



KEMENTERIAN PENDIDIKAN
Jabatan Pendidikan Negeri Terengganu

**MODUL
PERKEMBANGAN PEMBELAJARAN
SPM 2026**

MPP 3

**KIMIA
KERTAS 1**

Nama :

Kelas :



DISEDIAKAN OLEH PANEL AKRAM NEGERI TERENGGANU

Tidak dibenarkan menyunting atau mencetak mana-mana bahagian dalam
modul ini tanpa kebenaran Pengarah Pendidikan Negeri Terengganu



NAMA:

TINGKATAN:

ANGKA GILIRAN:

MODUL PERKEMBANGAN PEMBELAJARAN 3 4541/1

SIJIL PELAJARAN MALAYSIA 2026

KIMIA

Kertas 1

Julai

1 ¼ jam

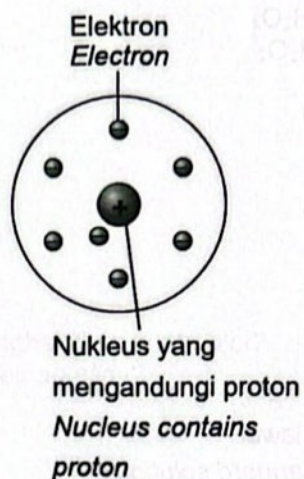
Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

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

Kertas soalan ini mengandungi 26 halaman bercetak tidak termasuk muka depan

- 1 Rajah 1 menunjukkan satu model atom.
Diagram 1 shows a model of an atom.



Rajah/Diagram 1

Siapakah yang memperkenalkan model ini?
Who introduced this model?

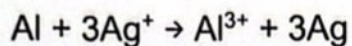
- A Neils Bohr
B John Dalton
C James Chadwick
D Ernest Rutherford
- 2 Antara ahli kimia berikut, siapakah yang menyusun unsur-unsur di dalam Jadual Berkala Unsur mengikut tertib nombor proton yang menaik.
Which of the following chemists arranged the elements in the Periodic Table of Elements in order of increasing proton number.

- A Henry Moseley
B Dmitri Mendeleev
C Johann W. Dobereiner
D Lothar Meyer

- 3 Sebatian manakah yang terbentuk melalui pemindahan elektron?
Which compound is formed by transferring electrons?
- A Hidrogen peroksida, H_2O_2
Hydrogen peroxide, H_2O_2
 - B Natrium oksida, Na_2O
Sodium oxide, Na_2O
 - C Karbon dioksida, CO_2
Carbon dioxide, CO_2
 - D Oksigen, O_2
Oxygen, O_2
- 4 Apakah maksud larutan piawai?
What is the meaning of standard solution?
- A Larutan yang kepekannya diketahui dengan tepat
A solution with known concentration.
 - B Larutan yang isipadu pelarutnya diketahui dengan tepat
A solution whose volume of solvent is known exactly
 - C Larutan yang jisim zat terlarutnya diketahui dengan tepat
A solution whose mass of solute is known exactly
 - D Larutan yang jisim molar zat terlarutnya diketahui dengan tepat
A solution for which the molar mass of the solute is known accurately
- 5 Antara asid berikut, manakah yang mempunyai kebesaran asid monoprotik?
Which of the following acids has the basicity of monoprotic acid?
- A Asid etanoik
Ethanoic acid
 - B Asid sulfurik
Sulphuric acid
 - C Asid oksalik
Oxalic acid
 - D Asid fosforik
Phosphoric acid

- 6 Unit manakah yang betul untuk kadar tindak balas?
Which unit is correct for the rate of reaction?
- A g mol^{-1}
 - B g min^{-1}
 - C mol dm^{-3}
 - D kJ mol^{-1}
- 7 Pasangan unsur manakah menghasilkan suatu aloi?
Which pair of elements produces an alloy?
- A Magnesium dan sulfur
Magnesium and sulphur
 - B Argentum dan fosforus
Silver and phosphorus
 - C Plumbum dan boron
Lead and boron
 - D Besi dan karbon
Iron and carbon
- 8 Pernyataan manakah yang menerangkan mengapa aloi lebih keras daripada logam tulen?
Which statement explains why alloy is harder than pure metal?
- A Atom logam asing bertindak balas dengan atom logam tulen
Atom of other metal reacts with atom of pure metal
 - B Kehadiran atom logam asing mengurangkan lapisan atom logam tulen daripada menggelongsor
The presence of other atom reduces layer of pure metal atom from sliding
 - C Ikatan antara atom dalam aloi lebih kuat
Bonds between atom in alloy is stronger
 - D Ketumpatan aloi lebih tinggi
Density of alloy is higher

- 9 Persamaan ion berikut mewakili satu tindak balas redoks.
The following ionic equation represents a redox reaction.



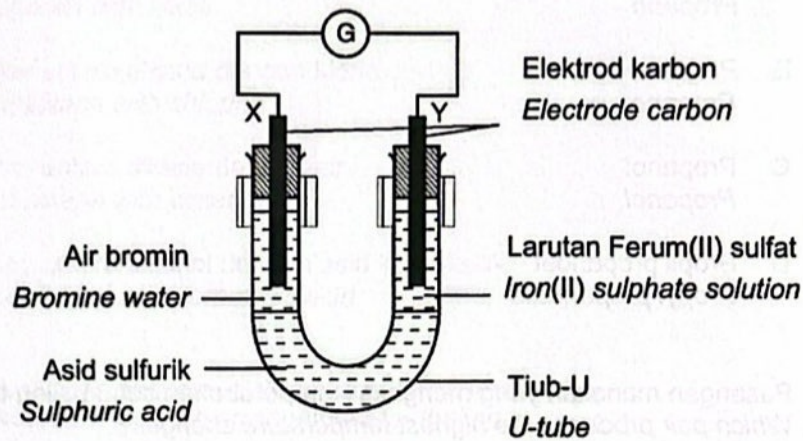
Penyataan manakah yang betul?
Which statement is correct?

- A Ion argentum dioksidakan
Silver ion is oxidized
- B Atom aluminium mengalami pengoksidaan
Aluminium atom undergoes oxidation
- C Ion argentum adalah satu agen penurunan
Silver ion is a reducing agent
- D Atom aluminium menerima elektron
Aluminium atom receives electrons



- 10 Rajah 10 menunjukkan susunan radas untuk mengkaji pemindahan elektron pada suatu jarak.

Diagram 10 shows the apparatus set-up to study the transfer of electron at a distance.



Rajah/Diagram 10

Antara yang berikut, yang manakah berlaku dalam Rajah 10?

Which of the following occurs in Diagram 10?

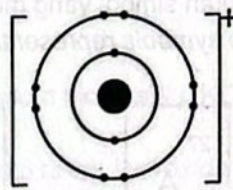
- A Ferum terendap di elektrod X
Iron deposited at electrode X
 - B Gas hidrogen terbebas di elektrod Y
Hydrogen gas released at electrode Y
 - C Elektron mengalir melalui asid sulfurik
Electrons flow through sulphuric acid
 - D Warna perang air bromin menjadi tidak berwarna
Brown colour of bromine water turns to colourless
- 11 Hidrokarbon adalah sebatian kimia yang terdiri daripada
- A hydrocarbon is a chemical compound consisting of*
- A karbon, hidrogen, oksigen dan nitrogen sahaja
carbon, hydrogen, oxygen and nitrogen only
 - B karbon, hidrogen dan oksigen sahaja
carbon, hydrogen and oxygen only
 - C karbon dan hidrogen sahaja
carbon and hydrogen only
 - D karbon dan oksigen sahaja
carbon and oxygen only

- 12 Sebatian manakah adalah suatu hidrokarbon tepu?
Which compound is a saturated hydrocarbon?
- A Propena
Propene
 - B Propana
Propane
 - C Propanol
Propanol
 - D Propil propanoat
Propyl propanoate
- 13 Pasangan manakah yang menghasilkan perubahan suhu paling tinggi?
Which pair produces the highest temperature changes?
- A Asid metanoik dan larutan natrium hidroksida
Methanoic acid and sodium hydroxide solution
 - B Asid sulfurik dan larutan kalium hidroksida
Sulphuric acid and potassium hydroxide solution
 - C Asid hidroklorik dan larutan kalium hidroksida
Hydrochloric acid and potassium hydroxide solution
 - D Asid etanoik dan larutan natrium hidroksida
Ethanoic acid and sodium hydroxide solution
- 14 Bahan manakah mempercepat penggumpalan lateks?
Which substance speeds up the coagulation of latex?
- A Air
Water
 - B Metanol
Methanol
 - C Larutan ammonia
Ammonia solution
 - D Asid metanoik
Methanoic acid

- 15 Antara yang berikut, yang manakah betul mengenai saponifikasi?
Which of the following is correct about saponification?

- A Tindak balas antara ester dengan alkali
Reaction of ester with alkali
- B Tindak balas antara alkana dengan klorin
Reaction of alkane with chlorine
- C Tindak balas antara alkena dengan air
Reaction of alkene with water
- D Tindak balas antara alkohol dengan asid karboksilik
Reaction of alcohol with carboxylic acid

- 16 Rajah 16 menunjukkan susunan elektron bagi suatu ion.
Diagram 16 shows the electron arrangement for the ion.



Rajah/Diagram 16

Bilangan neutron bagi ion itu ialah 12. Apakah nombor nukleon bagi atom tersebut?
The number of neutrons of the ion is 12. What is the nucleon number of an atom?

- A 23
 - B 22
 - C 10
 - D 11
- 17 Apakah jisim molar bagi ferum(III) oksida?
What is the molar mass of iron(III) oxide?
[Jisim atom relatif/ *Relative atomic mass*: Fe = 56, O = 16]
- A 72 g mol⁻¹
 - B 144 g mol⁻¹
 - C 160 g mol⁻¹
 - D 184 g mol⁻¹

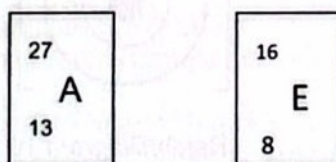
- 18 Sebuah balang gas berisi 1 mol gas oksigen, O_2 . Berapakah bilangan atom oksigen di dalam balang gas tersebut?

A gas jar contains 1 mole of oxygen gas, O_2 . How many oxygen atoms are in the gas jar?

[Jisim atom relatif/Relative atomic mass: $O = 16$]

[Pemalar Avogadro/Avogadro constant: 6.02×10^{23}]

- A 1.204×10^{24}
B 2.408×10^{24}
C 4.816×10^{24}
D 6.186×10^{24}
- 19 Rajah 19 di bawah menunjukkan simbol yang mewakili atom A dan E.
Diagram 19 below shows the symbols representing atoms A and E.



Rajah/Diagram 19

Hitungkan jisim molekul relatif bagi sebatian yang terbentuk antara atom A dan atom E.

Calculate the relative molecular mass of the compound formed between atom A and atom E.

- A 21
B 43
C 55
D 102

- 20 Susunan elektron atom R ialah 2.8.1 dan susunan elektron atom Z ialah 2.6. Unsur R dan unsur Z bertindak balas membentuk satu sebatian. Antara yang berikut, yang manakah benar tentang tindak balas itu?

The electron arrangement of R atom is 2.8.1 and the electron arrangement of Z atom is 2.6. Elements R and Z react to form a compound. Which of the following is true about the reaction?

- A Sebatian yang terbentuk mempunyai formula kimia RZ_2

The compound formed has chemical formula RZ_2

- B Suatu sebatian ion terhasil

An ionic compound is formed

- C Atom Z menderma 2 elektron

Atom Z donates 2 electrons

- D Atom R menerima 1 elektron

Atom R receives 1 electron

- 21 Berapakah kepekatan larutan kalium hidroksida, KOH yang mempunyai nilai pH 12.0?

What is the concentration of a potassium hydroxide solution, KOH, which has a pH value of 12.0?

- A 0.01 mol dm^{-3}

- B 0.5 mol dm^{-3}

- C 1.0 mol dm^{-3}

- D 2.0 mol dm^{-3}

- 22 Seorang murid ingin menyediakan garam kuprum(II) nitrat. Beliau telah mencampurkan serbuk kuprum ke dalam larutan asid nitrik. Setelah menunggu beberapa minit, tiada perubahan berlaku. Pada pendapat anda, apakah yang perlu dilakukan oleh murid tersebut untuk mendapatkan larutan garam kuprum(II) nitrat yang berwarna biru dengan cepat tanpa mengubah kepekatan asid yang digunakan?

A student wants to prepare copper(II) nitrate salt. He has mixed copper powder into a nitric acid solution. After waiting for a few minutes, no change occurred. In your opinion, what should the student do to obtain a blue copper(II) nitrate solution without changing the concentration of the acid used?

- A Menghangatkan larutan asid nitrik terlebih dahulu.
Warm the nitric acid solution first.
- B Mengacau campuran serbuk kuprum dan larutan asid nitrik dengan kuat.
Stir the mixture of copper powder and nitric acid solution vigorously.
- C Menambahkan mangkin kedalam campuran serbuk kuprum dan asid nitrik.
Adding a catalyst to a mixture of copper powder and nitric acid.
- D Menggantikan serbuk kuprum dengan serbuk kuprum(II) oksida.
Replacing copper powder with copper(II) oxide powder.

- 23 Jadual 23 menunjukkan jumlah isipadu gas hidrogen, yang dikumpul pada sela masa yang sekata bagi tindak balas antara zink dan asid hidroklorik.
Table 23 shows the total volume of hydrogen gas, collected at regular intervals for the reaction between zinc and dilute hydrochloric acid.

Masa (min) Time (min)	Jumlah isipadu gas hidrogen (cm ³) Total volume of hydrogen gas (cm ³)
0.0	0.00
0.5	8.00
1.0	14.50
1.5	20.50
2.0	24.00
2.5	26.50
3.0	26.50
3.5	26.50

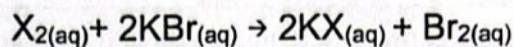
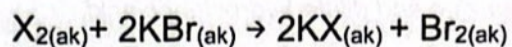
Jadual / Table 23

Hitungkan kadar tindak balas purata?

Calculate the average rate of reaction?

- A $0.10 \text{ cm}^3 \text{ min}^{-1}$
- B $7.60 \text{ cm}^3 \text{ min}^{-1}$
- C $10.60 \text{ cm}^3 \text{ min}^{-1}$
- D $37.40 \text{ cm}^3 \text{ min}^{-1}$

- 24 Satu tindak balas redoks boleh diwakili oleh persamaan berikut
A redox reaction can be represented by the following equation.

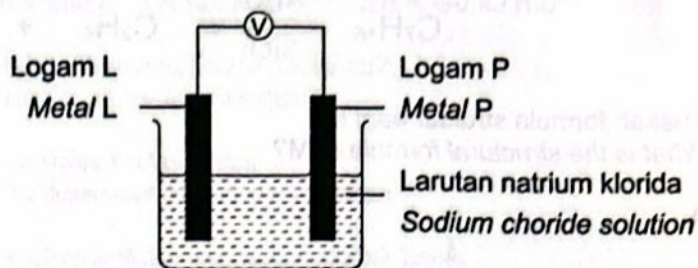


Unsur X berada dalam Kumpulan 17 dalam Jadual Berkala Unsur. Apakah yang dapat diperhatikan jika unsur X digantikan dengan iodin?

Element X is in Group 17 in the Periodic Table of Elements. What can be observed if element X is replaced with iodine?

- A Gas perang terhasil
Brown gas is produced
- B Larutan tidak berwarna terhasil
Colourless solutions are produced
- C Tiada perubahan dapat diperhatikan
No change is observed
- D Warna perang larutan iodin dinyahwarnakan
Brown colour of the iodine is decolourized

- 25 Rajah 25 menunjukkan suatu sel kimia. Logam L lebih elektropositif berbanding logam P.
Diagram 25 shows a chemical cell. Metal L is more electropositive than metal P.

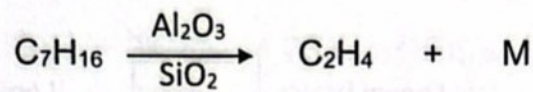


Rajah/Diagram 25

Antara yang berikut, proses manakah yang betul berlaku di L dan P?
Which of the following is the correct process that occurs at L and P?

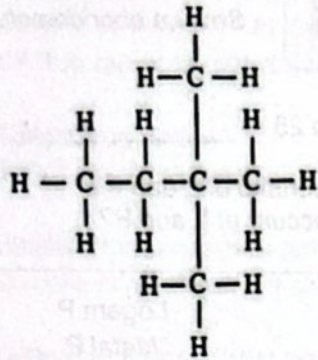
	Logam L Metal L	Logam P Metal P
A	Kehilangan oksigen Loss oxygen	Menerima oksigen Gain oxygen
B	Menerima hidrogen Gain hydrogen	Kehilangan hidrogen Loss hydrogen
C	Menerima elektron Gain electron	Kehilangan electron Loss electron
D	Pertambahan nombor pengoksidaan Increase oxidation number	Pengurangan nombor pengoksidaan Decrease oxidation number

- 26 Persamaan berikut mewakili satu proses untuk menghasilkan C_2H_4 dan M.
 The following equation represents a process to produce C_2H_4 and M.

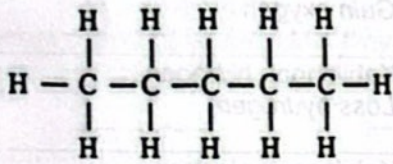


Apakah formula struktur bagi M?
 What is the structural formula of M?

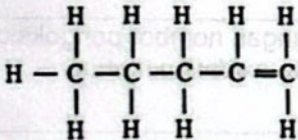
A



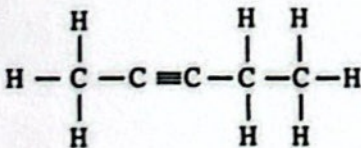
B



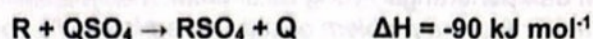
C



D

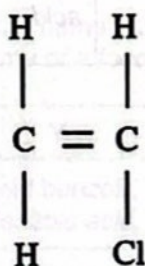


- 27 Persamaan berikut mewakili satu tindak balas penyesaran.
The following equation represents a displacement reaction.



Pernyataan manakah betul tentang tindak balas itu?
Which statement is correct about the reaction?

- A Suhu menurun semasa tindak balas
The temperature decreases during the reaction
 - B 90 kJ haba diperlukan untuk memulakan tindak balas
90 kJ of heat is needed to start the reaction
 - C Tindak balas itu membebaskan haba
The reaction releases heat
 - D Jumlah kandungan tenaga bahan tindak balas lebih rendah daripada hasil tindak balas
The total energy content of reactants is lower than the products
- 28 Rajah 28 menunjukkan formula struktur suatu monomer.
Diagram 28 shows a structural formula of a monomer.



Rajah/Diagram 28

Antara berikut, yang manakah persamaan antara monomer tersebut dengan polimernya?

Which of the following is the similarity between the monomer and its polymer?

- A Formula molekul ialah C_2H_3Cl
Molecular formula is C_2H_3Cl
- B Mempunyai ikatan ganda dua antara atom-atom karbon
Have double bond between carbon atoms
- C Mempunyai atom karbon, atom hidrogen dan atom klorin
Contain carbon atoms, hydrogen atoms and chlorine atoms
- D Bilangan atom karbon dalam molekul
Number of carbon atoms in the molecule

- 29 Seorang penoreh getah menghadapi masalah lateks menggumpal. Untuk menyelesaikan masalah itu, beliau perlu menambahkan suatu bahan ke dalam lateks itu. Pilih bahan dan penerangan yang betul untuk menyelesaikan masalah itu.
A rubber tapper faces a problem of coagulated latex. To solve the problem, he must add a substance into the latex.
Choose the correct substance and explanation to solve the problem.

	Bahan Substance	Penerangan Explanation
A	Air Water	Menjadikan lateks lebih cair <i>To make the latex more dilute</i>
B	Asid etanoik <i>Ethanoic acid</i>	Mengandungi ion H^+ yang meneutralkan cas negatif pada membran zarah getah <i>Contains H^+ ion that neutralizes the negative charge on the membrane of the rubber particle</i>
C	Larutan natrium klorida <i>Sodium chloride solution</i>	Menjadi pengawet untuk mengekalkan keadaan asal lateks <i>As a preservative to maintain the original state of the latex</i>
D	Larutan ammonia <i>Ammonia solution</i>	Mengandungi ion OH^- yang meneutralkan ion H^+ daripada asid laktik <i>Contains OH^- ion that neutralizes the H^+ ion from the lactic acid</i>

- 30 Jadual 30 menunjukkan maklumat yang terdapat pada label tiga jenis makanan. X, Y dan Z ialah bahan tambah makanan.
Table 30 shows the information found on the labels of three types of food. X, Y and Z are food additives.

Aiskrim vanila Vanilla ice cream	Nanas di dalam sirap Pineapple in syrup	Sos tomato Tomato sauce
Berperisa dan lembut Flavorful and soft	Manis dan dihasilkan secara tradisional daripada sumber asli Sweet and traditionally produced from natural sources	Sedap dan tahan lama Delicious and long-lasting
Ramuan: Susu, vanila, gula, pewarna tiruan, bahan tambah makanan X Ingredients: Milk, vanilla, sugar, artificial coloring, food additives X	Ramuan: Kepingan nanas segar, bahan tambah makanan Y Ingredients: Fresh pineapple pieces, food additive Y	Ramuan: Tomato, garam, gula, pewarna tiruan, tepung jagung, pewarna makanan Z Ingredients: Tomatoes, salt, sugar, artificial coloring, corn starch, food coloring Z

Jadual/Table 30

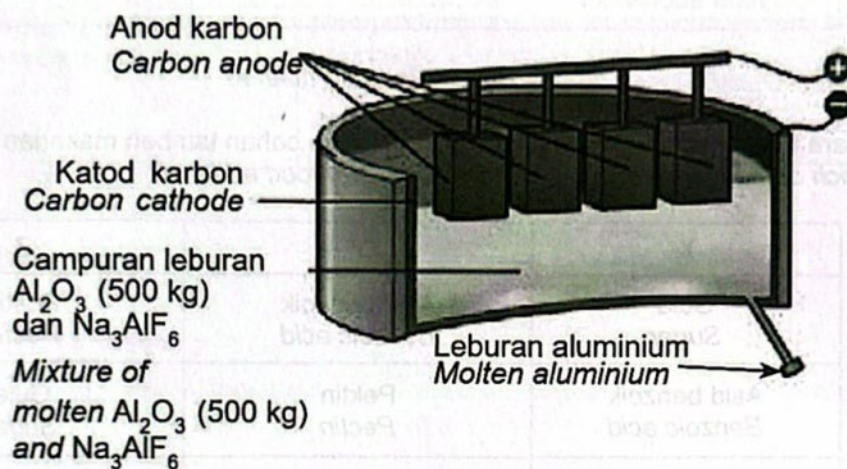
Antara berikut yang manakah merupakan nama bahan tambah makanan yang betul?
Which of the following is the correct name of a food additive?

	X	Y	Z
A	Gula Sugar	Asid benzoik Benzoic acid	Pektin Pectin
B	Asid benzoik Benzoic acid	Pektin Pectin	Gula Sugar
C	Pektin Pectin	Gula Sugar	Asid benzoik Benzoic acid
D	Gula Sugar	Asid benzoik Benzoic acid	Pektin Pectin

- 31 Satu sebatian baja fosfat membentuk sebatian dengan formula MPO_4 . Apakah formula kimia yang terhasil sekiranya M membentuk sebatian baja nitrat?
A phosphate fertilizer compound forms a compound with the formula MPO_4 . What is the resulting chemical formula if M forms a nitrate fertilizer compound?

A MNO_3
 B M_2NO_3
 C $M(NO_3)_3$
 D $M_2(NO_3)_3$

- 32 Rajah 32 menunjukkan tangki elektrolisis yang digunakan untuk mengekstrak aluminium daripada bijihnya, aluminium oksida.
Diagram 32 shows the electrolytic tank used to extract aluminium from its ore, aluminium oxide.



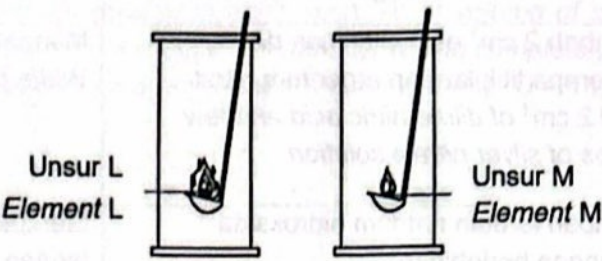
Rajah/Diagram 32

Apakah jisim aluminium yang diekstrak?
What is the mass of aluminium extracted?

[Jisim atom relative/Relative atomic mass: O = 16, Al = 27]

A 4.902 kg
 B 102.00 kg
 C 264.708 kg
 D 529.419 kg

- 33 Rajah 33 menunjukkan susunan radas untuk mengkaji tindak balas dua unsur Kumpulan 1 yang berturutan dalam Jadual Berkala dengan gas oksigen.
Diagram 33 shows the apparatus set-up to study the reaction of two consecutive Group 1 elements in the Periodic Table with oxygen.



Rajah/Diagram 33

Apakah yang dapat diperhatikan apabila unsur-unsur itu dimasukkan ke dalam besen berisi air secara berasingan?
What can be observed when the elements are put into basins containing water separately?

	L	M
A	Menukarkan warna jingga penunjuk metil jingga menjadi merah apabila dititiskan ke dalam larutan yang terhasil <i>Turns orange colour of methyl orange indicator to red when drop into the solution produced</i>	Menukarkan warna jingga penunjuk metil jingga menjadi kuning apabila dititiskan ke dalam larutan yang terhasil <i>Turns orange colour of methyl orange indicator to yellow when drop into the solution produced</i>
B	Terbakar di atas permukaan air dengan nyalaan ungu <i>Burn on the surface of water with purple flame</i>	Terbakar di atas permukaan air dengan nyalaan kuning <i>Burn on the surface of water with yellow flame</i>
C	Bergerak perlahan di atas permukaan air <i>Move slowly on the surface of water</i>	Bergerak cergas di atas permukaan air <i>Move vigorously on the surface of water</i>
D	Menghasilkan bunyi 'hiss' <i>Produce 'hiss' sound</i>	Menghasilkan bunyi 'hiss' <i>Produce 'hiss' sound</i>

34 Jadual 34 menunjukkan pemerhatian bagi empat ujian ke atas larutan X.

Table 34 shows the observations of four tests on solution X.

Ujian Test	Reagen Reagent	Pemerhatian Observation
I	Tambah 2 cm ³ asid nitrik cair dan beberapa titik larutan argentum nitrat <i>Add 2 cm³ of dilute nitric acid and few drops of silver nitrate solution</i>	Mendakan putih terbentuk <i>White precipitate formed</i>
II	Tambah larutan natrium hidroksida sehingga berlebihan <i>Add sodium hydroxide solution until in excess</i>	Mendakan putih larut dalam larutan natrium hidroksida berlebihan <i>White precipitate which dissolves in excess sodium hydroxide solution</i>
III	Tambah larutan ammonia sehingga berlebihan <i>Add ammonia solution until in excess</i>	Mendakan putih tidak larut dalam larutan ammonia berlebihan <i>White precipitate which doesn't dissolve in excess ammonia solution</i>
IV	Tambah sedikit larutan kalium iodida <i>Add a little potassium iodide solution</i>	Tiada mendakan terbentuk <i>No precipitate formed</i>

Jadual/Table 34

Apakah X?

What is X?

- A Aluminium sulfat
Aluminium sulphate
- B Aluminium klorida
Aluminium chloride
- C Zink sulfat
Zinc sulphate
- D Zink klorida
Zinc chloride

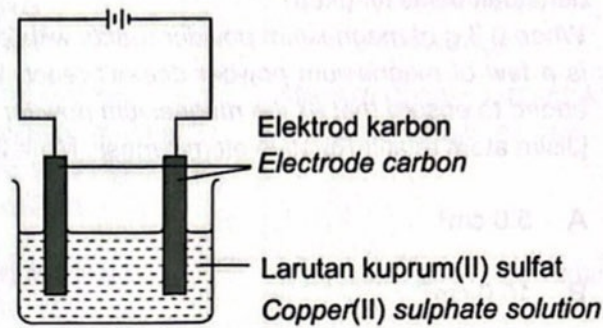
- 35 Apabila 0.3 g serbuk magnesium bertindak balas dengan 20 cm³ asid sulfurik 0.5 mol dm⁻³, terdapat sebahagian serbuk magnesium yang tidak bertindak balas. Berapakah isipadu asid sulfurik yang perlu ditambah untuk memastikan semua serbuk magnesium bertindak balas lengkap?

When 0.3 g of magnesium powder reacts with 20 cm³ sulphuric acid 0.5 mol dm⁻³, there is a few of magnesium powder doesn't react. What volume of sulphuric acid must be added to ensure that all the magnesium powder reacts completely?

[Jisim atom relatif/ Relative atomic mass: Mg = 24, S = 32, O = 16, H = 1]

- A 5.0 cm³
B 10.0 cm³
C 15.0 cm³
D 25.0 cm³

- 36 Rajah 36 menunjukkan susunan radas bagi elektrolisis larutan kuprum(II) sulfat
Diagram 36 shows the apparatus setup for the electrolysis of copper(II) sulphate solution.



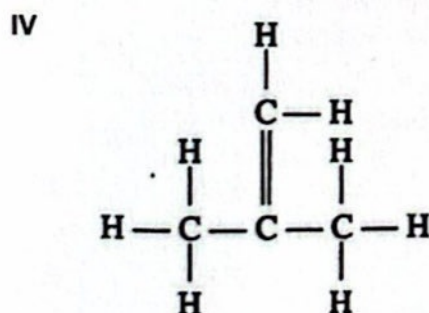
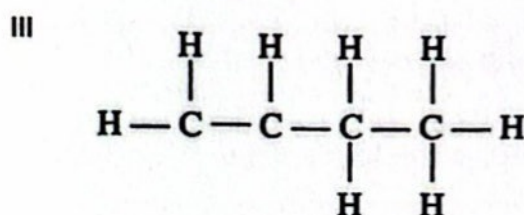
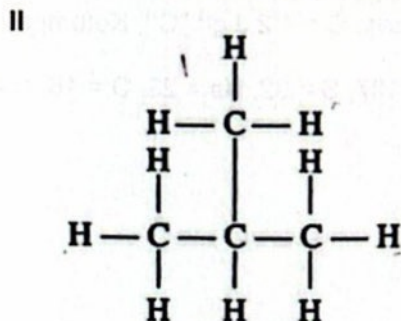
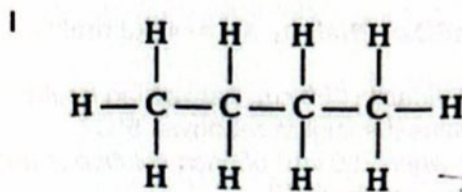
Rajah/Diagram 36

Keamatan warna biru larutan kuprum(II) sulfat didapati berkurang. Antara yang berikut, yang manakah menerangkan pemerhatian itu?

The intensity of the blue colour of copper(II) sulphate is decreasing. Which of the following explains the observation?

- A Ion OH^- dinyahcas di anod
 OH^- ion is discharged at the anode
- B Ion SO_4^{2-} dinyahcas di anod
 SO_4^{2-} ion is discharged at the anode
- C Ion H^+ dinyahcas di katod
 H^+ ion is discharged at the cathode
- D Ion Cu^{2+} dinyahcas di katod
 Cu^{2+} ion is discharged at the cathode

- 37 Formula struktur manakah adalah isomer bagi butana?
Which structural formulae are isomers of butane?



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



- 38 Persamaan berikut mewakili tindak balas pembentukan sejenis garam.
The following equation represents the reaction of formation of a salt.



Berapakah jisim mendakan yang terbentuk apabila 250 cm^3 bagi setiap larutan dicampurkan dan suhu campuran tindak balas meningkat sebanyak 5°C ?

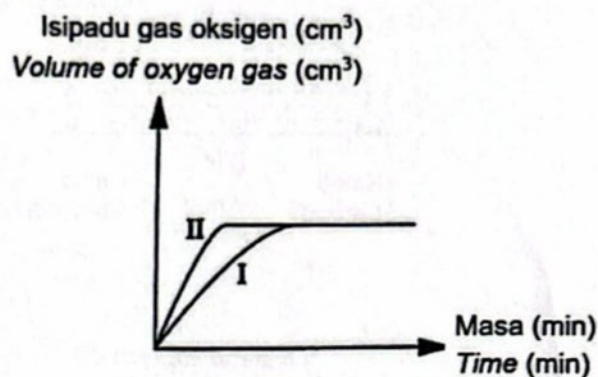
What is the mass of the precipitate formed when 250 cm^3 of each solution is added and the temperature of the reaction mixture increases by 5°C ?

[Muatan haba tentu larutan/ *Specific heat capacity*, $C = 4.2 \text{ J g}^{-1} ^\circ\text{C}^{-1}$; Ketumpatan larutan/ *Density of solution* = 1 g cm^{-3}]

[Jisim atom relatif/ *Relative atomic mass*: Ba = 137, S = 32, Na = 23, O = 16, N = 14]

- A 5.250 g
- B 12.500 g
- C 29.125 g
- D 58.250 g

- 39 Rajah 39 menunjukkan keputusan eksperimen I dan eksperimen II bagi penguraian larutan hidrogen peroksida dengan kehadiran suatu mangkin.
Diagram 39 shows the results of experiment I and experiment II for decomposition of hydrogen peroxide solution in the presence of a catalyst.



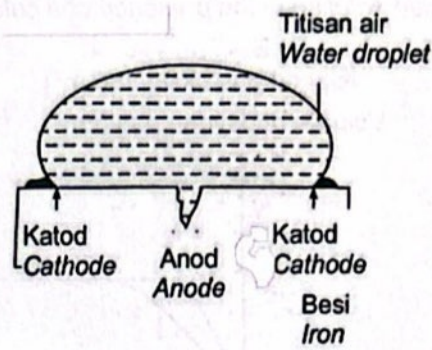
Rajah / Diagram 39

Eksperimen I menggunakan 50 cm³ larutan hidrogen peroksida 1.0 mol dm⁻³ pada suhu 21°C. Apakah yang digunakan dalam Eksperimen II untuk memperoleh lengkung yang ditunjukkan dalam Rajah 39?

Experiment I use 50 cm³ of 1.0 mol dm⁻³ of hydrogen peroxide solution at temperature 21°C. What is used in Experiment II to obtain the curve shown in Diagram 39?

	Hidrogen peroksida Hydrogen peroxide		Suhu (°C) Temperature (°C)
	Isipadu (cm ³) Volume (cm ³)	Kepekatan (mol dm ⁻³) Concentration (mol dm ⁻³)	
A	50.0	1.0	30.0
B	50.0	0.5	25.0
C	25.0	1.0	30.0
D	25.0	0.5	25.0

- 40 Rajah 40 menunjukkan mekanisme pembentukan karat.
Diagram 40 shows the mechanism of rust formation.



Rajah/Diagram 40

Antara pernyataan berikut yang manakah benar mengenai mekanisme ini?
Which of the following statements is true about this mechanism?

- A Satu molekul oksigen menerima dua elektron untuk membentuk satu ion hidroksida
An oxygen molecule receives two electrons to form a hydroxide ion
- B Empat ion hidroksida terbentuk apabila dua molekul air menerima empat elektron
Four hydroxide ions are formed when two water molecules receive four electrons
- C Satu atom ferum membebaskan dua elektron membentuk satu ion ferum(II)
An iron atom release two electrons to form an iron(II) ion
- D Satu ion ferum(II) menerima dua elektron daripada satu atom ferum
An iron(II) ion receives two electrons from an iron atom