV

- 38 Carbon burns in oxygen in a reaction as shown in the equation below.
Karbon terbakar dalam oksigen seperti ditunjukkan dalam persamaan dibawah



What is the mass of carbon that must be burnt completely to produce 78.8 kJ of heat?
Berapakah jisim karbon yang mesti terbakar untuk menghasilkan 78.8 kJ haba?

A 0.2 g

B 1.2 g

C 2.4 g

D 6.0 g

- 39 Which of the following can be used to cure headaches?
Antara berikut yang manakah dapat diguna untuk merawat sakit kepala?

A Cortisone

Kortison

B Streptomycin

Streptomisin

C Paracetamol

Parasetamol

D Barbiturates

Barbiturat

- 40 Diagram 12 shows the electron arrangement of a G^{2+} ion.
Rajah 12 menunjukkan susunan elektron bagi suatu ion G^{2+} .

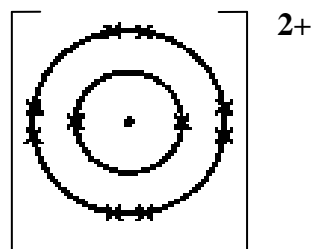
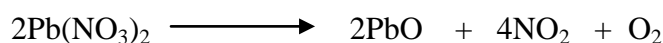


Diagram 12
Rajah 12

G^{2+} ion contains 12 neutrons.
 What is the nucleon number of atom G?
Ion G^{2+} mengandungi 12 neutron.
Apakah nombor nukleon atom G?

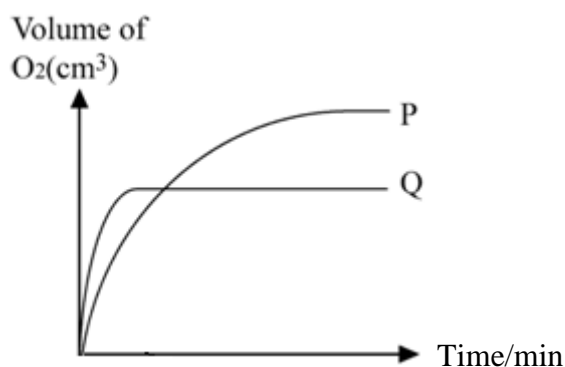
- A 10
 B 12
 C 20
 D 24
- 41 The following equation shows the decomposition reaction of lead(II) nitrate when heated at room temperature and pressure.
Persamaan berikut menunjukkan tindak balas penguraian plumbum(II) nitrat apabila dipanaskan pada suhu dan tekanan bilik.



Which of the following is true when 0.1 mol of lead(II) nitrate is decomposed?
 [Relative formula mass : $\text{PbO} = 223$ and 1 mol gas occupies the volume of 24 dm^3 at room temperature and pressure]
Antara yang berikut, yang manakah benar apabila 1 mol plumbum(II) nitrat terurai?
 [Jisim formula relatif: $\text{PbO} = 223$ dan 1 mol gas menempati isipadu sebanyak 24 dm^3 pada suhu dan tekanan bilik.]

- A 44.6 g of lead(II) oxide is formed.
 44.6 g plumbum(II) oksida terbentuk.
- B 4800 cm^3 of nitrogen dioxide is given off.
 4800 cm^3 gas nitrogen dioksida terbebas
- C 2.4 dm^3 of oxygen gases is given off.
 2.4 dm^3 gas oksigen terbebas.
- D 4.46 g of lead(II) oxide is formed.
 4.46 g plumbum(II) oksida terbentuk.

- 42 The rate of catalytic decomposition of 20 cm^3 of 1.0 mol dm^{-3} of hydrogen peroxide is shown in curve Q.
Kadar penguraian bermangkin 20 cm^3 1.0 mol dm^{-3} hidrogen peroksida ditunjukkan sebagai lengkung Q.



Which of the following changes to the experiment will produce curve P?
Yang mana satukah perubahan terhadap eksperimen berikut yang menghasilkan lengkung P?

- A Cool the hydrogen peroxide solution to lower temperature.
Sejukkan larutan hidrogen peroksida ke suhu yang lebih rendah
- B Repeat the experiment by using 50 cm^3 of 0.5 mol dm^{-3} of hydrogen peroxide solution.
Ulang eksperimen dengan menggunakan 50 cm^3 0.5 mol dm^{-3} larutan hidrogen peroksida
- C Repeat the experiment by using 20 cm^3 of 1.5 mol dm^{-3} of hydrogen peroxide solution.
Ulang eksperimen dengan menggunakan 50 cm^3 1.5 mol dm^{-3} larutan hidrogen peroksida
- D Adding more catalyst to the 20 cm^3 of 1.0 mol dm^{-3} of hydrogen peroxide solution.
Tambah lebih banyak mangkin kepada 20 cm^3 1.0 mol dm^{-3} larutan hidrogen peroksida

- 43 Table 4 shows the result of an experiment for three simple voltaic cells.

Jadual 4 menunjukkan keputusan suatu eksperimen bagi tiga sel ringkas.

Positive terminal	Negative terminal	Voltage (V)
W	X	0.3
Y	X	0.8
X	Z	1.9

Table 4

Jadual 4

The arrangement of the metals in the electrochemical series in descending order of electropositivity is

Susunan logam-logam mengikut keelektropositifan dalam siri elektrokimia mengikut urutan menurun adalah

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

- 44 Diagram 13 shows the standard representation for the atoms of two elements, X and Y.
Rajah 13 menunjukkan perwakilan piawai atom bagi dua unsur, X dan Y.

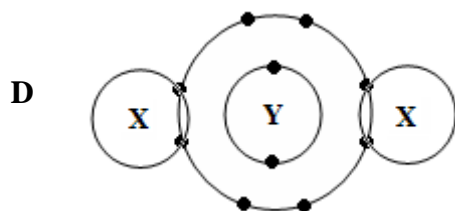
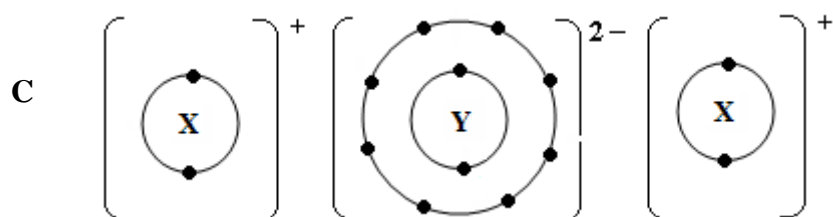
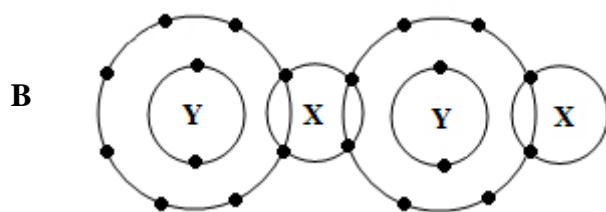
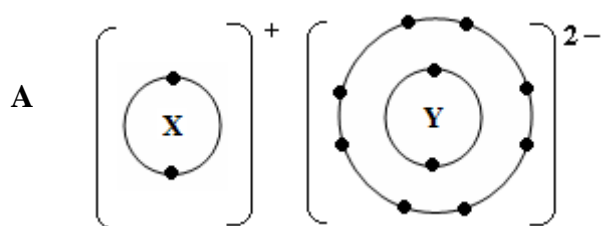


Diagram 13

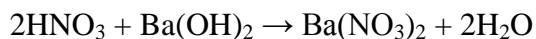
Rajah 13

Which of the following represents the electron arrangement for a compound formed when element X reacts with element Y?

Antara berikut, yang manakah mewakili susunan elektron bagi satu sebatian yang terbentuk apabila unsur X bertindak balas dengan unsur Y?



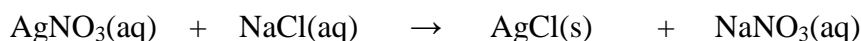
- 45 The equation represents a neutralisation reaction.
Persamaan mewakili satu tindak balas peneutralan



10.0 cm³ of barium hydroxide solution 0.1 mol dm⁻³ is titrated with nitric acid 0.1 mol dm⁻³. If the initial reading of the burette is 10.00 cm³, what is the final reading of the burette?

10.0 cm³ larutan barium hidroksida 0.1 mol dm⁻³ dititrat dengan asid nitrik 0.1 mol dm⁻³. Jika bacaan awal buret ialah 10.00 cm³, berapakah bacaan akhir buret?

- A 20.00 cm³
B 30.00 cm³
C 40.00 cm³
D 50.00 cm³
- 46 The following equation shows the reaction between silver nitrate and sodium chloride.
Persamaan berikut menunjukkan tindak balas antara argentum nitrat dan natrium klorida



What is the mass of the insoluble salt produced when 50 cm³ 1.0 mol dm⁻³ silver nitrate reacts with 50 cm³ 2.0 mol dm⁻³ sodium chloride?

[Relative atomic mass : N = 14, O = 16, Na = 23, Cl = 35.5, Ag = 108]

Berapakah jisim garam taklarut yang terhasil apabila 50 cm³ 1.0 mol dm⁻³ argentum nitrat bertindak balas 50 cm³ 2.0 mol dm⁻³ natrium klorida?

[Jisim atom relatif : N = 14, O = 16, Na = 23, Cl = 35.5, Ag = 108]

- A 8.50 g
B 4.25 g
C 7.175 g
D 14.35 g

- 47 Which of the following reactions needs a catalyst for the production of sulphuric acid by Contact Process?
Antara tindak balas berikut yang manakah memerlukan mangkin untuk penghasilan asid sulfurik melalui Proses Sentuh?

- A $S + O_2 \rightarrow SO_2$
B $2SO_2 + O_2 \rightarrow 2SO_3$
C $SO_3 + H_2S_2O_7 \rightarrow H_2S_2O_7$
D $H_2S_2O_7 + H_2O \rightarrow 2H_2SO_4$

- 48 The following information shows the effect of a particular factor on the rate of reaction.
Maklumat berikut menunjukkan kesan suatu faktor yang mempengaruhi kadar tindak balas.

- Particles have high kinetic energy
Zarah mempunyai tenaga kinetik yang tinggi
- Numbers of particles with activation energy increases
Bilangan zarah yang mempunyai tenaga pengaktifan bertambah
- Frequency of collision between particles increases
Frekuensi perlanggaran antara zarah bertambah
- Frequency of effective collision increases
Frekuensi perlanggaran efektif bertambah

Which of the following can cause the above effect?
Manakah antara berikut memberikan kesan seperti di atas?

- A Increasing total surface area of reactants.
Menambah jumlah luas permukaan bahan tindak balas
B Increasing the concentration of reactants.
Menambah kepekatan bahan tindak balas
C Adding a catalyst.
Menambah mangkin
D Increasing temperature of reactants
Menaikkan suhu bahan tindak balas

- 49 Diagram 14 shows the apparatus arrangement to investigate the oxidation and reduction in terms of the transfer of electron at a distance.

Rajah 14 menunjukkan susunan radas bagi mengkaji pengoksidaan dan penurunan berdasarkan pemindahan elektron pada satu jarak.

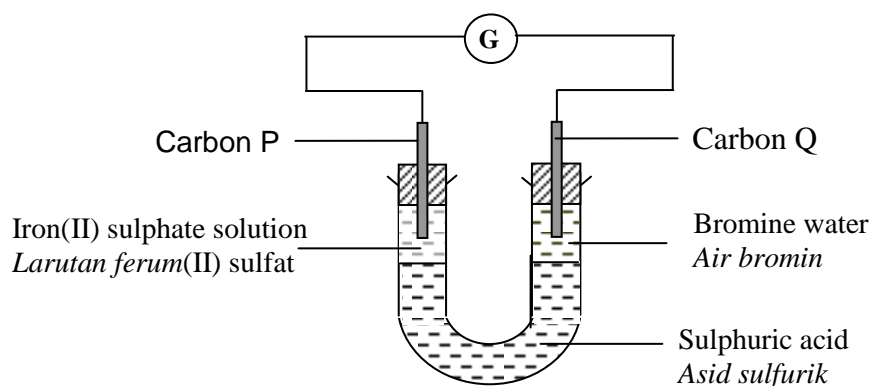


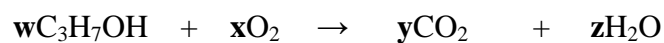
Diagram 14
Rajah 14

Which of the following represents the half equation for reaction occurs at P and Q electrode.

Antara berikut yang manakah mewakili persamaan setengah bagi tindak balas yang berlaku di elektrod P dan Q.

	P	Q
A	$\text{Fe}^{2+} \rightarrow \text{Fe}^{3+} + \text{e}$	$\text{Br}_2 + 2\text{e} \rightarrow 2\text{Br}^-$
B	$\text{Fe}^{2+} \rightarrow \text{Fe}^{3+} + \text{e}$	$\text{C} + 4\text{e} \rightarrow \text{C}^{4-}$
C	$2\text{SO}_4^{2-} \rightarrow \text{S}_2\text{O}_8^{2-} + 2\text{e}$	$\text{Br}_2 + 2\text{e} \rightarrow 2\text{Br}^-$
D	$\text{Fe} \rightarrow \text{Fe}^{2+} + 2\text{e}$	$2\text{Br}^- \rightarrow \text{Br}_2 + 2\text{e}$

- 50 The following equation shows a combustion reaction on propanol?
Persamaan berikut menunjukkan tindak balas pembakaran propanol



What are the values of w, x, y and z?

Apakah nilai w, x, y dan z?

	w	x	y	z
A	1	9	3	4
B	1	5	3	4
C	2	9	6	8
D	2	5	6	8

END OF QUESTION PAPER
KERTAS SOALAN TAMAT