

SULIT



LEMBAGA PEPERIKSAAN
KEMENTERIAN PELAJARAN MALAYSIA

SIJIL PELAJARAN MALAYSIA 2012**4541/1****CHEMISTRY****Kertas 1****Nov./Dis.****1 $\frac{1}{4}$ jam****Satu jam lima belas minit**

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini adalah dalam dwibahasa.*
2. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.*
3. *Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini.*

Kertas soalan ini mengandungi 34 halaman bercetak dan 2 halaman tidak bercetak.

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1 What is the meaning of saturated hydrocarbons?

Apakah yang dimaksudkan dengan hidrokarbon tepu?

A Compounds containing only hydrogen atoms and carbon atoms

Sebatian yang mengandungi atom hidrogen dan atom karbon sahaja

B Compounds containing only hydrogen atoms and carbon atoms with only single bond

Sebatian yang mengandungi atom hidrogen dan atom karbon sahaja dengan hanya ikatan tunggal

C Compounds containing only hydrogen atoms and carbon atoms with one double bonds

Sebatian yang mengandungi atom hidrogen dan atom karbon sahaja dengan satu ikatan ganda dua

D Compounds containing only hydrogen atoms and carbon atoms with one triple bonds

Sebatian yang mengandungi atom hidrogen dan atom karbon sahaja dengan satu ikatan ganda tiga

2 Which particles are produced when an electrolyte dissolves in water?

Zarah manakah yang terhasil apabila elektrolit melarut dalam air?

A Ions

Ion

B Atoms

Atom

C Electrons

Elektron

D Molecules

Molekul

3 Which pair is correctly matched?

Pasangan manakah yang dipadankan dengan betul?

| | Polymer <i>Polimer</i> | Monomer <i>Monomer</i> |
|---|-------------------------------------|----------------------------------|
| A | Starch <i>Kanji</i> | Glucose <i>Glukosa</i> |
| B | Natural rubber <i>Getah asli</i> | Amino acid <i>Asid amino</i> |
| C | Protein <i>Protein</i> | Isoprene <i>Isoprena</i> |
| D | Polythene <i>Politena</i> | Propene <i>Propena</i> |

- 4 Which set of definition of oxidation in terms of oxygen, hydrogen and electron is correct?

Set manakah bagi definisi pengoksidaan dari segi oksigen, hidrogen dan elektron adalah betul?

| | Oxygen <i>Oksigen</i> | Hydrogen <i>Hidrogen</i> | Electrons <i>Elektron</i> |
|----------|---------------------------------|------------------------------------|-------------------------------------|
| A | Gain <i>Penerimaan</i> | Loss <i>Kehilangan</i> | Loss <i>Kehilangan</i> |
| B | Gain <i>Penerimaan</i> | Loss <i>Kehilangan</i> | Gain <i>Penerimaan</i> |
| C | Loss <i>Kehilangan</i> | Gain <i>Penerimaan</i> | Gain <i>Penerimaan</i> |
| D | Loss <i>Kehilangan</i> | Gain <i>Penerimaan</i> | Loss <i>Kehilangan</i> |

- 5 Which characteristic is correct about elements in Group 17 in the Periodic Table as going down the group?

Ciri manakah yang betul tentang unsur-unsur dalam Kumpulan 17 dalam Jadual Berkala apabila menuruni kumpulan?

- A** The reactivity increases
Kereaktifan bertambah
- B** The intensity of colour decreases
Keamatan warna berkurang
- C** The tendency to accept an electron decreases
Kecenderungan menerima elektron berkurang
- D** The physical state changes from liquid to gas
Keadaan fizikal berubah daripada cecair kepada gas

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6 Which of the following particles equal to 1 mole?

Antara zarah yang berikut, yang manakah bersamaan dengan 1 mol?

A The number of atom in 1 g of hydrogen gas

Bilangan atom dalam 1 g gas hidrogen

B The number of molecule in 1 g of hydrogen gas

Bilangan molekul dalam 1 g gas hidrogen

C 6.02×10^{23} of hydrogen atoms in hydrogen gas

6.02×10^{23} atom hidrogen dalam gas hidrogen

D 6.02×10^{23} of hydrogen molecule in hydrogen gas

6.02×10^{23} molekul hidrogen dalam gas hidrogen

7 Which reaction has the highest rate of reaction?

Tindak balas manakah yang mempunyai kadar tindak balas yang paling tinggi?

A Rusting of water pipe

Pengaratan paip air

B Photosynthesis in green plant

Fotosintesis dalam tumbuhan hijau

C Burning of a small piece of charcoal in the air

Pembakaran ketulan kecil arang batu dalam udara

D Formation of stalactites and stalagmites in a cave

Pembentukan stalaktit dan stalagmit dalam gua

- 8 Substance X slows down the spoilage of food caused by microorganisms. Food will turn bad easily without substance X.

What is substance X?

Bahan X melambatkan kerosakan makanan disebabkan oleh mikroorganisma. Makanan akan mudah rosak tanpa bahan X.

Apakah bahan X?

A Stabilisers

Penstabil

B Flavourings

Perisa

C Antioxidants

Pengantioksida

D Preservatives

Pengawet

- 9 Which statement is correct about cleansing action of soap?

Pernyataan manakah yang betul tentang tindakan pencucian bagi sabun?

A The hydrophilic part of soap molecules dissolves in water

Bahagian hidrofilik molekul sabun larut dalam air

B Increases the surface tension of water

Menambah ketegangan permukaan air

C Soap molecules emulsify water

Molekul sabun mengemulsikan air

D Reacts with acid to form salt

Bertindak balas dengan asid untuk membentuk garam

10 The following statements are the properties of compound M.

Penyataan berikut adalah sifat-sifat sebatian M.

- Has high melting point and boiling point.
Mempunyai takat lebur dan takat didih yang tinggi.
- Conducts electricity in aqueous solution or molten state.
Mengkonduksikan elektrik dalam larutan akueus atau dalam keadaan leburan.
- Dissolves in water but does not dissolve in organic solvents.
Larut dalam air tetapi tidak larut dalam pelarut organik.

Which substance is compound M?

Bahan manakah sebatian M?

- A Cyclohexane
Sikloheksana
- B Naphthalene
Naftalena
- C Diethyl ether
Dietil eter
- D Sodium sulphate
Natrium sulfat

11 The molecular formula of ethanoic acid is CH_3COOH .

What is the empirical formula of ethanoic acid?

Formula molekul asid etanoik ialah CH_3COOH .

Apakah formula empirik asid etanoik?

- A CHO
- B CH_2O
- C $\text{C}_2\text{H}_2\text{O}_2$
- D $\text{C}_2\text{H}_4\text{O}_2$

- 12 Sulphuric acid is manufactured in industry through the Contact Process involving three stages.

Which stage is correct?

Asid sulfurik dihasilkan dalam industri melalui Proses Sentuh yang melibatkan tiga peringkat.

Peringkat manakah yang betul?

- A Sulphur trioxide gas is dissolved in concentrated sulphuric acid
Gas sulfur trioksida dilarutkan dalam asid sulfurik pekat
- B Sulphur dioxide gas is dissolved in concentrated sulphuric acid
Gas sulfur dioksida dilarutkan dalam asid sulfurik pekat
- C Sulphur trioxide gas is dissolved in water
Gas sulfur trioksida dilarutkan dalam air
- D Sulphur dioxide gas is dissolved in water
Gas sulfur dioksida dilarutkan dalam air
- 13 Iron(II) ions, Fe^{2+} in a solution can be changed to iron(III) ions, Fe^{3+} by adding solution X.

What is X?

Ion ferum(II), Fe^{2+} dalam larutan boleh ditukar kepada ion ferum(III), Fe^{3+} dengan menambahkan larutan X.

Apakah X?

- A Sodium hydroxide
Natrium hidroksida
- B Sodium thiosulphate
Natrium tiosulfat
- C Potassium hexacyanoferrate(II)
Kalium heksasianoferat(II)
- D Acidified potassium manganate(VII)
Kalium manganat(VII) berasid

14 Which reaction is endothermic?

Tindak balas manakah adalah endotermik?

- A Combustion
Pembakaran
- B Displacement
Penyesaran
- C Neutralisation
Peneutralan
- D Decomposition
Penguraian

15 Cryolite, Na_3AlF_6 is used in the extraction process of aluminium in industry.

What is the use of this substance?

Kriolit, Na_3AlF_6 digunakan dalam proses pengekstrakan aluminium dalam industri.

Apakah kegunaan bahan ini?

- A Lower the melting points of aluminium oxide
Merendahkan takat lebur aluminium oksida
- B Increase the rate of reaction
Meningkatkan kadar tindak balas
- C Eliminate impurities
Menyingkirkan bendasing
- D Hamper electrode from being oxidized
Menghalang elektrod daripada dioksidakan

16 Which of the following shows sublimation process?

Antara yang berikut, yang manakah menunjukkan proses pemejalwapan?

- A Bromine vapour spreads throughout gas jar
Wap bromin tersebar ke seluruh balang gas
- B Water changes into ice in the refrigerator
Air bertukar menjadi ais dalam peti sejuk
- C Naphthalene ball in cupboard becomes smaller
Bebola naftalena dalam almari menjadi lebih kecil
- D Volume of perfume decreases in an opened bottle
Isi padu minyak wangi berkurang dalam botol yang terbuka

17 Which substance coagulates latex?

Bahan manakah yang menggumpalkan lateks?

- A Ammonia
Ammonia
- B Formic acid
Asid formik
- C Sodium chloride
Natrium klorida
- D Sodium hydroxide
Natrium hidroksida

- 18 Which chemical formula is correctly named according to the IUPAC nomenclature system?

Formula kimia manakah yang dinamakan dengan betul berdasarkan sistem penamaan IUPAC?

| | Chemical formula <i>Formula kimia</i> | Name <i>Nama</i> |
|---|---|--|
| A | MgO | magnesium oxide <i>magnesium oksida</i> |
| B | SO ₃ | sulphur oxide <i>sulfur oksida</i> |
| C | CO | carbon oxide <i>karbon oksida</i> |
| D | Fe ₂ O ₃ | iron oxide <i>ferum oksida</i> |

- 19 Which pair shows pH value and the degree of dissociation for sulphuric acid?

Pasangan manakah yang menunjukkan nilai pH dan darjah penceraian bagi asid sulfurik yang betul?

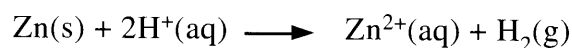
| | pH value <i>Nilai pH</i> | Degree of dissociation <i>Darjah penceraian</i> |
|---|------------------------------------|---|
| A | 2 | High <i>Tinggi</i> |
| B | 2 | Low <i>Rendah</i> |
| C | 6 | Low <i>Rendah</i> |
| D | 6 | High <i>Tinggi</i> |

20 Which pair produces the highest heat of neutralisation?

Pasangan manakah yang menghasilkan haba peneutralan paling tinggi?

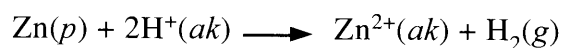
- A Methanoic acid and sodium hydroxide solution
Asid metanoik dan larutan natrium hidroksida
- B Sulphuric acid and potassium hydroxide solution
Asid sulfurik dan larutan kalium hidroksida
- C Hydrochloric acid and potassium hydroxide solution
Asid hidroklorik dan larutan kalium hidroksida
- D Ethanoic acid and sodium hydroxide solution
Asid etanoik dan larutan natrium hidroksida

21 The following ionic equation shows the reaction between zinc and acid.



What is the change in oxidation number of hydrogen?

Persamaan ion berikut menunjukkan tindak balas antara zink dengan asid.



Apakah perubahan nombor pengoksidaan bagi hidrogen?

- A 0 to +1
0 kepada +1
- B 0 to +2
0 kepada +2
- C +1 to 0
+1 kepada 0
- D +1 to +2
+1 kepada +2

22 What is the number of moles in 100 cm³ of 1.5 mol dm⁻³ of nitric acid?

Berapakah bilangan mol dalam 100 cm³ asid nitrik 1.5 mol dm⁻³?

- A 0.015 mol
- B 0.100 mol
- C 0.150 mol
- D 1.500 mol

23 A concentrated sodium chloride solution is electrolysed using carbon electrodes.

Which are the half-equations that represent the reactions at the anode and the cathode?

Larutan natrium klorida pekat dielektrolisis menggunakan elektrod karbon.

Setengah persamaan manakah yang mewakili tindak balas di anod dan di katod?

| | Anode Anod | Cathode Katod |
|---|---|--|
| A | $2\text{Cl}^- \longrightarrow \text{Cl}_2 + 2\text{e}^-$ | $\text{Na}^+ + \text{e}^- \longrightarrow \text{Na}$ |
| B | $2\text{Cl}^- \longrightarrow \text{Cl}_2 + 2\text{e}^-$ | $2\text{H}^+ + 2\text{e}^- \longrightarrow \text{H}_2$ |
| C | $4\text{OH}^- \longrightarrow \text{O}_2 + 2\text{H}_2\text{O} + 4\text{e}^-$ | $\text{Na}^+ + \text{e}^- \longrightarrow \text{Na}$ |
| D | $4\text{OH}^- \longrightarrow \text{O}_2 + 2\text{H}_2\text{O} + 4\text{e}^-$ | $2\text{H}^+ + 2\text{e}^- \longrightarrow \text{H}_2$ |

- 24 Diagram 1 shows an energy profile for manufacturing ammonia through Haber process.
Rajah 1 menunjukkan profil tenaga bagi pembuatan ammonia melalui proses Haber.

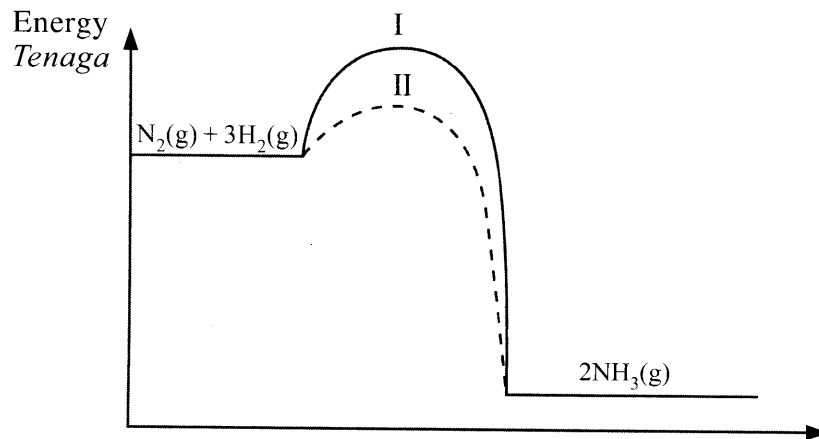


Diagram 1
Rajah 1

What is the change needed to be done to get curve II from curve I?

Apakah perubahan yang perlu dilakukan untuk mendapatkan lengkung II daripada lengkung I?

- A The mixture is passed through layers of iron
Campuran dilalukan melalui lapisan besi
- B The mixture is cooled to produce ammonia in liquid form
Campuran disejukkan untuk menghasilkan ammonia dalam bentuk cecair
- C The mixture is compressed to pressure of 200 atmosphere
Campuran dimampatkan sehingga tekanan 200 atmosfera
- D The mixture is heated to temperature of 450 °C
Campuran dipanaskan sehingga suhu 450 °C

25 Table 1 shows the boiling point and melting point of substances V, W, X and Y.

Jadual 1 menunjukkan takat didih dan takat lebur bagi bahan-bahan V, W, X dan Y.

| Substance <i>Bahan</i> | Boiling point (°C) <i>Takat didih (°C)</i> | Melting point (°C) <i>Takat lebur (°C)</i> |
|----------------------------------|--|--|
| V | 268 | 197 |
| W | 170 | 150 |
| X | 130 | 80 |
| Y | 17 | 8 |

Table 1
Jadual 1

Which substance is a liquid at 100 °C?

Bahan manakah adalah cecair pada suhu 100 °C?

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

- 26 Diagram 2 shows the apparatus set-up to study the reactivity of a metal with oxygen. The colour of the product formed is yellow when hot and white when cold.

Rajah 2 menunjukkan susunan radas untuk mengkaji kereaktifan suatu logam dengan oksigen. Warna hasil yang terbentuk adalah kuning apabila panas dan putih apabila sejuk.

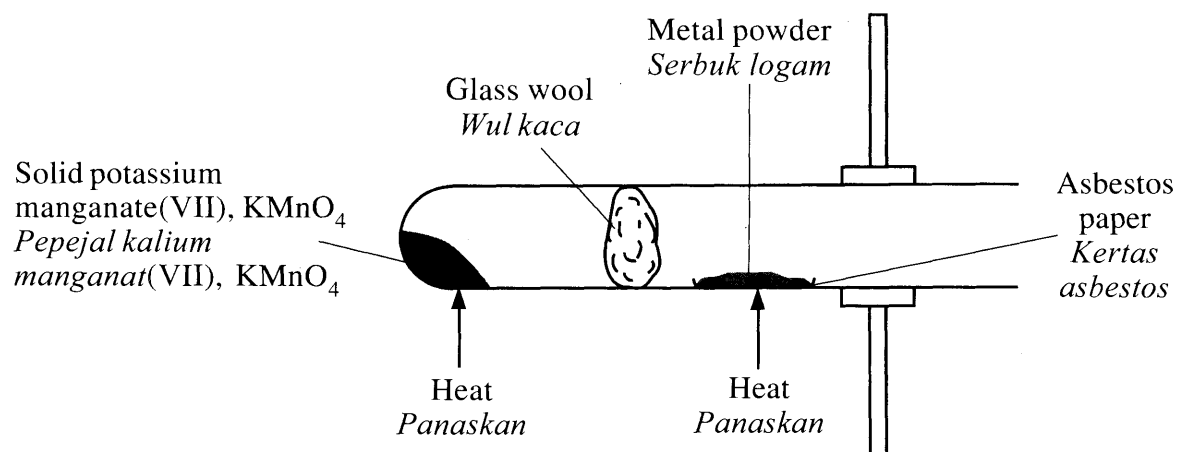


Diagram 2
Rajah 2

What is the metal?

Apakah logam itu?

- A Iron
Ferum
- B Lead
Plumbum
- C Zinc
Zink
- D Copper
Kuprum

27 Diagram 3 shows the apparatus set-up for an electrolysis cell.

Rajah 3 menunjukkan susunan radas bagi satu sel elektrolisis.

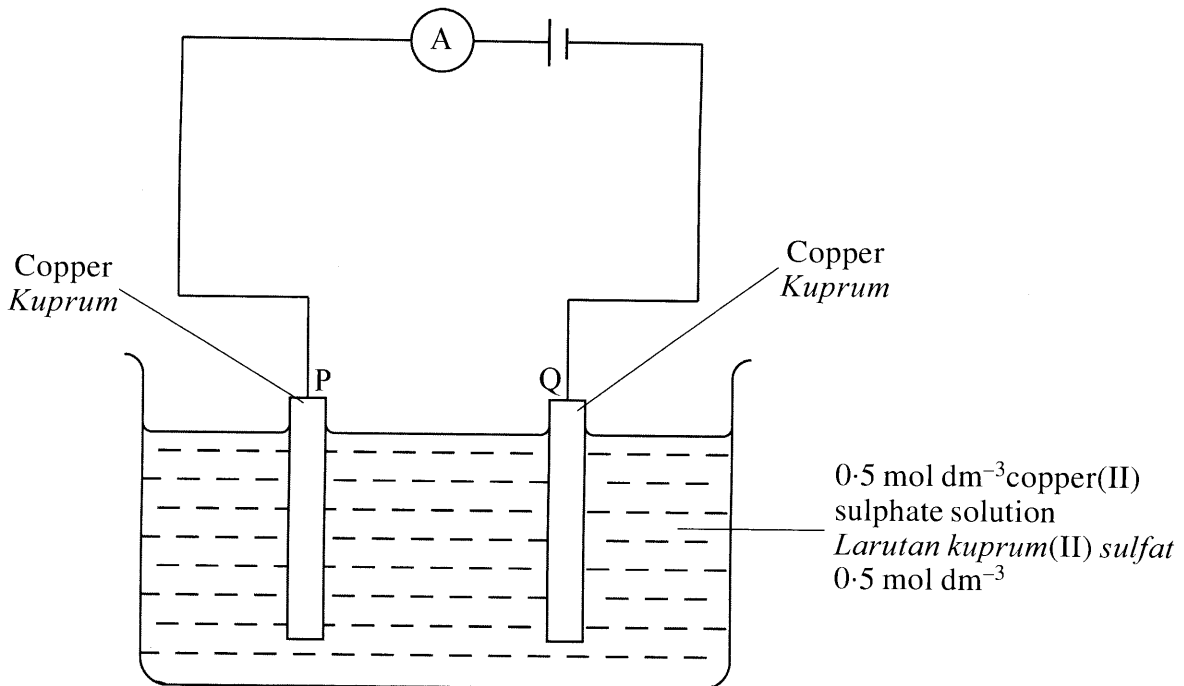


Diagram 3
Rajah 3

Which of the following happens if the experiment left for 1 hour?

Antara yang berikut, yang manakah berlaku jika eksperimen itu dibiarkan selama 1 jam?

- A Electrode P gets thicker
Elektrod P semakin tebal
- B Ammeter reading becomes zero
Bacaan ammeter menjadi sifar
- C Bubbles of gas are produced at electrode Q
Gelembung gas terhasil di elektrod Q
- D Intensity of the blue colour of the solution does not change
Keamatan warna biru larutan tidak berubah

28 Table 2 shows the electron arrangement of four elements in the Periodic Table.

Jadual 2 menunjukkan susunan elektron bagi empat unsur dalam Jadual Berkala.

| Element <i>Unsur</i> | Electron arrangement <i>Susunan elektron</i> |
|--------------------------------|--|
| W | 2.8.1 |
| X | 2.8.3 |
| Y | 2.8.4 |
| Z | 2.8.7 |

Table 2
Jadual 2

Which pair of elements forms a compound that is insoluble in water?

Pasangan unsur-unsur manakah yang membentuk suatu sebatian yang tak larut dalam air?

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

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29 Diagram 4 shows the heating curve of solid Z.

Rajah 4 menunjukkan lengkung pemanasan bagi pepejal Z.

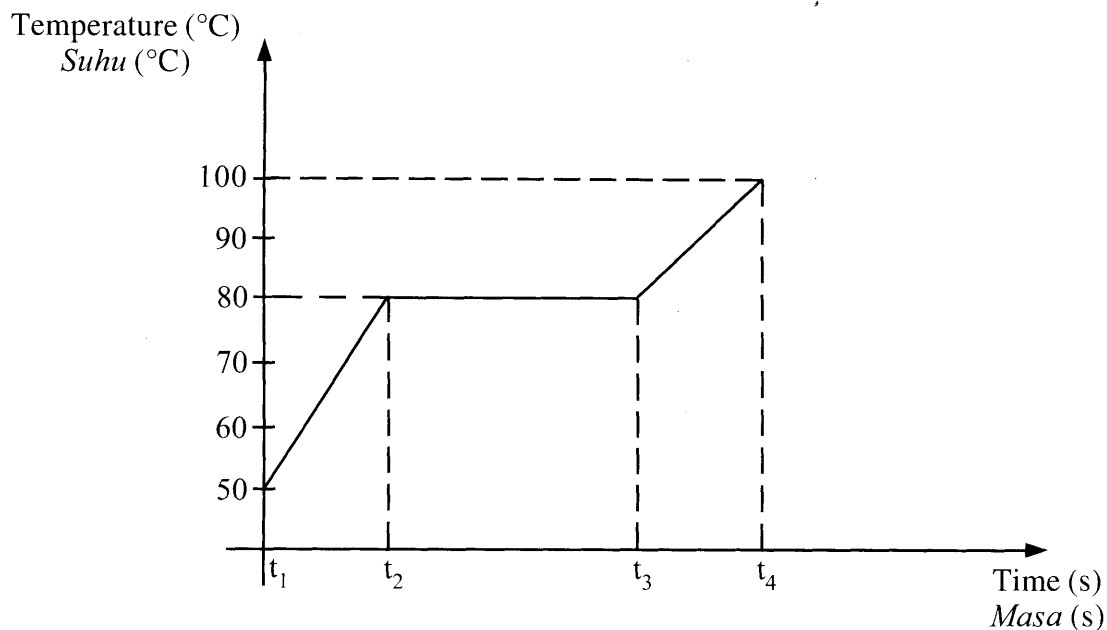


Diagram 4
Rajah 4

Which statement can be deduced from Diagram 4?

Penyataan manakah boleh dideduksikan daripada Rajah 4?

- A The melting point of substance Z is 100°C .
Takat lebur bagi bahan Z ialah 100°C .
- B All the substance Z is in liquid state at t_2 .
Semua bahan Z adalah dalam keadaan cecair pada t_2 .
- C The kinetic energy of particles in substance Z decreases from t_1 to t_2 .
Tenaga kinetik zarah-zarah dalam bahan Z berkurangan dari t_1 kepada t_2 .
- D Heat is absorbed to overcome the intermolecular forces from t_1 to t_2 .
Haba diserap untuk mengatasi daya antara molekul dari t_1 kepada t_2 .

30 Which metals can displace lead from lead(II) nitrate solution?

Logam manakah yang boleh menyesarkan plumbum daripada larutan plumbum(II) nitrat?

I Zinc

Zink

II Silver

Argentum

III Copper

Kuprum

IV Aluminium

Aluminium

A I and II

I dan II

B I and IV

I dan IV

C II and III

II dan III

D III and IV

III dan IV

31 The heat of combustion obtained from an experiment is normally less than the theoretical value.

Which precaution can be taken to increase the accuracy of the result?

Haba pembakaran yang diperolehi daripada eksperimen biasanya kurang daripada nilai teori.

Langkah berjaga-jaga manakah yang boleh diambil untuk meningkatkan ketepatan keputusan ini?

A Light the wick before placing the lamp under the container

Nyalakan sumbu sebelum meletakkan pelita di bawah bekas

B Stir the water continuously throughout the experiment

Kacau air berterusan sepanjang eksperimen

C Heat the water in a glass beaker

Panaskan air dalam bikar kaca

D Weigh the lamp when it is cold

Timbang pelita apabila ia sejuk

- 32 Thiosulphate ion, $S_2O_3^{2-}$ reacts with an element M in Group 1 to form a compound. M is not the actual symbol of the element.

What is the formula of the compound?

Ion tiosulfat, $S_2O_3^{2-}$ bertindak balas dengan suatu unsur M dalam Kumpulan 1 untuk membentuk suatu sebatian. M bukan simbol sebenar unsur itu.

Apakah formula bagi sebatian tersebut?

- A MS_2O_3
B $M_2S_2O_3$
C $M(S_2O_3)_2$
D $M_2(S_2O_3)_3$
- 33 Uranium-235 and uranium-238 are isotopes.
[Proton number of uranium = 92]
- Which statement is correct?
- Uranium-235 dan uranium-238 adalah isotop.
[Nombor proton bagi uranium = 92]*
- Pernyataan manakah yang betul?*
- A Uranium-235 has 92 protons and 143 electrons
Uranium-235 mempunyai 92 proton dan 143 elektron
- B Uranium-238 has 92 electrons and 146 neutrons
Uranium-238 mempunyai 92 elektron dan 146 neutron
- C Uranium-235 has less number of electrons than uranium-238
Uranium-235 mempunyai bilangan elektron kurang daripada uranium-238
- D Uranium-235 has the same number of neutrons as uranium-238
Uranium-235 mempunyai bilangan neutron yang sama dengan uranium-238

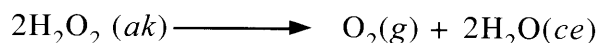
- 34 The following equation represents the decomposition of hydrogen peroxide, H_2O_2 .



2 g of manganese(IV) oxide, MnO_2 is added to hydrogen peroxide.

What is the difference of adding manganese(IV) oxide to hydrogen peroxide compared to the decomposition without manganese(IV) oxide?

Persamaan berikut mewakili penguraian hidrogen peroksida, H_2O_2 .



2 g mangan(IV) oksida, MnO_2 ditambah kepada hidrogen peroksida.

Apakah perbezaan penambahan mangan(IV) oksida kepada hidrogen peroksida berbanding penguraian tanpa mangan(IV) oksida?

- A More heat is released
Lebih banyak haba terbebas
- B Total volume of oxygen becomes lower
Jumlah isi padu oksigen menjadi kurang
- C Concentration of hydrogen peroxide becomes higher
Kepekatan hidrogen peroksida menjadi lebih tinggi
- D Initial rate of decomposition of hydrogen peroxide becomes higher
Kadar awal penguraian hidrogen peroksida menjadi lebih tinggi
- 35 Which statement shows the difference between butene and butane?
Pernyataan manakah yang menunjukkan perbezaan antara butena dengan butana?
- A Butene dissolved in water but butane does not
Butena terlarut dalam air tetapi butana tidak terlarut dalam air
- B The carbon percentage per molecule of butene is higher
Peratus karbon per molekul bagi butena lebih tinggi
- C The number of hydrogen atoms per molecule of butene is higher
Bilangan atom hidrogen per molekul bagi butena lebih banyak
- D Butane decolourised the brown colour of bromine water but butene does not
Butana menyahwarnakan warna perang air bromin tetapi butena tidak menyahkan warna perang air bromin.

- 36 The nucleon number of element X is 19. Element X has 10 neutrons.

Which element has the same chemical properties as element X?

[Proton number: O = 8, Na = 11, Cl = 17, Ar = 18]

Nombor nukleon unsur X ialah 19. Unsur X mempunyai 10 neutron.

Unsur manakah yang mempunyai sifat kimia yang sama dengan unsur X?

[*Nombor proton: O = 8, Na = 11, Cl = 17, Ar = 18*]

A Argon

Argon

B Sodium

Natrium

C Chlorine

Klorin

D Oxygen

Oksigen

- 37 The formula for potassium hexacyanoferrate(II) is given as $K_yFe(CN)_6$. Its relative formula mass is 368.

What is the value of y?

[Relative atomic mass: C = 12, N = 14, K = 39, Fe = 56]

Formula bagi kalium heksasianoferat(II) diberi sebagai $K_yFe(CN)_6$. Jisim formula relatif sebatian ini ialah 368.

Apakah nilai y?

[*Jisim atom relatif: C = 12, N = 14, K = 39, Fe = 56*]

A 2

B 3

C 4

D 5

38 Diagram 5 shows electron arrangement of element L.

Rajah 5 menunjukkan susunan elektron bagi unsur L.

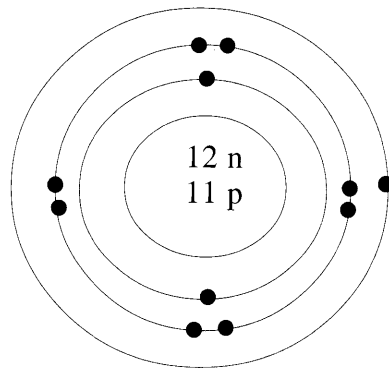


Diagram 5
Rajah 5

Which symbol represents the atom of element L?

Simbol manakah yang mewakili atom bagi unsur L?

- A ${}_{11}^{23}\text{L}$
- B ${}_{23}^{11}\text{L}$
- C ${}_{11}^{12}\text{L}$
- D ${}_{12}^{11}\text{L}$

- 39 Diagram 6 is a graph which shows the volume of gas against time for the reaction between sulphuric acid with excess marble chips.

Rajah 6 ialah graf yang menunjukkan isi padu gas karbon dioksida melawan masa bagi tindak balas antara asid sulfurik dengan ketulan marmar berlebihan.

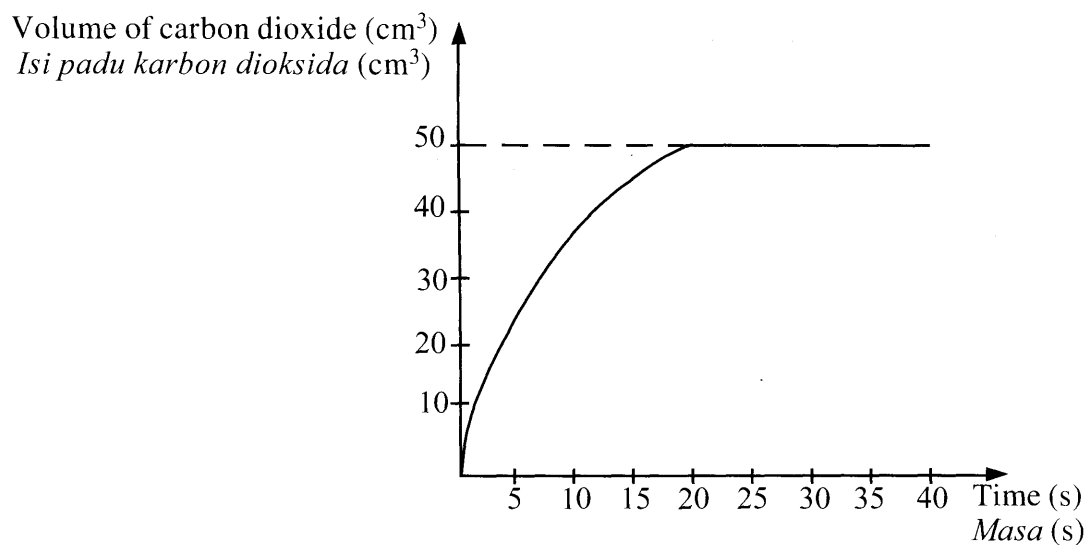


Diagram 6
Rajah 6

What is the average rate of reaction?

Berapakah kadar tindak balas purata bagi tindak balas itu?

- A $1.0 \text{ cm}^3 \text{ s}^{-1}$
- B $2.0 \text{ cm}^3 \text{ s}^{-1}$
- C $2.5 \text{ cm}^3 \text{ s}^{-1}$
- D $3.0 \text{ cm}^3 \text{ s}^{-1}$

40 0.58 g flavouring substance is used to improve the taste of a pineapple cake.

What is the number of molecules of the flavouring substance?

[Relative molecular mass of flavouring substance = 116 g mol⁻¹;

Avogadro constant = 6.02 × 10²³ mol⁻¹]

0.58 g bahan perisa digunakan untuk memperbaiki rasa sebiji kek nanas.

Berapakah bilangan molekul bahan perisa itu?

[Jisim molekul relatif bahan perisa = 116 g mol⁻¹;

Pemalar Avogadro = 6.02 × 10²³ mol⁻¹]

A 8.31×10^{-27}

B 3.32×10^{-22}

C 3.01×10^{21}

D 1.20×10^{26}

- 41 Diagram 7 shows the symbols for four different elements. The letters J, L, M and Q, are not the actual symbols of the elements.

Rajah 7 menunjukkan simbol bagi empat unsur yang berlainan. Huruf-huruf J, L, M dan Q, bukan simbol sebenar bagi unsur-unsur itu.

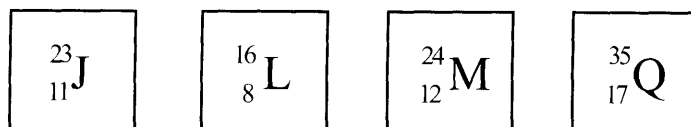


Diagram 7
Rajah 7

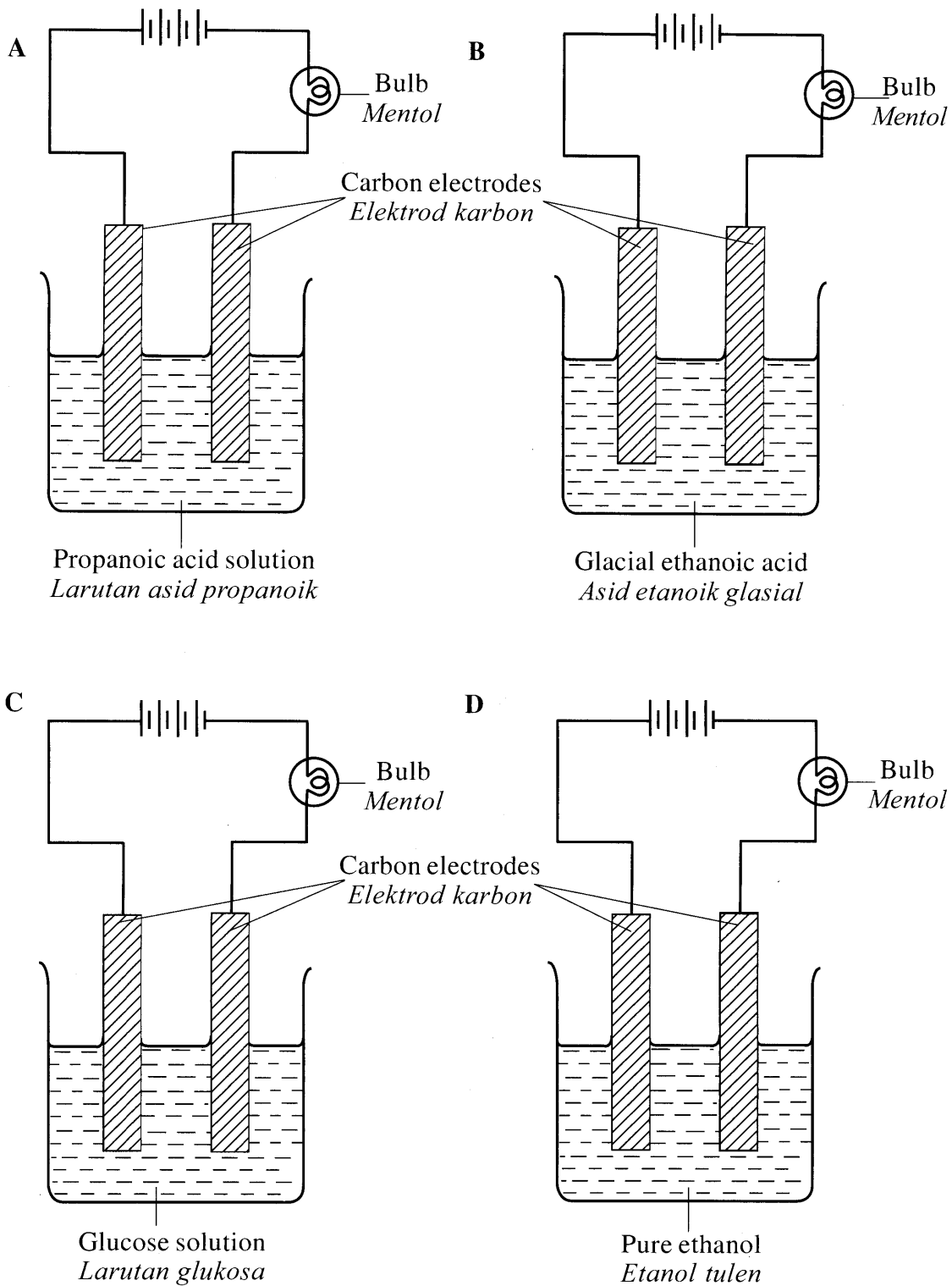
Which is the correct formula and type of bond when two of the elements react?

Formula dan jenis ikatan manakah yang betul apabila dua daripada unsur-unsur itu bertindak balas?

| | Formula <i>Formula</i> | Type of bond <i>Jenis ikatan</i> |
|---|---------------------------|-------------------------------------|
| A | J_2L | Ionic <i>Ionik</i> |
| B | JL_2 | Covalent <i>Kovalen</i> |
| C | M_2Q | Ionic <i>Ionik</i> |
| D | MQ_2 | Covalent <i>Kovalen</i> |

42 In which apparatus set-up does the bulb light up?

Dalam susunan radas manakah mentol itu akan menyala?



[Lihat halaman sebelah
SULIT

43 Diagram 8 shows an energy level for the precipitation reaction of silver chloride.

Rajah 8 menunjukkan aras tenaga untuk tindak balas pemendakan argentum klorida.

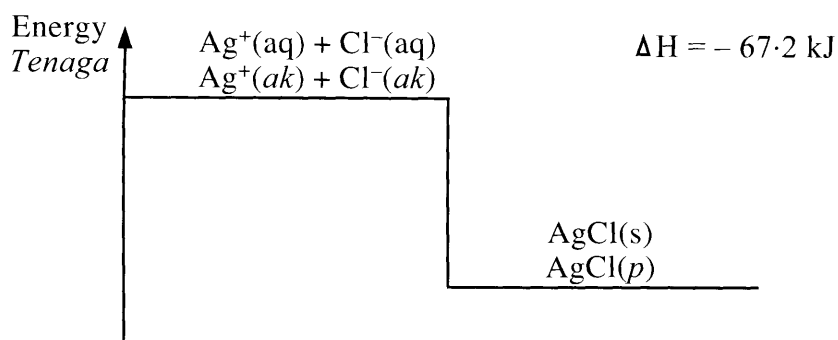


Diagram 8
Rajah 8

What is the heat released when 14.35 g of silver chloride is formed?

[Relative atomic mass : Cl = 35.5, Ag = 108]

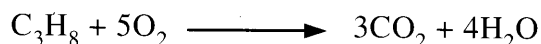
Berapakah haba yang dibebaskan apabila 14.35 g argentum klorida terbentuk?

[Jisim atom relatif : Cl = 35.5, Ag = 108]

- A 0.672 kJ
- B 6.72 kJ
- C 67.2 kJ
- D 672.0 kJ

- 44 The following equation represents the combustion of propane in excess oxygen.

Persamaan berikut mewakili pembakaran propana dalam oksigen berlebihan.



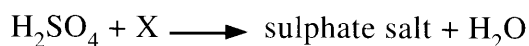
What is the volume of carbon dioxide gas produced when 48 cm³ of propane is completely burnt?

[Molar volume of gas = 24 dm³ mol⁻¹ at room temperature]

Apakah isi padu gas karbon dioksida yang terhasil apabila 48 cm³ propana terbakar dengan lengkap?

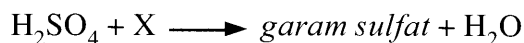
[*Isi padu molar gas = 24 dm³ mol⁻¹ pada suhu bilik*]

- A 28 cm³
 - B 48 cm³
 - C 96 cm³
 - D 144 cm³
- 45 The following equation shows the reaction to obtain soluble sulphate salt.



What is substance X?

Persamaan berikut menunjukkan tindak balas untuk mendapatkan garam sulfat terlarutkan.



Apakah bahan X?

- A Calcium oxide
Kalsium oksida
- B Lead(II) oxide
Plumbum(II) oksida
- C Barium hydroxide
Barium hidroksida
- D Potassium hydroxide
Kalium hidroksida

- 46 A piece of sodium metal is put into a beaker which contains 30 cm^3 of water to form a solution.

Which of the following can react with the solution?

Sedikit logam natrium dimasukkan ke dalam sebuah bikar yang mengandungi 30 cm^3 air untuk membentuk satu larutan.

Antara yang berikut, yang manakah boleh bertindak balas dengan larutan itu?

- A Aqueous ammonia
Ammonia akueus
- B Potassium carbonate solution
Larutan kalium karbonat
- C Lithium hydrogen carbonate solution
Larutan litium hidrogen karbonat
- D Hydrogen chloride solution
Larutan hidrogen klorida
- 47 Table 3 shows information about three simple voltaic cells.
Jadual 3 menunjukkan maklumat tentang tiga sel volta ringkas.

| Pair of metals <i>Pasangan logam</i> | Potential difference (V) <i>Beza keupayaan (V)</i> | Positive terminal <i>Terminal positif</i> |
|---|---|--|
| W and X <i>W dan X</i> | 0.7 | X |
| X and Y <i>X dan Y</i> | 2.0 | Y |
| W and Z <i>W dan Z</i> | 1.6 | Z |

Table 3
Jadual 3

What is the potential difference of a voltaic cell which uses Y and Z as electrodes?

Berapakah beza keupayaan sel volta yang menggunakan Y dan Z sebagai elektrod?

- A 0.4 V
- B 0.9 V
- C 1.1 V
- D 1.3 V

48 Diagram 9 shows the structural formula of an ester.

Rajah 9 menunjukkan formula struktur bagi satu ester.

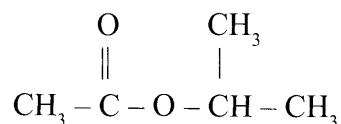


Diagram 9

Rajah 9

What are the names of alcohol and carboxylic acid used to prepare the ester?

Apakah nama alkohol dan nama asid karboksilik yang digunakan untuk menyediakan ester itu?

- A Propan-2-ol and ethanoic acid
Propan-2-ol dan asid etanoik
- B Propan-1-ol and propanoic acid
Propan-1-ol dan asid propanoik
- C Ethanol and ethanoic acid
Etanol dan asid etanoik
- D Ethanol and propanoic acid
Etanol dan asid propanoik

- 49 Diagram 10 shows the apparatus set-up for the neutralisation reaction between a strong acid and a strong alkali.

Rajah 10 menunjukkan susunan radas bagi tindak balas penutralan antara asid kuat dan alkali kuat.

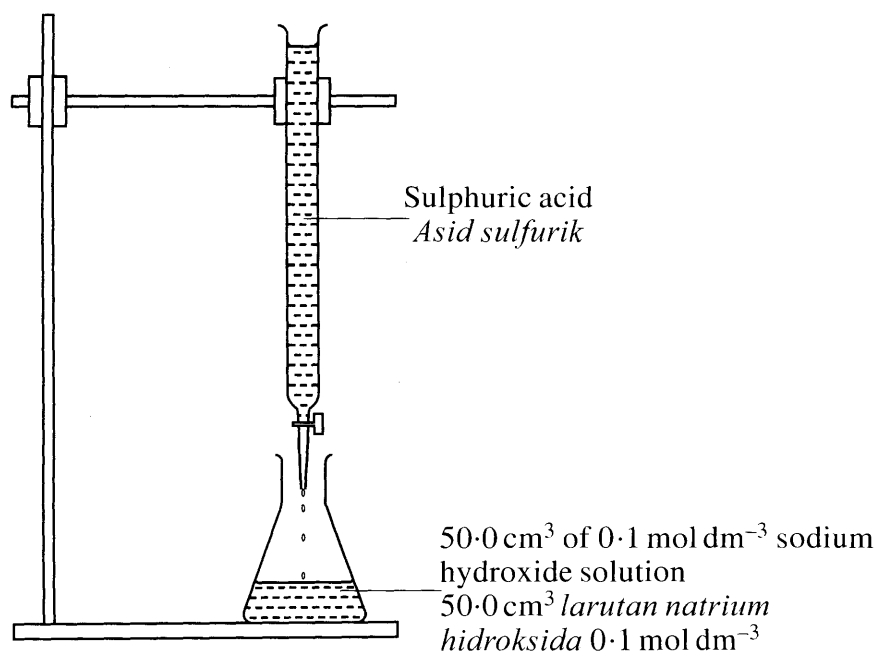


Diagram 10
Rajah 10

25.0 cm³ of sulphuric acid neutralises 50.0 cm³ of 1.0 mol dm⁻³ sodium hydroxide solution.
What is the molarity of the sulphuric acid?

25.0 cm³ asid sulfurik meneutralkan 50.0 cm³ larutan natrium hidroksida 1.0 mol dm⁻³.

Apakah kemolaran asid sulfurik?

- A 0.10 mol dm⁻³
- B 0.15 mol dm⁻³
- C 0.20 mol dm⁻³
- D 0.40 mol dm⁻³

50 Diagram 11 shows a chemical cell.

Rajah 11 menunjukkan suatu sel kimia.

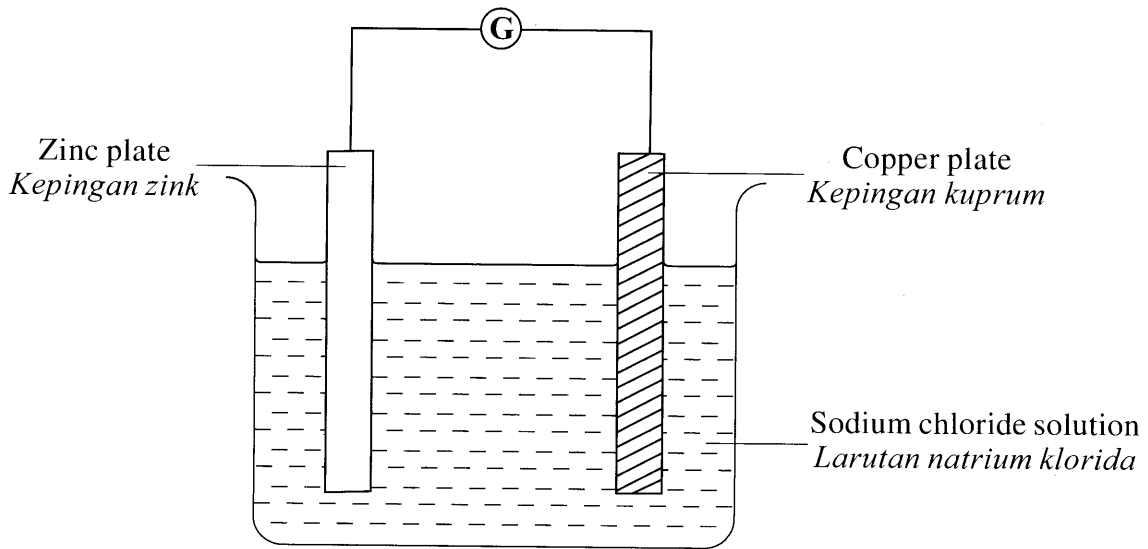


Diagram 11
Rajah 11

Which substances undergo oxidation and reduction?

Bahan manakah yang mengalami pengoksidaan dan penurunan?

| | Oxidation <i>Pengoksidaan</i> | Reduction <i>Penurunan</i> |
|----------|---|---|
| A | Copper <i>Kuprum</i> | Copper(II) ion <i>Ion kuprum(II)</i> |
| B | Copper <i>Kuprum</i> | Hydrogen ion <i>Ion hidrogen</i> |
| C | Zinc <i>Zink</i> | Copper(II) ion <i>Ion kuprum(II)</i> |
| D | Zinc <i>Zink</i> | Hydrogen ion <i>Ion hidrogen</i> |

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper consists of **50** questions.
Kertas soalan ini mengandungi 50 soalan.
2. Answer **all** questions.
Jawab semua soalan.
3. Each question is followed by four alternative answers, **A, B, C** or **D**. For each question, choose **one** answer only. Blacken your answer on the objective answer sheet provided.
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. If you wish to change your answer, erase the blackened mark that you have made. Then blacken the new answer.
Jika anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.
5. The diagrams in the questions provided are not drawn to scale unless stated.
Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
6. You may use a scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik.

ANSWER (Chemistry P1 2012)

1 B 2 A 3 A 4 A 5 C 6 D 7 C 8 D 9 A 10 D

11 B 12 A 13 D 14 D 15 A 16 C 17 B 18 A 19 A 20 B

21 C 22 C 23 B 24 A 25 C 26 C 27 D 28 D 29 D 30 B

31 B 32 B 33 B 34 D 35 B 36 C 37 C 38 A 39 C 40 C

41 A 42 A 43 B 44 D 45 D 46 D 47 C 48 A 49 A 50 D