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Kimia

September

Kertas 1

2008

1½ jam

Nama Pelajar :

Tingkatan :



**JABATAN PELAJARAN KELANTAN
DENGAN KERJASAMA
PERSIDANGAN KEBANGSAAN PENGETUA-PENGETUA
SEKOLAH MENENGAH MALAYSIA
CAWANGAN KELANTAN**

**PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA 2008**

**KIMIA
KERTAS 1**

Masa : Satu Jam Lima Belas Minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

- 1. Kertas soalan ini adalah dalam dwibahasa*
- 2. Setiap soalan mengandungi kedua-dua bahasa Inggeris dan bahasa Melayu. Bahagian atas dalam bahasa Inggeris dan diikuti di bawahnya oleh bahasa Melayu*
- 3. Calon dikehendaki membaca maklumat di halaman 2.*

Kertas soalan ini mengandungi 36 halaman bercetak.

[Lihat sebelah
SULIT

- 1 The proton number of an atom is referring to the number of
Nombor proton bagi suatu atom merujuk kepada bilangan
- A proton
proton
- B neutron
neutron
- C electron
elektron
- D proton and neutron
proton dan neutron
- 2 Which of the following chemical formula of the compound is true?
Antara formula kimia sebatian berikut yang manakah betul?

Compound <i>Sebatian</i>	Chemical formula <i>Formula kimia</i>
A Barium nitrate <i>Barium nitrat</i>	BaNO ₃
B Ammonium nitrate <i>Ammonium nitrat</i>	(NH ₄) ₂ NO ₃
C Lead (II) sulphate <i>Plumbum (II) sulfat</i>	PbSO ₄
D Aluminium oxide <i>Aluminium oksida</i>	AlO ₃

- 3 Which of the following elements are in Group 18 of the Periodic Table of Elements?
Antara berikut, unsur yang manakah dalam Kumpulan 18 dalam Jadual Berkala Unsur?
- A Helium and krypton
Helium dan krypton
- B Hydrogen and oxygen
Hidrogen dan oksigen
- C Oxygen and krypton
Oksigen dan krypton
- D Helium, hydrogen and oxygen
Helium, hidrogen dan oksigen

- 5 Diagram 2 shows the electron arrangement of a compound formed between atoms X and Y.

Rajah 2 menunjukkan susunan elektron bagi sebatian yang terbentuk antara atom X dengan atom Y.

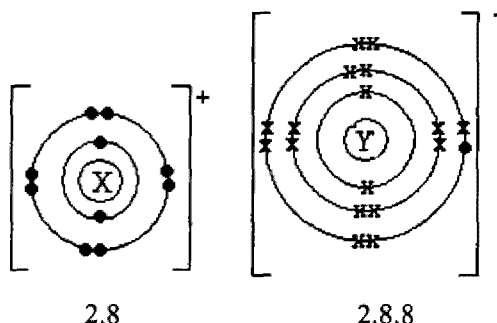


Diagram 2
Rajah 2

Which of the following statements is **true** about the compound?

Antara pernyataan berikut yang manakah **benar** tentang sebatian itu?

- A The compound has a low boiling point
Sebatian itu mempunyai takat didih yang rendah
- B The compound dissolved in organic solvent
Sebatian itu larut dalam pelarut organik
- C The compound is formed by sharing the electron
Sebatian itu terbentuk melalui perkongsian elektron
- D The compound can conduct electricity in a molten state
Sebatian itu boleh menghantarkan elektrik dalam keadaan leburan
- 6 Which of the following substances is an electrolyte?
Antara bahan berikut, yang manakah adalah elektrolit?
- A Ethanol
Etanol
- B Dilute sulphuric acid
Asid sulfurik cair
- C Molten naphthalene
Leburan naftalena
- D Ethanoic acid glacial
Asid etanoik glasial

7 Which of the following is **true** about the strong acid?

Di antara berikut yang manakah benar tentang asid?

- A Unable to neutralized alkali
Tidak boleh meneutralkan alkali
- B The pH value is more than 7
Nilai pH lebih daripada 7
- C Able to change red litmus paper to blue
Boleh menukarkan kertas litmus merah ke biru
- D Ionised completely in water to produced hydrogen ion
Mengion lengkap dalam air menghasilkan ion hidrogen

8 What are the products of the reaction between ethanoic acid and sodium carbonate?

Apakah hasil tindak balas di antara asid etanoik dan natrium karbonat?

- I Water
Air
 - II Ethyl ethanoate
Etil etanoat
 - III Carbon dioxide
Karbon dioksida
 - IV Sodium ethanoate
Natrium etanoat
- A I and III only
I dan III sahaja
 - B II and IV only
II dan IV sahaja
 - C I, II and III only
I, II dan III sahaja
 - D I, III and IV only
I, III and IV sahaja

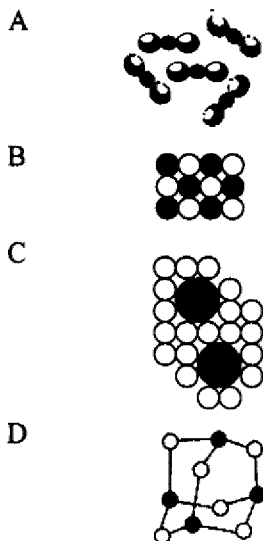
- 9 Which of the following ions form white precipitate that dissolves in excess ammonia solution?

Di antara ion-ion berikut yang manakah menghasilkan mendakan putih yang larut dalam larutan ammonia berlebihan?

- A Mg^{2+}
- B Al^{3+}
- C Zn^{2+}
- D Pb^{2+}

- 10 Which diagram shows the structure of bronze?

Rajah yang manakah mewakili struktur bagi gangsa?



- 11 Ceramic is suitable for making the exterior of space shuttle because ceramic.

Seramik sesuai digunakan untuk membuat bahagian luar kapal angkasa kerana

- A can store charges
boleh menyimpan cas
- B has high melting point
mempunyai takat lebur tinggi
- C can resist to chemical corrosion
tahan terhadap kakisan kimia
- D can withstand high pressure and heat
tahan terhadap haba dan tekanan tinggi

12 Which of the following factor affects the rate of reaction?

Antara berikut, yang manakah faktor yang mempengaruhi kadar tindak balas?

- A Time
Masa
- B Reagent
Bahan uji
- C Apparatus
Alat radas
- D Temperature
Suhu

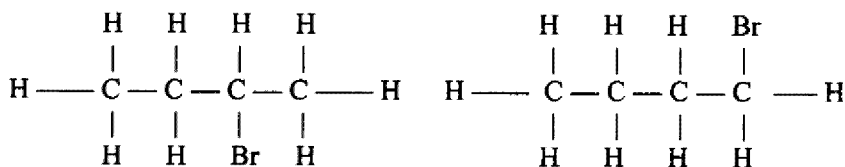
13 Which is the slowest reaction?

Yang manakah tindak balas paling perlahan?

- A The reaction between acid and base
Tindak balas antara asid dan bes
- B Fermentation of glucose to form ethanol
Penapaian glukosa kepada etanol
- C Esterification of ethanol and propanoic acid
Pengesteran etanol dan acid propanoik
- D Precipitation of lead(II) chloride
Pemendakan plumbum(II) klorida

- 14 The structural formulae of two isomers are as follows.

Formula struktur dua isomer adalah seperti berikut.



Which of the following substance has both isomers?

Antara bahan berikut yang manakah mempunyai kedua-dua isomer itu?

- A Bromoethane
Bromoetana
- B Bromopropane
Bromopropana
- C Bromobutane
Bromobutana
- D Bromopentane
Bromopentana
- 15 What are the products formed when ethanol burns completely in excess air?
- Apakah hasil-hasil yang terbentuk apabila etanol terbakar dengan lengkap dalam udara berlebihan?*
- A Water and carbon dioxide gas
Air dan gas karbon dioksida
- B Water, carbon and carbon dioxide gas
Air, karbon dan gas karbon dioksida
- C Water, carbon monoxide gas and carbon dioxide gas
Air, gas karbon monoksida dan gas karbon dioksida
- D Water, carbon, carbon monoxide gas and carbon dioxide gas
Air, karbon, gas karbon monoksida dan gas karbon dioksida

16 Diagram 3 shows the structural formula of an ester molecule .

Rajah 3 menunjukkan formula struktur bagi satu molekul ester .

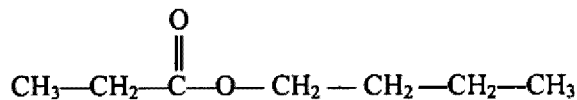


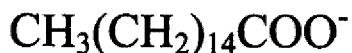
Diagram 3
Rajah 3

What is the name of the ester?

Apakah nama ester ini ?

- A Butyl ethanoate
Butil etanoat
 - B Propyl ethanoate
Propil etanoat
 - C Propyl butanoate
Propil butanoat
 - D Butyl propanoate
Butil propanoat
- 17 Which of the followings are oxidizing agent?
- Antara berikut yang manakah agen pengoksidaan?*
- I Magnesium
Magnesium
 - II Bromin water
Air bromin
 - III Potassium iodide solution
Kalium iodide
 - IV Acidified potassium dichromate (VI)
Kalium dikromat(VI) berasid
- A I and III only
I dan III sahaja
 - B II and IV only
II dan IV sahaja
 - C I,II and III only
I,II dan III sahaja
 - D I,II and IV only
I,II dan IV sahaja

- 18 Which of the following is a redox reaction?
Di antara berikut yang manakah tindak balas redok?
- A Esterification
Pengesteran
 - B Neutralization
Peneutralan
 - C Displacement
Penyesaran
 - D Precipitation
Pemendakan
- 19 Which of the following is the function of an analgesic?
Di antara berikut yang manakah fungsi analgesic?
- A To relieve pain
Untuk menghilangkan kesakitan
 - B To reduce fatigue
Untuk mengurangkan kelesuan
 - C To reduce tension
Untuk mengurangkan ketegangan
 - D To calm down the emotion of a patient
Untuk menenangkan emosi pesakit
- 20 The anion shows a part of a structural formula of a soap molecule



Which of the following is the name of that part

- A Lauric
Laurik
- B Glycerol
Gliserol
- C Palmitate
Palmitat
- D Alkylbenzene
Alkilbenze

- 21 Diagram 4 shows the structure of atom of an element.
Rajah 4 menunjukkan susunan atom bagi suatu unsur.

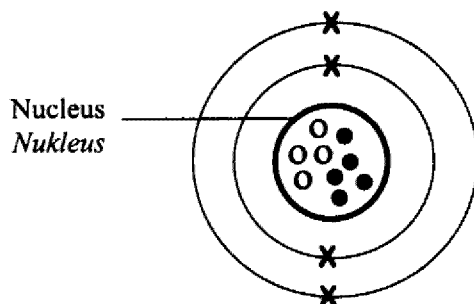


Diagram 4
Rajah 4

What is the number of proton, electron and neutron in this element?

Berapakah bilangan proton, elektron dan neutron dalam unsur ini?

	Proton <i>Proton</i>	Electron <i>Elektron</i>	Neutron <i>Neutron</i>
A	4	4	5
B	4	5	9
C	5	4	4
D	9	4	4

- 22 The statement below describes the particles of substance X.

Pernyataan di bawah menerangkan zarah-zarah dalam bahan X.

- The particles are far apart from each other.
Zarah-zarah adalah berjauhan antara satu sama lain.
- Forces of attraction between particles are weak.
Daya tarikan antara zarah adalah lemah.
- The particles have high kinetic energy and move randomly.
Zarah-zarah mempunyai tenaga kinetic yang tinggi dan bergerak rawak

What is the state of matter for substance X?

Apakah keadaan jirim bagi bahan X

- A Gas
Gas
- B Solid
Pepejal
- C Liquid
Cecair
- D Liquid and solid
Cecair dan pepejal

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

Rajah 5 menunjukkan susunan radas untuk menentukan formula empirik suatu oksida logam

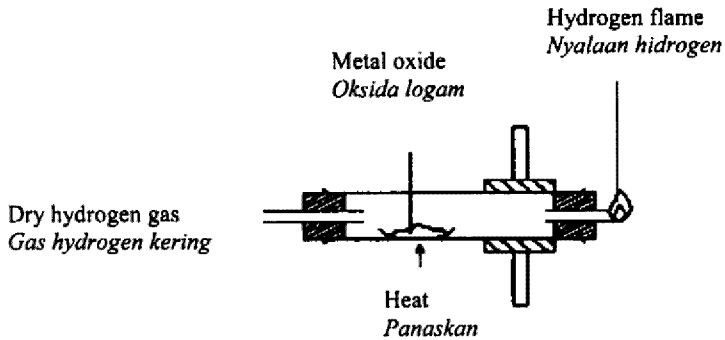


Diagram 5
Rajah 5

Which one of the following metal oxides is suitable to be used in the experiment?
Antara oksida logam berikut yang manakah sesuai digunakan dalam eksperimen?

- A Magnesium oxide
Magnesium oksida
- B Aluminium oxide
Aluminium oxide
- C Calcium oxide
Kalsium oksida
- D Copper(II) oxide
Kuprum (II) oksida

- 24 Table 1 shows the information about two types of particle.

Jadual 1 menunjukkan maklumat bagi dua jenis zarah .

Particle <i>Zarah</i>	Proton number <i>Nombor proton</i>	Electron arrangement <i>Susunan elektron</i>
X	9	2.8
Y	17	2.8.8

Table 1
Jadual 1

Based on the information in the table , both particles X and Y are

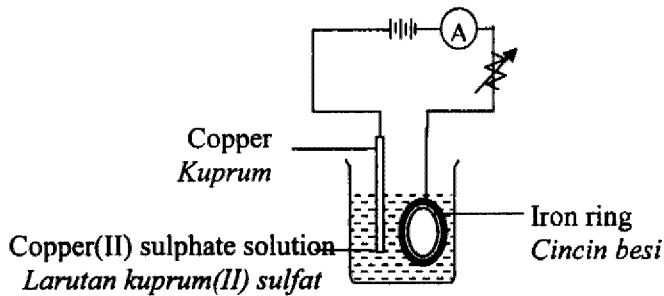
Berdasarkan maklumat dalam jadual , zarah X dan zarah Y adalah

- A inert gas
gas adi
- B negative ions
ion negative
- C atom of metals
atom logam
- D isotopes of the same element
isotop unsur yang sama.

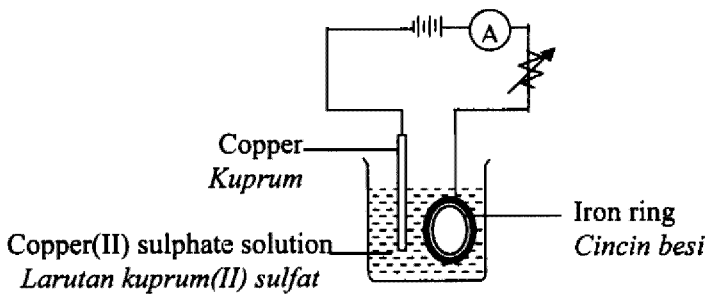
- 25 Which of the following set-up of apparatus is suitable to electroplate iron ring with copper?

Antara susunan radas berikut, yang manakah sesuai untuk menyadurkan cincin besi dengan kuprum?

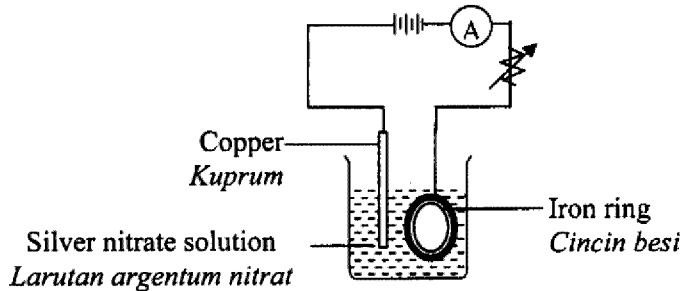
A



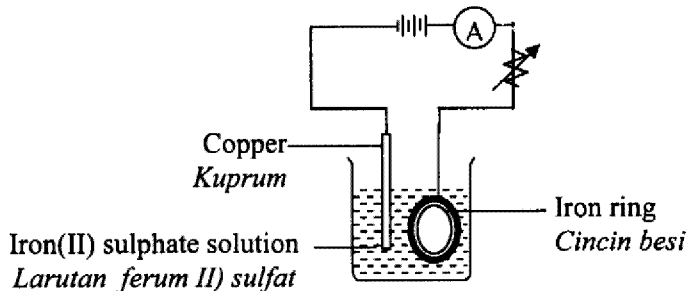
B



C



D



26 Diagram 6 shows the set up of the apparatus of a chemical cell.

Rajah 6 menunjukkan susunan radas sebuah sel kimia.

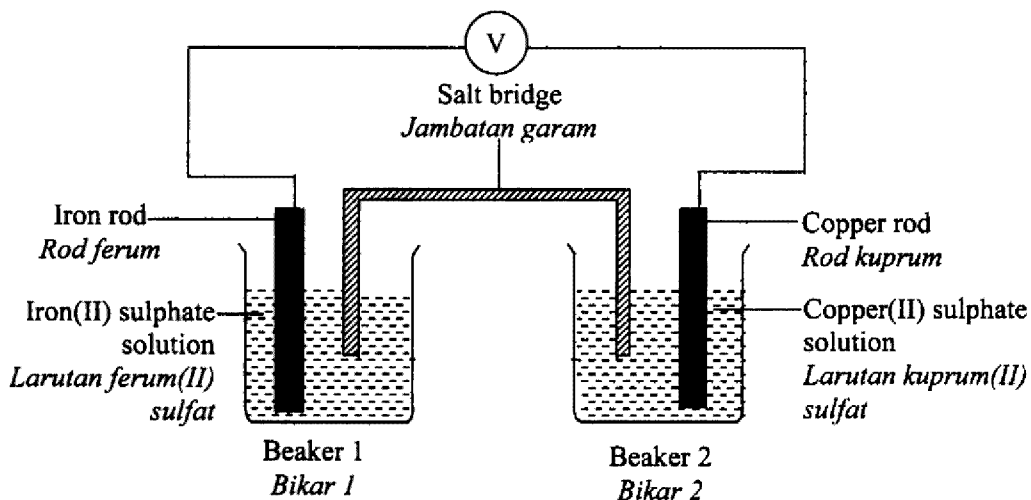


Diagram 6
Rajah 6

Which of the following occurs in the chemical cell ?

Antara berikut yang manakah berlaku dalam sel kimia itu?

- A The iron rod becomes thicker
Rod ferum menjadi lebih tebal
- B The copper rod becomes thinner
Rod kuprum menjadi lebih nipis
- C The colour of the solution in beaker 1 changes from green to brown
Warna larutan dalam bikar 1 bertukar dari hijau ke perang
- D The intensity of the blue colour of copper(II) sulphate solution decreases
Keamatan warna biru larutan kuprum (II) sulfat berkurang

- 27 Diagram 7 shows the set up of the apparatus of a simple chemical cell.
Rajah 7 menunjukkan susunan radas sebuah sel kimia ringkas.

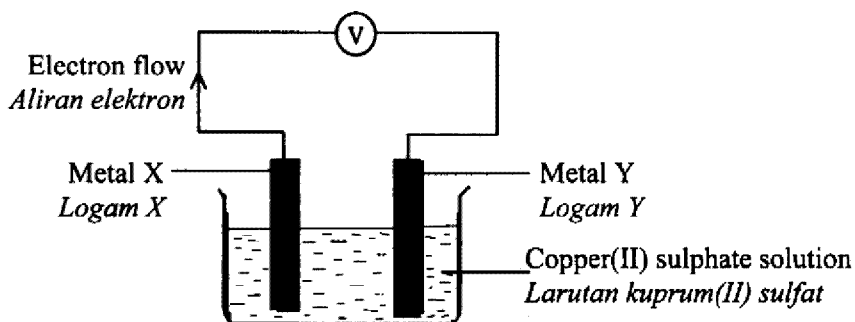


Diagram 7
Rajah 7

What are metal X and Y?

Apakah logam X dan logam Y?

- | | Metal X
<i>Logam X</i> | Metal Y
<i>Logam Y</i> |
|---|-------------------------------|-------------------------------|
| A | Aluminium
<i>Aluminium</i> | Magnesium
<i>Magnesium</i> |
| B | Lead
<i>Plumbum</i> | Aluminium
<i>Aluminium</i> |
| C | Aluminium
<i>Aluminium</i> | Copper
<i>Kuprum</i> |
| D | Lead
<i>Plumbum</i> | Zinc
<i>Zink</i> |

28 The following equation represents the reaction of preparing zinc chloride salt, ZnCl_2 .

Persaman berikut mewakili tindak balas menyediakan garam zink klorida



Which substances can be used to replace zinc?

Bahan-bahan yang manakah boleh digunakan untuk mengganti zink?

- I Zinc oxide
Zink oksida
 - II Zinc hydroxide
Zink hidroksida
 - III Zinc carbonate
Zink karbonat
 - IV Zinc nitrate
Zink nitrat
-
- A I and II only
I dan II sahaja
 - B II and III only
II dan III sahaja
 - C I, II and III only
I, II dan III sahaja
 - D I, II, III and IV
I, II, III, dan IV sahaja

- 29 A plastic bag is made from a polymer called polyethene. Which of the following is the property of plastic bag?

Beg plastik diperbuat daripada polimer yang dipanggil polietena. Di antara berikut yang manakah sifat bagi beg plastik tersebut ?

- A Biodegradable
Terbiodegradasi
- B Non flammable
Tidak mudah terbakar
- C Good insulator
Penebat yang baik
- D High tensile strength
Kekuatan regangan yang tinggi

- 30 Diagram 8 shows the energy profile diagram.
Rajah 8 menunjukkan gambarajah profil tenaga..

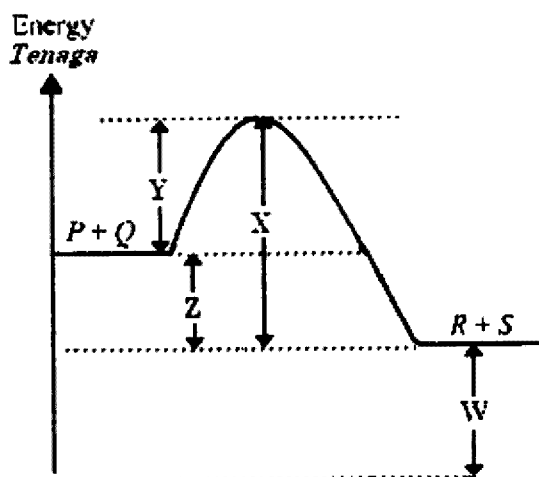


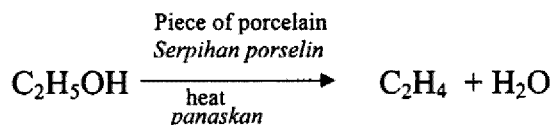
Diagram 8
Rajah 8

Which of the following represents the activation energy?
Antara berikut yang manakah mewakili tenaga pengaktifan?

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

- 31 The following chemical equation shows the conversion of ethanol to ethene .

Persamaan kimia berikut menunjukkan penukaran etanol ke etena.

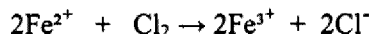


What is the name of the process shown by the above equation?

Apakah nama proses yang ditunjukkan oleh persamaan diatas?

- A Oxidation
Pengoksidaan
 - B Dehydration .
Pendehidratan
 - C Esterification
Pengesteran
 - D Fermentation
Penapaian
- 32 The following ionic equation shows a redox reaction.

Persamaan ion di bawah mewakili satu tindak balas redoks.



Which of the following is **true** about the reaction?

Antara pernyataan berikut, yang manakah benar berkaitan tindakbalas di atas?

- A Iron(III) ion, Fe^{3+} is reduced
Ion ferum(III), Fe^{3+} diturunkan
- B Iron(II) ion, Fe^{2+} is oxidised
Ion ferum(II), Fe^{2+} dioksidakan
- C Chlorine water is a reducing agent
Air bromin merupakan agen penurunan
- D Chloride ion is an oxidising agent
Ion bromida merupakan agen pengoksidaan

- 33 Diagram 9 shows the set of apparatus of an experiment to investigate the redox reaction in terms of the electron transfer at a distance.

Rajah 9 menunjukkan susunan radas satu eksperimen untuk mengkaji tindak balas redoks berdasarkan pemindahan elektron pada satu jarak.

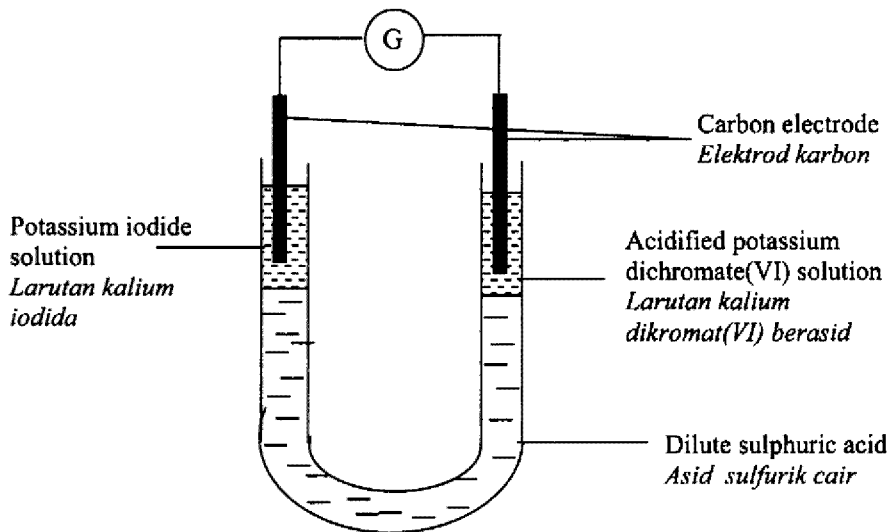


Diagram 9
Rajah 9

Which of the following statements is **true** about the experiment?

Antara pernyataan berikut yang manakah **benar** tentang eksperimen itu

- A Iodide ion is the reducing agent
Ion iodida bertindak sebagai agen penurunan.
- B Oxidation number of iodine decreases from 0 to -1
Nombor pengoksidaan iodin menurun dari 0 ke -1
- C Oxidation number of chromium increases from +3 to +6
Nombor pengoksidaan kromium bertambah dari +3 ke +6
- D Electrons flow from potassium iodide solution to acidified potassium dichromate(VI) through sulphuric acid
Elektron mengalir dari larutan kalium iodida ke larutan kalium dikromat(VI) berasid melalui asid sulfurik

- 34 Diagram 10 shows the energy level diagram for the precipitation reaction of silver chloride.

Rajah 10 menunjukkan gambarajah aras tenaga bagi tindak balas pemendakan argentum klorida

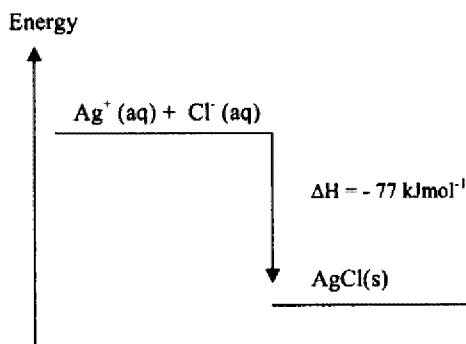


Diagram 10

Rajah 10

Which of the following is **true** about the reaction?

Di antara berikut, yang manakah **benar** tentang tindak balas di atas?

	Type of reaction <i>Jenis tindak balas</i>	Heat change <i>Perubahan haba</i>
A	Endothermic <i>Endotermik</i>	Heat is released <i>Haba dibebaskan</i>
B	Exothermic <i>Eksotermik</i>	Heat is absorbed <i>Haba diserap</i>
C	Endothermic <i>Endotermik</i>	Heat is absorbed <i>Haba diserap</i>
D	Exothermic <i>Eksotermik</i>	Heat is released <i>Haba dibebaskan</i>

- 35 Table 2 shows the mass of elements Y and O in Y oxide and their relative atomic mass respectively. What is the empirical formula for this oxide?

Jadual di bawah menunjukkan jisim unsur Y dan O di dalam oksida Y dan jisim atom relatif masing-masing. Apakah formula empirik oksida ini?

Element <i>Unsur</i>	Y	O
Mass <i>Jisim</i>	5.6	0.8
Relative atomic mass <i>Jisim Atom relatif</i>	56	16

Table 2
Jadual 2

- A Y_2O
- B Y_2O
- C YO_5
- D Y_2O_5

36 Diagram 11 shows two balloons filled with oxygen gas and hydrogen gas respectively.

Rajah 11 menunjukkan dua belon yang masing-masing diisi dengan gas oksigen dan gas hidrogen.

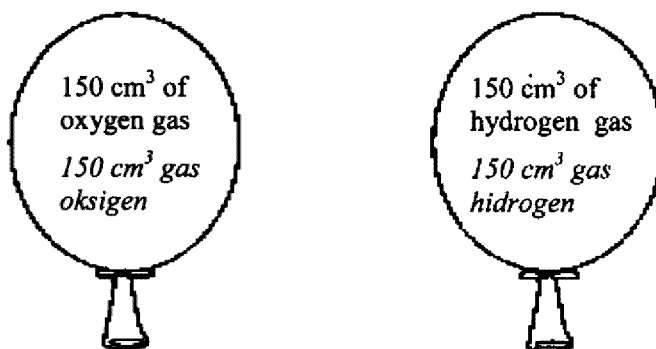


Diagram 11

Rajah 11

Which of the following statements is **true** about the two gases?

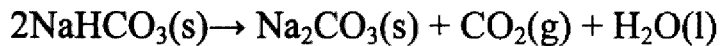
Antara pernyataan yang berikut yang manakah benar tentang dua gas itu?

- A The number of moles of oxygen gas and hydrogen gas is equal
Bilangan mol gas oksigen dan hidrogen adalah sama
- B The number of moles of oxygen gas is greater than hydrogen gas
Bilangan mol gas oksigen lebih besar daripada gas hidrogen
- C The number of oxygen gas molecules is greater than hydrogen gas molecules
Bilangan molekul gas oksigen lebih besar daripada gas hidrogen
- D The number of oxygen gas molecules is fewer than hydrogen gas molecules
Bilangan mol gas oksigen lebih sedikit daripada gas hidrogen

- 37 The chemical formula for potassium hexacyanoterrate(III) is $K_3Fe(CN)_6$.
What is its relative formula mass?
[Relative atomic mass: C = 12; N = 14; K = 39; Fe = 56]

*Formula kimia untuk kalium heksasianoferat (III) ialah $K_3Fe(CN)_6$
Apakah jisim formula relatifnya?
[Jisim atom relatif: C = 12; N = 14; K = 39; Fe = 56]*

- A 121
B 199
C 251
D 329
- 38 Sodium hydrogen carbonate decomposes on heating according to the following equation:
Natrium hidrogen karbonat terurai oleh haba mengikut persamaan berikut:



If 16.8 g of sodium hydrogen carbonate is used, what is the mass of sodium carbonate produced?
[Relative atomic mass: H = 1; C = 12; O = 16; Na = 23]

*Jika 16.8 g natrium hidrogen karbonat digunakan, berapakah jisim natrium karbonat yang terhasil?
[Jisim atom relatif: H = 1; C = 12; O = 16; Na = 23]*

- A 5.3 g
B 10.6 g
C 21.2 g
D 42.4 g

- 39 A restaurant owner wants to use colourful electric lamps to attract customers.
Seorang pemilik restoran ingin menggunakan lampu elektrik yang berwarna warni untuk menarik pelanggan.

Which of the following substances **A**, **B**, **C** or **D** in the Periodic Tables is suitable to be used in the lamps?

*Antara unsur **A**, **B**, **C** dan **D** dalam Jadual Berkala berikut yang manakah sesuai digunakan untuk lampu itu?*

A							C	D
	B							

- 40 The electron arrangement of an atom of *M* is 2.8.1 and the electron arrangement of an atom of *X* is 2.6. Elements *M* and *X* react to form a compound.
Which of the following is **true** about the reaction?

Susunan electron atom M ialah 2.8.1 dan susunan electron atom X ialah 2.6. Unsur M dan unsur X bertindak balas membentuk satu sebatian.

*Antara yang berikut, yang manakah **benar** tentang tindak balas itu?*

- A Atom *X* donates 2 electrons
Atom X menderma 2 elektron
- B Atom *M* receives 1 elektron
Atom M menerima 1 elektron
- C An ionic compound formed has chemical formula M_2X .
Suatu sebatian ion terhasil dan mempunyai formula kimia M_2X .
- D The compound formed has chemical formula MX
Sebatian yang terbentuk mempunyai formula kimia MX

- 41 Diagram 12 shows set-up of apparatus of an experiment where electrode pair X and Y, are different metal, dipped into solution of copper(II) sulphate.

Rajah 12 menunjukkan susunan radas bagi satu eksperimen di mana pasangan elektrod X dan Y, ialah logam yang berlainan, dicelupkan dalam larutan kuprum(II) sulfat.

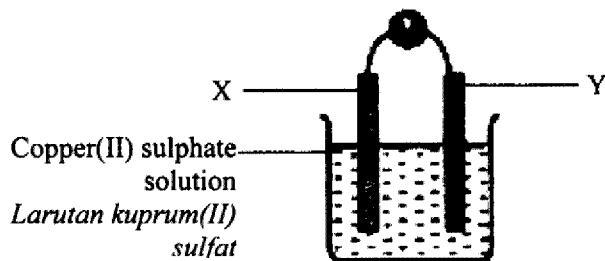


Diagram 12
Rajah 12

Table 3 shows voltmeter reading which is obtained when this experiment is repeated by using different electrode pair of X and Y.

Jadual 3 menunjukkan bacaan voltmeter yang diperolehi apabila eksperimen diulangi dengan menggunakan pasangan elektrod, X dan Y yang berlainan.

Electrode Elektrod		Voltmeter reading Bacaan voltmeter (V)
X	Y	
Copper Kuprum	Iron Ferum	0.8
Zinc Zink	Magnesium Magnesium	a
Iron Ferum	Zinc Zink	0.2
Copper Kuprum	Magnesium Magnesium	2.6

Table 3
Jadual 3

What is the value of a?

Berapakah nilai a?

- A 3.6
- B 2.4
- C 1.6
- D 1.4

- 42 Magnesium chloride solution, $0.001 \text{ mol dm}^{-3}$ is electrolyzed using carbon electrodes. Which are the half equations for the reactions occurring at the anode and the cathode?

Larutan magnesium klorida, $0.001 \text{ mol dm}^{-3}$ dielektrolisis menggunakan elektrod karbon. Yang manakah setengah persamaan bagi tindak balas yang berlaku di anod dan di katod

	Anode <i>Anod</i>	Cathode <i>Katod</i>
A	$4\text{OH}^- \rightarrow \text{O}_2 + 2\text{H}_2\text{O} + 4\text{e}^-$	$\text{Mg}^{2+} + 2\text{e}^- \rightarrow \text{Mg}$
B	$4\text{OH}^- \rightarrow \text{O}_2 + 2\text{H}_2\text{O} + 4\text{e}^-$	$2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$
C	$2\text{Cl}^- \rightarrow \text{Cl}_2 + 2\text{e}^-$	$2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$
D	$2\text{Cl}^- \rightarrow \text{Cl}_2 + 2\text{e}^-$	$\text{Mg}^{2+} + 2\text{e}^- \rightarrow \text{Mg}$

- 43 Sulphuric acid is used as an electrolyte in a car battery has a concentration of 0.5 mol dm^{-3} . How many moles of sulphuric acid are there in 200 cm^3 ?

Asid sulfurik digunakan sebagai elektrolit di dalam bateri kereta dengan kepekatan 0.5 mol dm^{-3} .

Berapakah bilangan mol asid sulfurik yang terdapat di dalam 200 cm^3 ?

- A 0.05
B 0.1
C 0.2
D 1

