

Nama Tingkatan

Sekolah

MODUL PINTAS 2019

TINGKATAN 5

4541/1

CHEMISTRY

Kertas 1

Ogos/September

$1\frac{1}{4}$ jam

Satu jam lima belas minit

JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. *Kertas peperiksaan 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 peperiksaan ini.*

Kertas peperiksaan ini mengandungi 31 halaman bercetak dan 1 halaman tidak bercetak.

- 1 Elements in the Periodic Table are arranged according to an increase in
Unsur-unsur dalam Jadual Berkala disusun berdasarkan pertambahan
- A proton number
nombor proton
- B nucleon number
nombor nukleon
- C relative atomic mass
jisim atom relatif
- D relative molecular mass
jisim molekul relatif
- 2 The manufacturing of sulphuric acid involves several reactions.
Which of the following equations represents the sulphuric acid reaction that uses a catalyst?
Pembuatan asid sulfurik melibatkan beberapa tindak balas.
Antara berikut, persamaan manakah mewakili tindak balas asid sulfurik yang menggunakan mangkin?
- A $S + O_2 \rightarrow SO_2$
- B $2SO_2 + O_2 \rightarrow 2SO_3$
- C $SO_3 + H_2SO_4 \rightarrow H_2S_2O_7$
- D $H_2S_2O_7 + H_2O \rightarrow 2H_2SO_4$
- 3 What is the oxidation number of carbon dioxide gas, CO_2 ?
Apakah nombor pengoksidaan bagi gas karbon dioksida, CO_2 ?
- A -1
- B 0
- C +1
- D -3

- 4 Which substance is an unsaturated hydrocarbon?
Bahan manakah adalah hidrokarbon tak tepu?
- A Propane
Propana
 - B Propanol
Propanol
 - C Propene
Propena
 - D Propanoic acid
Asid propanoik
- 5 Which substance is an ionic compound?
Bahan manakah adalah sebatian ionik?
- A SO_2
 - B Al_2O_3
 - C CCl_4
 - D CH_4
- 6 Which of the following occur during oxidation?
Antara berikut, yang manakah berlaku semasa proses pengoksidaan?
- A Loss of oxygen
Kehilangan oksigen
 - B Gain of hydrogen
Terima hidrogen
 - C Loss of electron
Kehilangan elektron
 - D Decrease in oxidation number
Pengurangan nombor pengoksidaan

- 7 Diagram 1 shows an organic compound.
Rajah 1 menunjukkan satu sebatian organik.

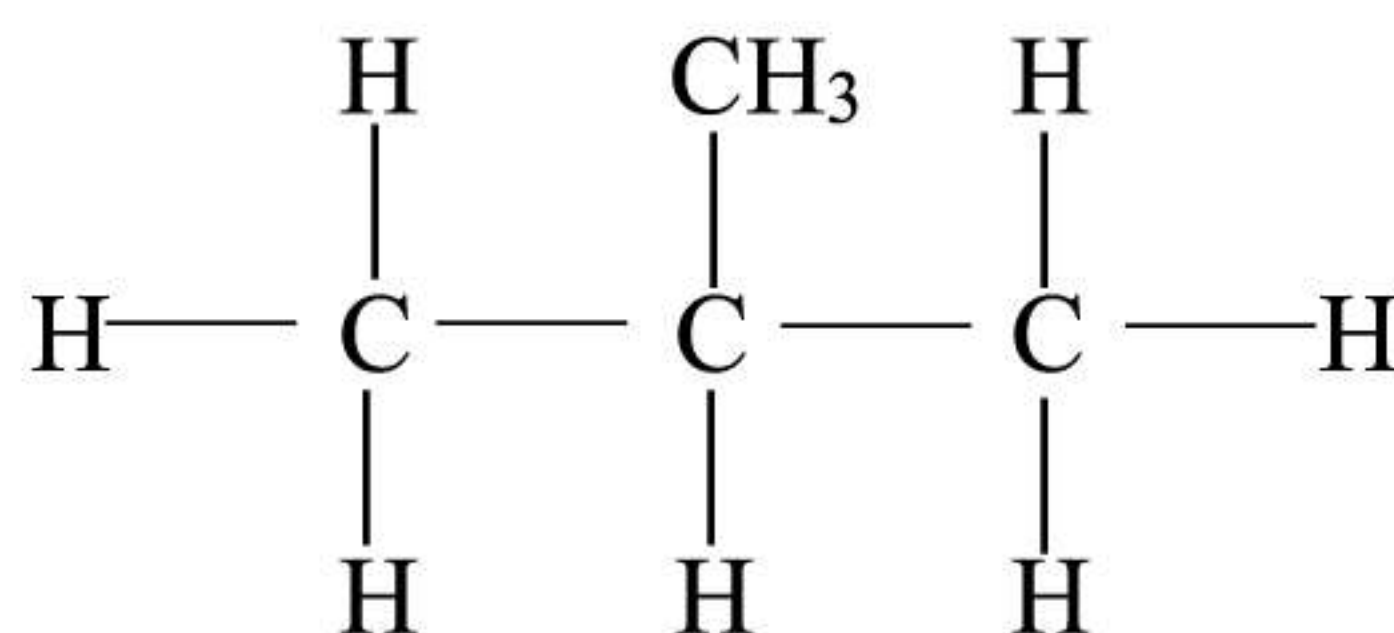


Diagram 1
Rajah 1

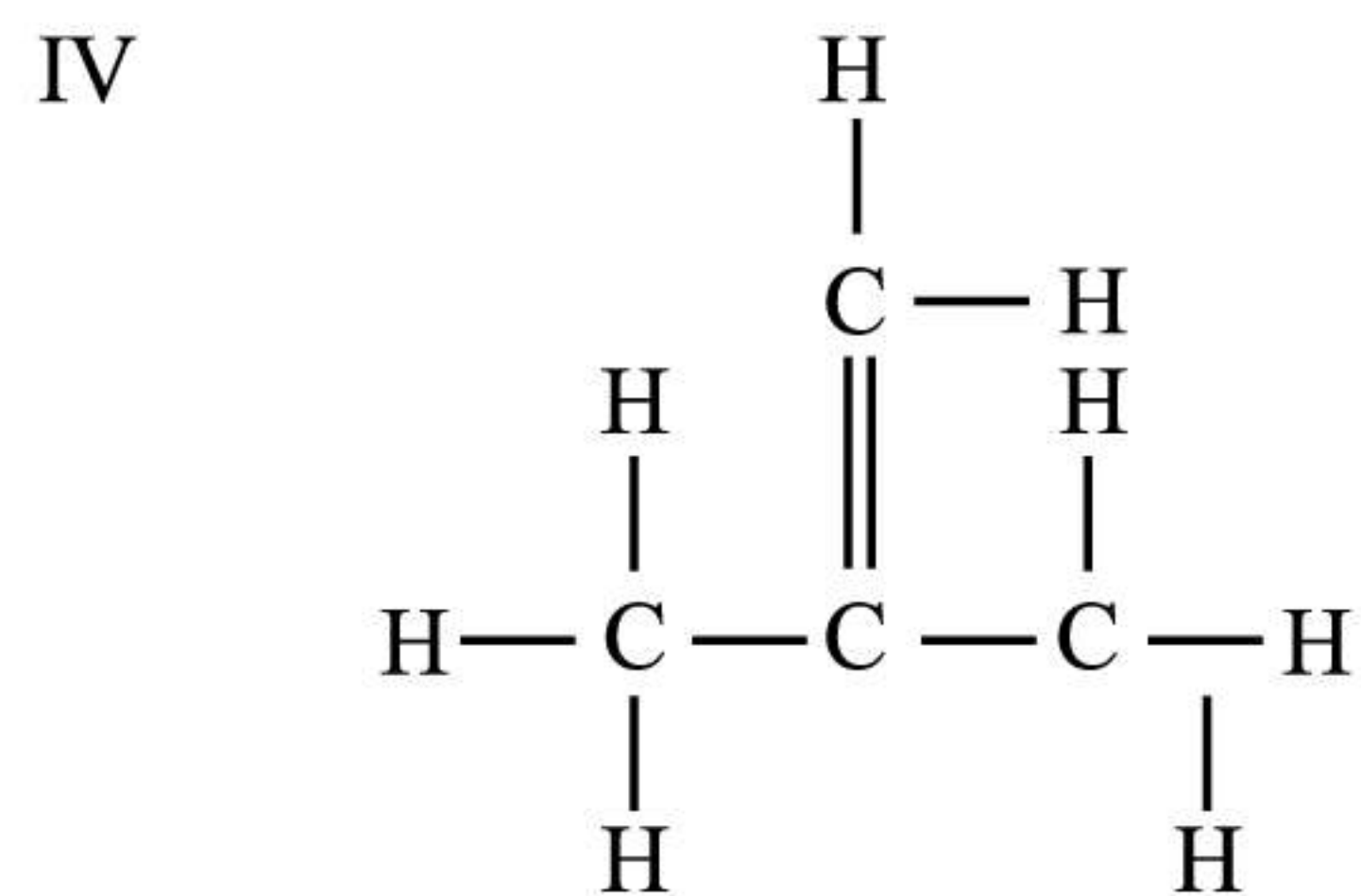
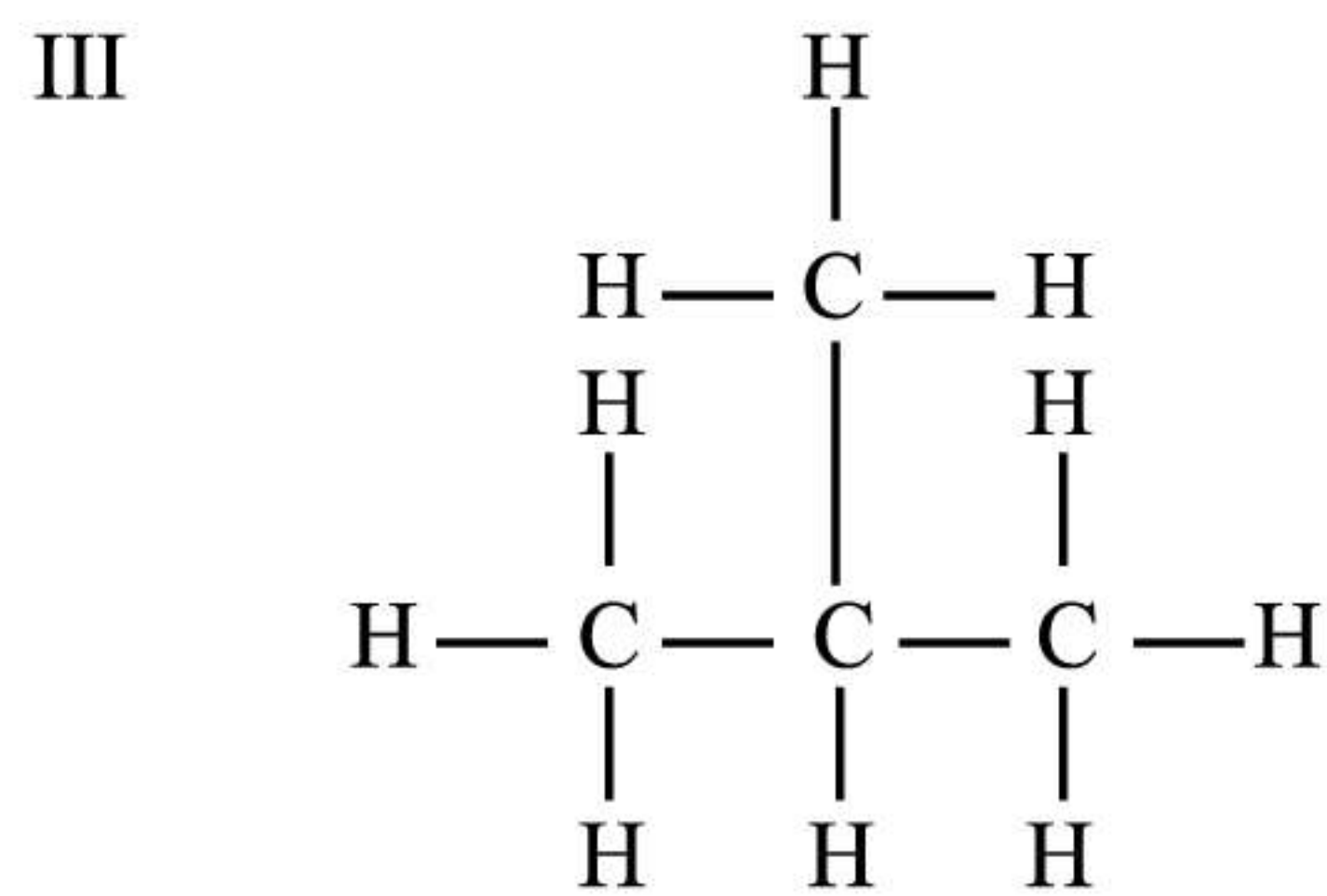
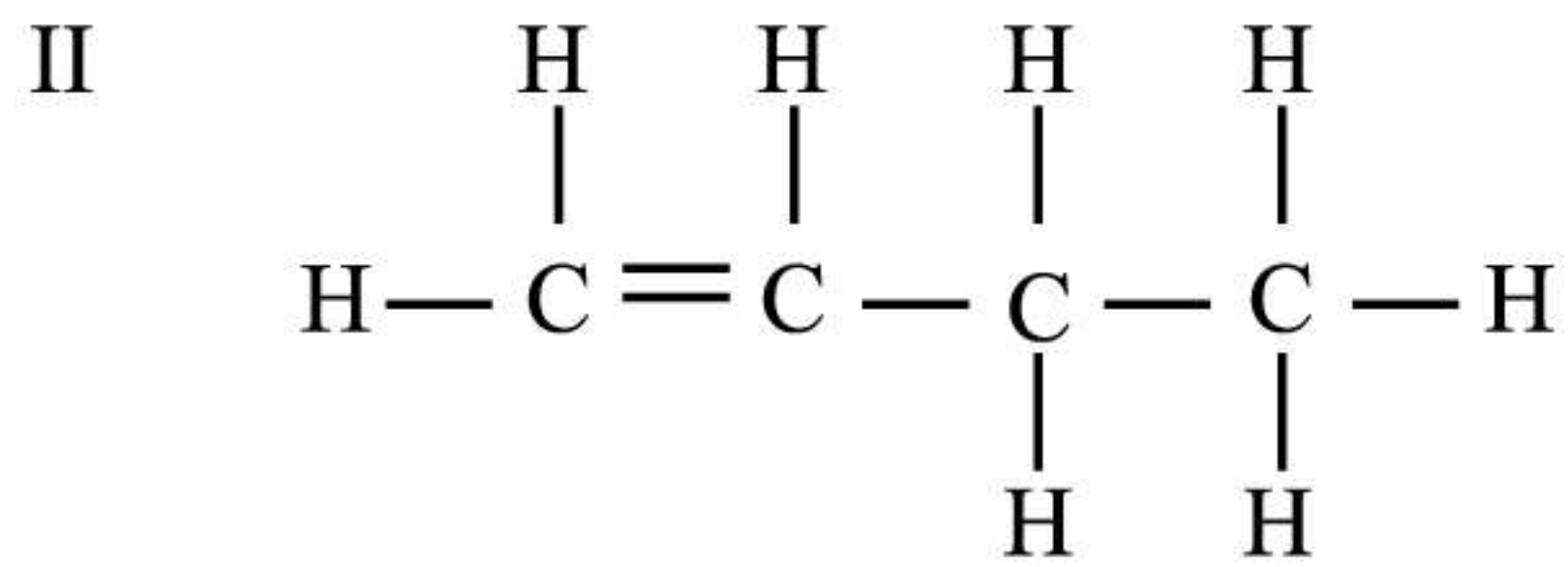
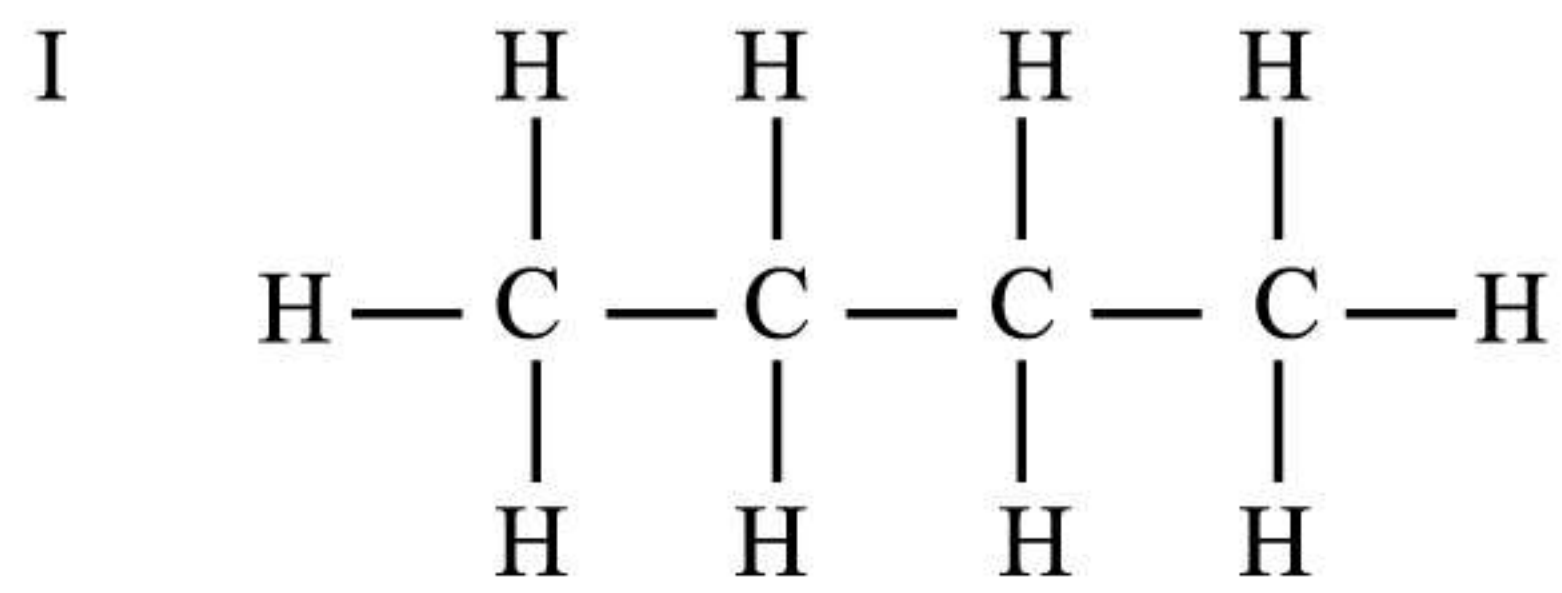
Which of the following is the homologous series of the compound?
Antara berikut, yang manakah siri homolog bagi sebatian ini?

- A** Alkane
Alkana
- B** Alkene
Alkena
- C** Alcohol
Alkohol
- D** Carboxylic acid
Asid karboksilik
- 8 Which of the following is true about an endothermic reaction?
Antara berikut, yang manakah benar tentang tindak balas endotermik?
- A** The container gets hotter
Bekas menjadi semakin panas
- B** The value of ΔH has negative sign
Nilai ΔH mempunyai tanda negatif
- C** The total energy content of reactants are higher than products
Jumlah kandungan tenaga dalam bahan tindak balas lebih tinggi daripada hasil tindak balas
- D** Heat absorbed to break the bonds is higher than the heat release during the formation of the new bond
Haba yang diserap untuk memutuskan ikatan lebih tinggi daripada haba yang dibebaskan semasa pembentukan ikatan baru

- 9 Butene can be transformed to butane by the process of
Butena boleh ditukar kepada butana melalui proses
- A fermentation
penapaian
 - B oxidation
pengoksidaan
 - C dehydration
pendehidratan
 - D hydrogenation
penghidrogenan
- 10 Which of the following pH values is for strong acid solution?
Antara berikut, yang manakah nilai pH bagi larutan asid kuat?
- A pH 14
 - B pH 11
 - C pH 5
 - D pH 1
- 11 Which of the following substances is suitable to be used as electrolyte?
Antara berikut, bahan manakah yang sesuai digunakan sebagai elektrolit?
- A Sucrose solution
Larutan sukrosa
 - B Molten naphthalene
Leburan naftalena
 - C Hydrochloric acid
Asid hidroklorik
 - D Cyclohexane
Sikloheksana

12 Which structural formulae are isomers of butane?

Formula struktur manakah adalah isomer bagi butana?



A I and II
I dan II

B I and III
I dan III

C II and IV
II dan IV

D III and IV
III dan IV

- 13 When powder of salt P is heated, the following observations are obtained.
Apabila serbuk garam P dipanaskan, pemerhatian berikut diperolehi.

- Green powder turns black
Serbuk hijau menjadi hitam
- Gas released turns lime water cloudy
Gas yang terbebas mengeruhkan air kapur

What is salt P?

Apakah garam P?

- A** Copper (II) carbonate
Kuprum (II) karbonat
- B** Copper (II) oxide
Kuprum (II) oksida
- C** Zinc carbonate
Zink karbonat
- D** Sodium carbonate
Natrium karbonat
- 14 Which ions are present in molten sodium chloride?
Ion manakah yang terdapat dalam leburan natrium klorida?
- A** Na^+ , Cl^-
- B** H^+ , OH^-
- C** Na^+ , Cl^- , OH^-
- D** Na^+ , Cl^- , H^+ , OH^-

- 15** What is the function of lecithin in ice cream making?
Apakah fungsi lesitin dalam pembuatan aiskrim?
- A** Make it last longer
Menjadikannya bertahan lebih lama
 - B** As a stabiliser
Sebagai penstabil
 - C** As artificial flavour
Sebagai perisa tiruan
 - D** Prevent it from being oxidised
Elakkan daripada teroksida
- 16** Which of the following has the highest rate of reaction?
Antara berikut, yang manakah mempunyai kadar tindak balas paling tinggi?
- A** Rusting of iron
Pengaratan besi
 - B** Fermentation of sugar
Penapaian gula
 - C** Decomposition of food
Penguraian makanan
 - D** Combustion of alcohol
Pembakaran alkohol

- 17 Diagram 2 shows photochromic glass that can protect our eyes from dangerous ultraviolet (UV) rays.

Rajah 2 menunjukkan kaca fotokromik yang boleh melindungi mata daripada sinar ultraungu (UV) yang berbahaya.



Diagram 2
Rajah 2

Which of the following substance is the chemical used in the glass?

Antara berikut, yang manakah bahan kimia yang digunakan dalam kaca itu?

- A Boron oxide
Boron oksida
 - B Lead (II) oxide
Plumbum (II) oksida
 - C Lead (II) chloride
Plumbum (II) klorida
 - D Silver chloride
Argentum klorida
- 18 Element M and element L are located in Group 1 and Group 16 in the Periodic Table respectively. Element M reacts with element L to form a compound.

Unsur M dan unsur L masing-masing terletak dalam Kumpulan 1 dan Kumpulan 16 dalam Jadual Berkala. Unsur M bertindak balas dengan unsur L untuk membentuk suatu sebatian.

What is the chemical formula of the compound?

Apakah formula kimia bagi sebatian itu?

- A ML
- B ML_2
- C M_2L
- D M_2L_3

- 19** Which of the following pairs react to form water and salt only?
Antara berikut, pasangan tindak balas yang manakah akan membentuk air dan garam sahaja?
- A** Dilute sulphuric acid and magnesium
Asid sulfurik cair dan magnesium
 - B** Dilute hydrochloric acid and calcium carbonate
Asid hidroklorik cair dan kalsium karbonat
 - C** Dilute nitric acid and potassium chloride
Asid nitrik cair dan kalium klorida
 - D** Dilute sulphuric acid and sodium hydroxide
Asid sulfurik cair dan natrium hidroksida
- 20** Which substance is a molecule at room temperature?
Bahan manakah yang merupakan molekul pada suhu bilik?
- A** Argon
Argon
 - B** Carbon
Karbon
 - C** Chlorine
Klorin
 - D** Potassium chloride
Kalium klorida

- 21 Solid Q produces a brown gas that turns moist blue litmus paper to red when heated strongly.
Pepejal Q menghasilkan gas perang yang menukarkan kertas litmus biru lembap kepada merah apabila dipanaskan dengan kuat.

What is solid Q?

Apakah pepejal Q?

- A Lead (II) nitrate
Plumbum (II) nitrat
- B Calcium chloride
Kalsium klorida
- C Zinc sulphate
Zink sulfat
- D Copper (II) carbonate
Kuprum (II) karbonat

- 22 When magnesium burns in excess oxygen gas, a white solid magnesium oxide is formed.
Apabila magnesium terbakar dalam oksigen berlebihan, pepejal putih magnesium oksida terbentuk.

Which of the following is a balanced chemical equation to represent the reaction?

Antara berikut, persamaan kimia seimbang manakah mewakili tindak balas tersebut?

- A $\text{Mg} + \text{O} \rightarrow \text{MgO}$
- B $2\text{MgO} \rightarrow 2\text{Mg} + \text{O}_2$
- C $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$
- D $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$

- 23 What is the oxidation number of arsenic in K_3AsO_4 ?
Apakah nombor pengoksidaan arsenik dalam K_3AsO_4 ?

- A +3
- B +4
- C +5
- D +6

24 Table 1.1 shows the colour changes for three indicators.

Jadual 1.1 menunjukkan perubahan warna bagi tiga penunjuk.

Indicator <i>Penunjuk</i>	Colour in pH 2 solution <i>Warna dalam larutan pH 2</i>	Colour in pH 10 solution <i>Warna dalam larutan pH 10</i>
Phenolphthalein <i>Fenolftalein</i>	Colourless <i>Tanpa warna</i>	Pink <i>Merah jambu</i>
Methyl orange <i>Metil jingga</i>	Red <i>Merah</i>	Yellow <i>Kuning</i>
Universal indicator <i>Penunjuk universal</i>	Red <i>Merah</i>	Purple <i>Ungu</i>

Table 1.1

Jadual 1.1

Table 1.2 shows the observation of three indicators in substances X, Y and Z.

Jadual 1.2 menunjukkan pemerhatian bagi tiga penunjuk di dalam bahan X, Y dan Z.

Mixture <i>Campuran</i>	Phenolphthalein in substance X <i>Fenolftalein dalam bahan X</i>	Methyl orange in substance Y <i>Metil jingga dalam bahan Y</i>	Universal indicator in substance Z <i>Penunjuk universal dalam bahan Z</i>
Observation <i>Pemerhatian</i>	Pink <i>Merah jambu</i>	Red <i>Merah</i>	Purple <i>Ungu</i>

Table 1.2

Jadual 1.2

Which of the following substances match with the observation in Table 1.2?

Antara berikut, bahan-bahan manakah bersesuaian dengan pemerhatian di dalam Jadual 1.2?

	Substance X <i>Bahan X</i>	Substance Y <i>Bahan Y</i>	Substance Z <i>Bahan Z</i>
A	Herbal toothpaste <i>Ubat gigi herba</i>	Lime juice <i>Jus limau</i>	Soap <i>Sabun</i>
B	Lime juice <i>Jus limau</i>	Soap <i>Sabun</i>	Herbal toothpaste <i>Ubat gigi herba</i>
C	Herbal toothpaste <i>Ubat gigi herba</i>	Shampoo <i>Syampu</i>	Lime juice <i>Jus limau</i>
D	Vinegar <i>Cuka</i>	Lime juice <i>Jus limau</i>	Soap <i>Sabun</i>

- 25** Element M is located in Group 2 in the Periodic Table.
Unsur M terletak dalam Kumpulan 2 dalam Jadual Berkala.

What is the formula of M nitrate salt?

Apakah formula bagi garam M nitrat?

- A** MNO_3
B M_2NO_3
C $\text{M}(\text{NO}_3)_2$
D $\text{M}(\text{NO}_3)_3$

- 26** Diagram 3 shows process X.
Rajah 3 menunjukkan proses X.

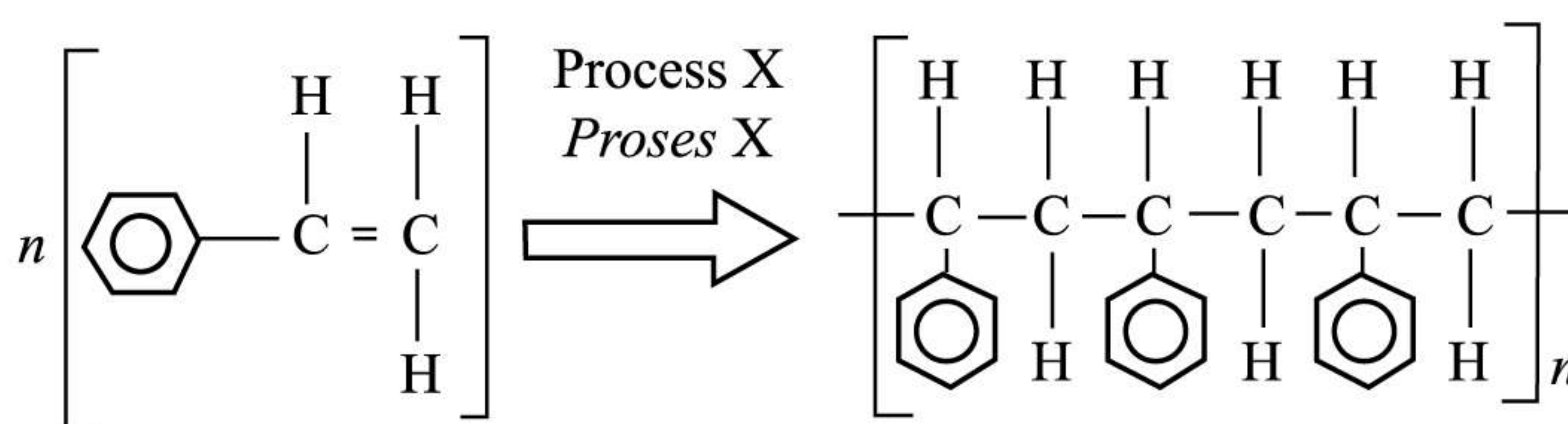


Diagram 3
Rajah 3

What is process X?

Apakah proses X?

- A** Esterification
Pengesteran
B Polymerisation
Pempolimeran
C Hydrogenation
Penghidrogenan
D Oxidation
Pengoksidaan

27

Brass is harder than copper
Loyang lebih keras daripada kuprum

Which of the following explains the statement above?

Antara berikut, yang manakah menerangkan pernyataan di atas?

- A** The density of the brass is higher than copper
Ketumpatan loyang lebih tinggi daripada kuprum
- B** The bond between the atoms in brass is stronger
Ikatan antara atom dalam loyang lebih kuat
- C** The size of the foreign atom and the copper atoms are different in brass
Saiz atom asing dan atom kuprum berbeza dalam loyang
- D** The layers of copper atoms are not easy to slide in brass
Lapisan atom kuprum tidak mudah menggelongsor dalam loyang

28 Table 2 shows information about particles X and Y.

Jadual 2 menunjukkan maklumat tentang zarah X dan Y.

Particle <i>Zarah</i>	Proton number <i>Nombor proton</i>	Nucleon number <i>Nombor nukleon</i>
X	17	35
Y	17	37

Table 2
Jadual 2

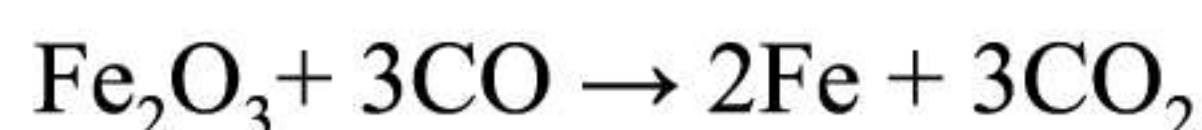
Which of the following is true about particles X and Y?

Antara berikut, yang manakah benar tentang zarah X dan Y?

- A** Particles X and Y have the same chemical properties
Zarah X dan Y mempunyai sifat kimia yang sama
- B** Particles X and Y have the same number of neutrons
Zarah X dan Y mempunyai bilangan neutron yang sama
- C** Both particles X and Y are not isotopes of the same element
Kedua-dua zarah X dan Y adalah bukan isotop bagi unsur yang sama
- D** Particles X and Y have different numbers of valence electrons
Zarah X dan Y mempunyai bilangan elektron valens yang berbeza

- 29 The following equation shows the reaction between iron (III) oxide, Fe_2O_3 with carbon monoxide, CO.

Persamaan berikut menunjukkan tindak balas di antara ferum (III) oksida, Fe_2O_3 dengan karbon monoksida, CO.



Which of the following is the correct change for the oxidation number of iron?

Antara berikut, yang manakah merupakan perubahan nombor pengoksidaan yang betul bagi ferum?

- A $+3 \rightarrow 0$
- B $+2 \rightarrow +3$
- C $+3 \rightarrow +2$
- D $+2 \rightarrow 0$
- 30 Table 3 shows the pH value of two solutions with the same concentration.
Jadual 3 menunjukkan nilai pH bagi dua larutan dengan kepekatan yang sama.

Solution <i>Larutan</i>	pH
K	8
L	12

Table 3
Jadual 3

Which statement explains the differences in the pH values?

Pernyataan manakah yang menerangkan perbezaan antara nilai pH itu?

- A K ionises partially whereas L ionizes completely in water
K mengion separa manakala L mengion lengkap dalam air
- B The concentration of hydroxide ion in K is higher than L
Kepekatan ion hidroksida dalam K lebih tinggi berbanding L
- C The number of mole of hydroxide ion in K is less than L
Bilangan mol ion hidroksida dalam K kurang berbanding L
- D The concentration of hydrogen ion in K is lower than L
Kepekatan ion hidrogen dalam K lebih rendah berbanding L

- 31 Electrolysis of X solution produces a brown solution at the anode. The solution changes starch solution to dark blue.

Elektrolisis larutan X menghasilkan larutan perang di anod. Larutan ini mengubah larutan kanji kepada biru gelap.

What is X solution?

Apakah larutan X?

- A Sodium bromide solution
Larutan natrium bromida
- B Sodium iodide solution
Larutan natrium iodida
- C Sodium chloride solution
Larutan natrium klorida
- D Sodium fluoride solution
Larutan natrium fluorida

- 32 Diagram 4 shows the apparatus set-up for the preparation of silver chloride.
Rajah 4 menunjukkan susunan radas bagi penyediaan argentum klorida.

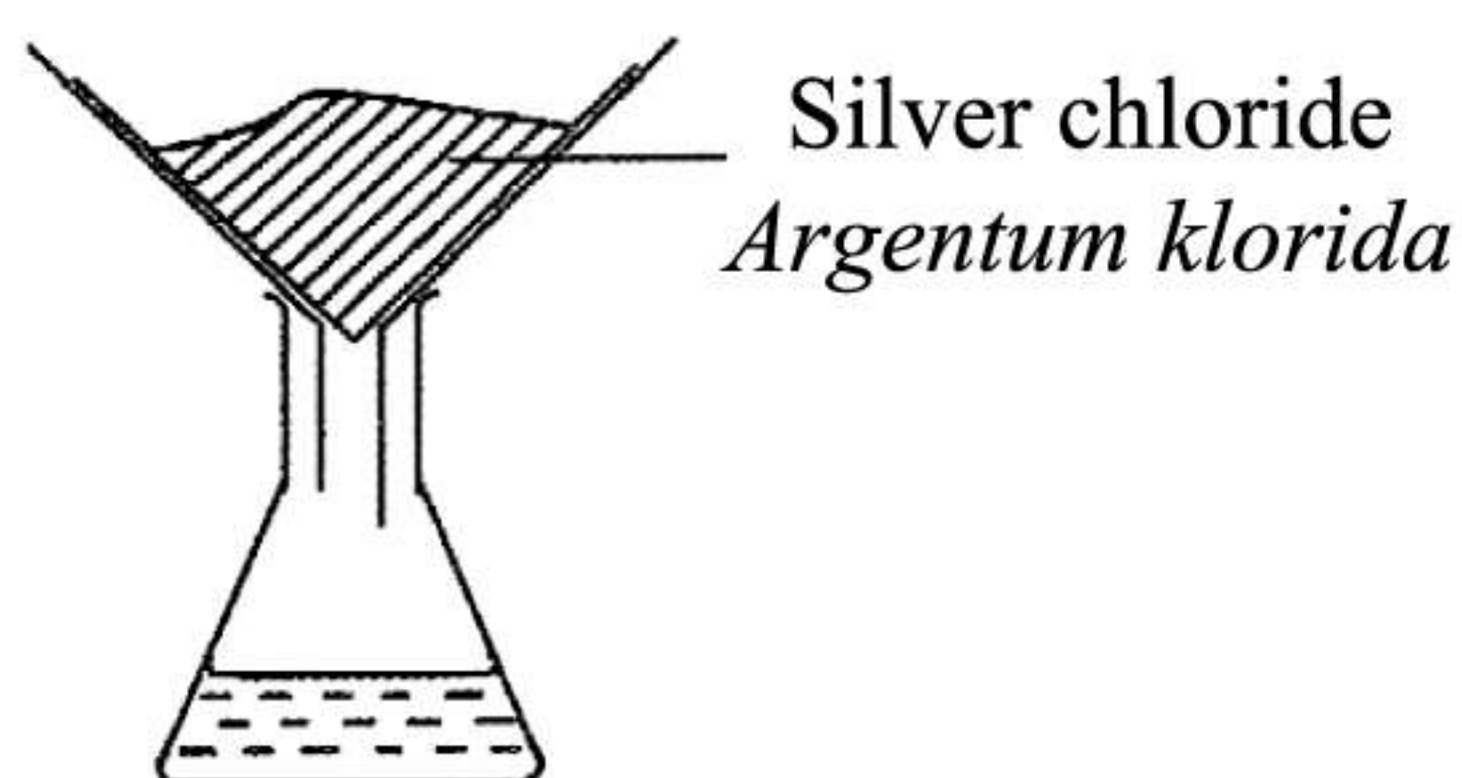


Diagram 4

Rajah 4

Which reactants are suitable to prepare silver chloride?

Bahan tindak balas manakah yang sesuai untuk menyediakan argentum klorida?

- A Silver and hydrochloric acid
Argentum dan asid hidroklorik
- B Silver carbonate powder and hydrochloric acid
Serbuk argentum karbonat dan asid hidroklorik
- C Silver nitrate solution and chlorine gas
Larutan argentum nitrat dan gas klorin
- D Silver nitrate solution and sodium chloride solution
Larutan argentum nitrat dan larutan natrium klorida

- [illegible]

Rajah 5

Antara unsur A, B, C dan D dalam Jadual Berkala Unsur, yang manakah sesuai digunakan dalam tangki penyelam skuba?

- A** Dissolving potassium nitrate in water
Melarutkan kalium nitrat dalam air
- B** Dissolving ammonium sulphate in water
Melarutkan ammonium sulfat dalam air
- C** Adding calcium carbonate to nitric acid
Menambahkan kalsium karbonat kepada asid nitrik
- D** Adding potassium hydrogen carbonate to hydrochloric acid
Menambah kalium hidrogen karbonat kepada asid hidroklorik

- 35 Diagram 6 shows a graph when excess magnesium is added to 25 cm^3 of 0.2 mol dm^{-3} hydrochloric acid at room temperature.

The experiment is repeated using a higher temperature.

Rajah 6 menunjukkan graf apabila magnesium yang berlebihan dimasukkan kepada 25 cm^3 asid hidroklorik 0.2 mol dm^{-3} pada suhu bilik.

Eksperimen ini diulangi dengan menggunakan suhu yang lebih tinggi.

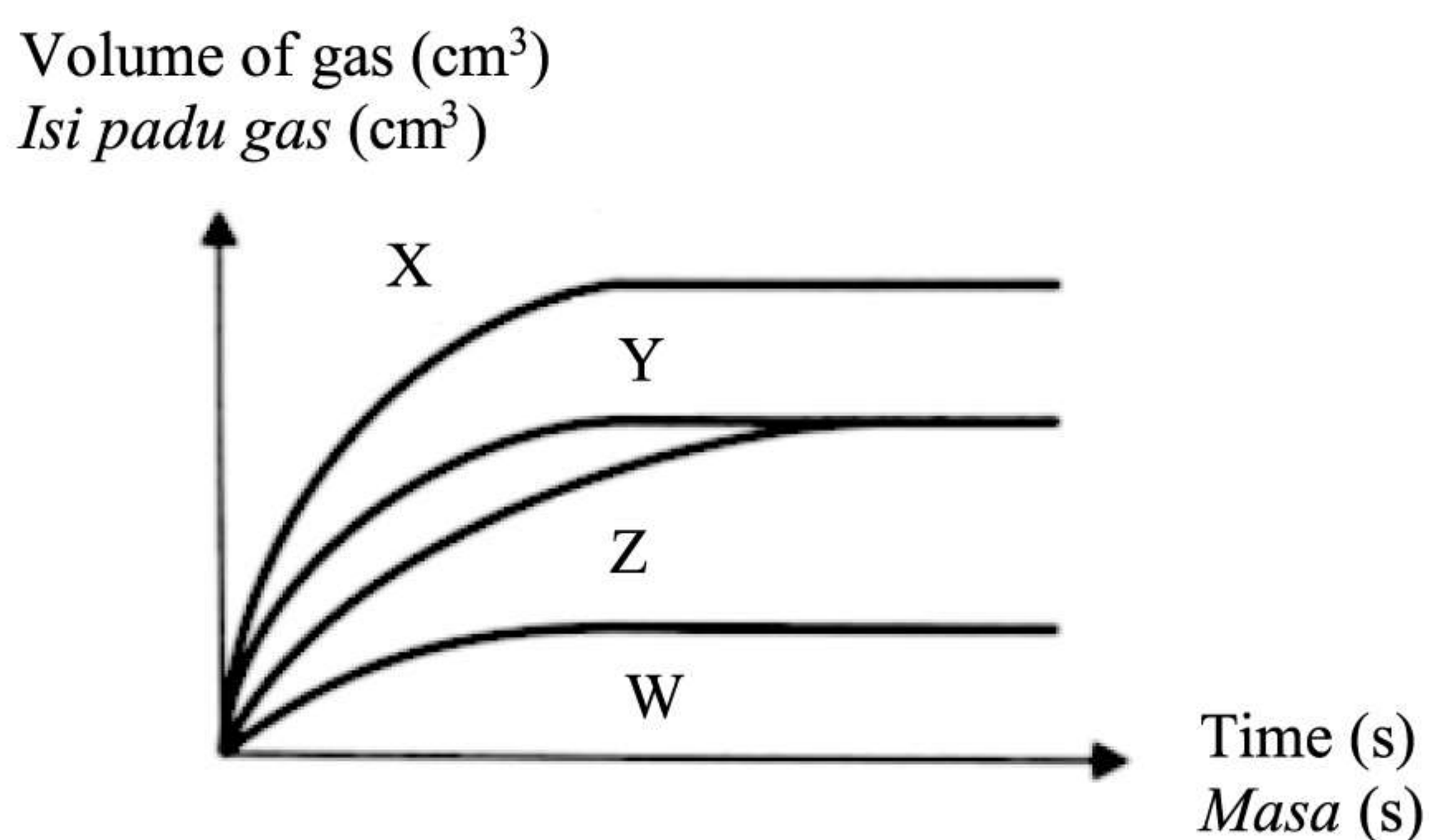


Diagram 6
Rajah 6

Which of the following graphs show the volume of gas collected at regular interval time for the two experiments?

Antara berikut, graf manakah menunjukkan isi padu gas yang terkumpul pada sela masa tertentu untuk kedua-dua eksperimen ini?

	Original experiment <i>Eksperimen asal</i>	Repeated experiment <i>Eksperimen ulangan</i>
A	Z	X
B	Z	Y
C	W	Y
D	W	X

- 36** Element M is a metal with oxidation number +1 and can reacts with oxygen to produce a compound with formula M_2O .

Unsur M merupakan suatu logam dengan nombor pengoksidaan +1 dan boleh bertindak balas dengan oksigen untuk menghasilkan sebatian dengan formula M_2O .

What is the possible element of M?

Apakah unsur yang mungkin bagi M?

- I Sodium
Natrium
- II Silver
Argentum
- III Calcium
Kalsium
- IV Magnesium
Magnesium
- A** I and II
I dan II
- B** I and III
I dan III
- C** II and IV
II dan IV
- D** III and IV
III dan IV

- 37 Table 4 shows the proton number of elements P, Q and R.
Jadual 4 menunjukkan nombor proton bagi unsur P, Q dan R.

Element <i>Unsur</i>	P	Q	R
Proton number <i>Nombor proton</i>	5	7	12

Table 4
Jadual 4

Which of the following is the correct arrangement of atomic size in descending order?
Antara berikut, yang manakah adalah susunan saiz atom yang betul dalam urutan menurun?

- A R, Q, P
 B R, P, Q
 C P, Q, R
 D Q, R, P
- 38 The following equation represents the decomposition reaction of solid copper (II) nitrate.
Persamaan berikut mewakili tindak balas penguraian pepejal kuprum (II) nitrat.



What is the volume of oxygen gas produced at room condition when 1.89 g of solid copper (II) nitrate is decomposed?

[Relative atomic mass : Cu = 64, N = 14, O = 16, Molar volume of gas = 24 dm³ mol⁻¹ at room conditions]

Apakah isi padu gas oksigen yang terhasil pada keadaan bilik apabila 1.89 g pepejal kuprum (II) nitrat terurai?

[Jisim atom relatif: Cu = 64, N = 14, O = 16, Isi padu molar bagi gas = 24 dm³ mol⁻¹ pada keadaan bilik]

- A 0.06 dm³
 B 0.12 dm³
 C 0.24 dm³
 D 0.48 dm³

- 39 Table 5 shows the total volume of hydrogen gas, H_2 collected in the reaction between zinc and dilute hydrochloric acid, HCl .

Jadual 5 menunjukkan jumlah isi padu gas hidrogen, H_2 yang dikumpulkan dalam tindak balas antara zink dan asid hidroklorik cair, HCl .

Time (s) <i>Masa (s)</i>	0	30	60	90	120	150	180	210	240
Volume of H_2 (cm^3) <i>Isi padu H_2 (cm^3)</i>	0.0	18.0	27.5	35.0	41.5	46.5	50.0	50.0	50.0

Table 5

Jadual 5

What is the overall average rate of reaction?

Berapakah kadar tindak balas purata keseluruhan?

- A $0.21 \text{ cm}^3 \text{ min}^{-1}$
- B $0.28 \text{ cm}^3 \text{ min}^{-1}$
- C $12.50 \text{ cm}^3 \text{ min}^{-1}$
- D $16.67 \text{ cm}^3 \text{ min}^{-1}$

- 40 Diagram 7 shows the result of a series of test that is carried out by a student on solution Y.
Rajah 7 menunjukkan keputusan satu siri ujian yang dijalankan oleh seorang pelajar terhadap larutan Y.

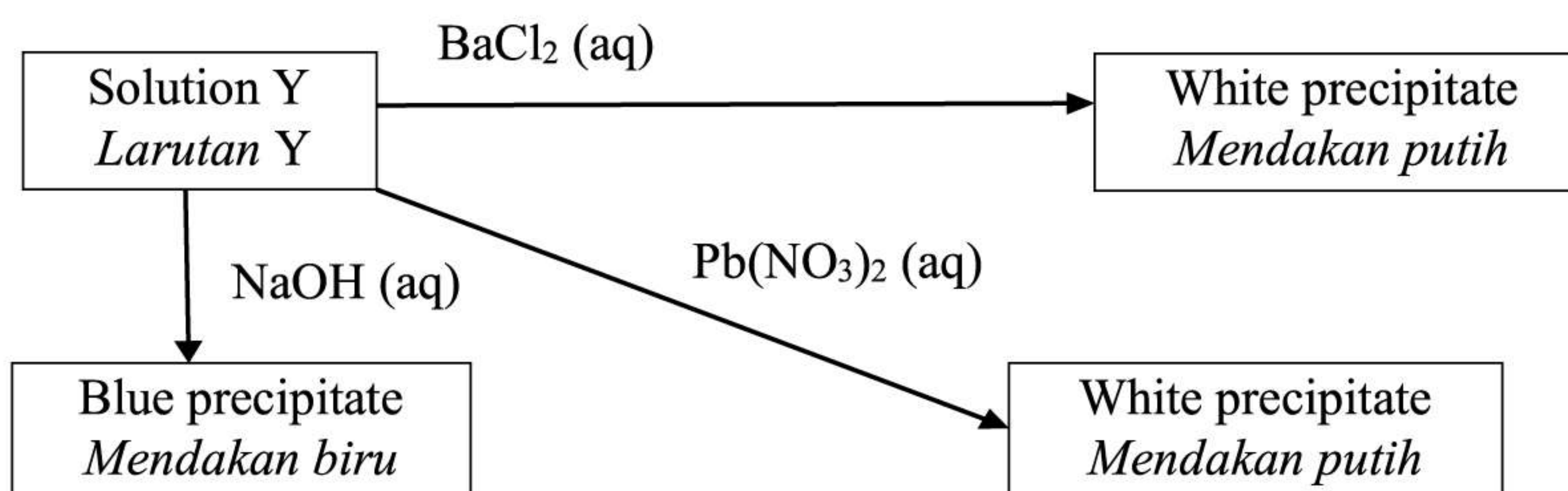


Diagram 7
Rajah 7

Which of the following could be solution Y?
Antara berikut, yang manakah mungkin larutan Y?

- A Copper (II) chloride
Kuprum (II) klorida
 - B Zinc chloride
Zink klorida
 - C Copper (II) sulphate
Kuprum (II) sulfat
 - D Lead (II) sulphate
Plumbum (II) sulfat
- 41 A patient complained of a pain due to an excess of acid in the stomach.
 Which substance will help to relieve the pain?
*Seorang pesakit mengadu sakit disebabkan lebihan asid di dalam perut.
 Bahan manakah yang akan membantu melegakan sakit itu?*
- A Ammonia
Ammonia
 - B Ethanoic acid
Asid etanoik
 - C Sodium chloride
Natrium klorida
 - D Magnesium hydroxide
Magnesium hidroksida

- 42 Diagram 8 shows a simple chemical cell using lemon.
Rajah 8 menunjukkan sel kimia ringkas menggunakan lemon.

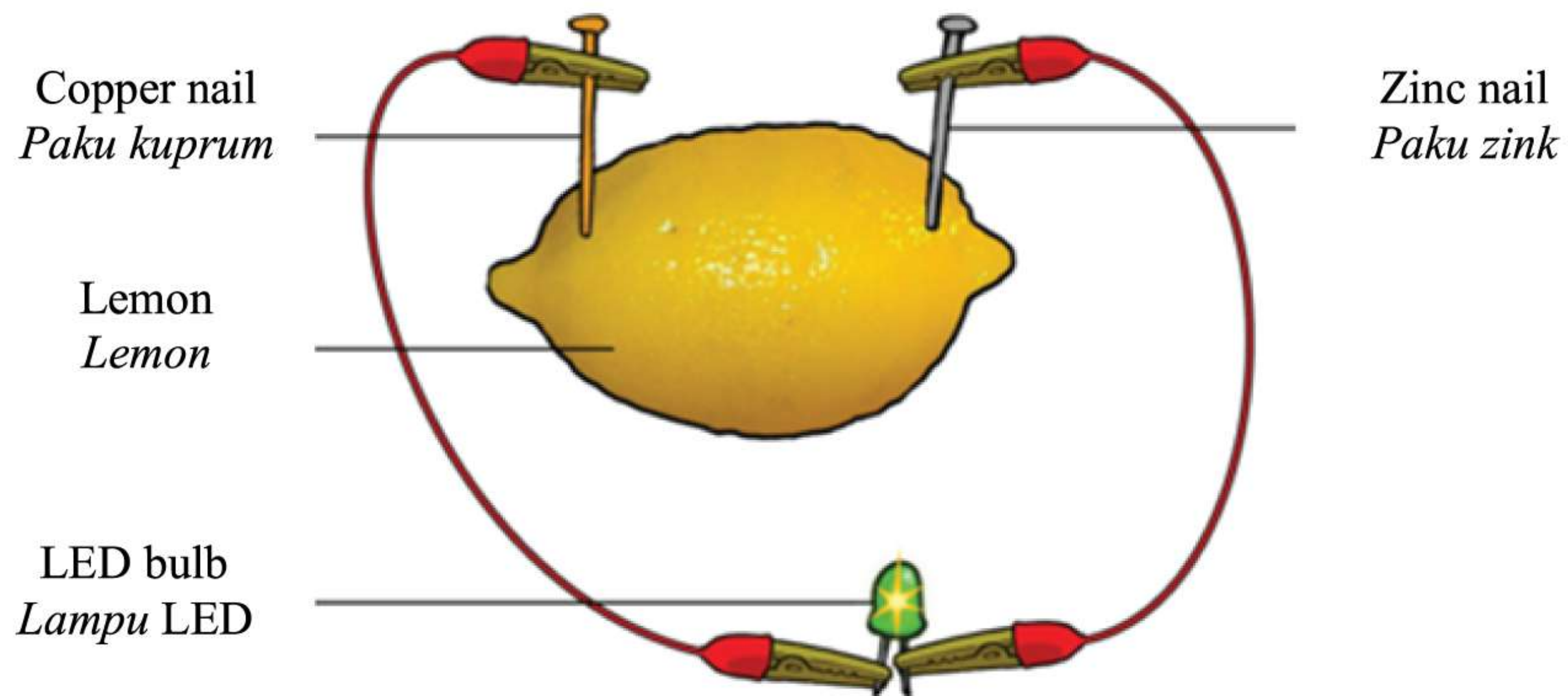


Diagram 8
Rajah 8

Which of the following is true about copper nail?
Antara berikut, yang manakah betul mengenai paku kuprum?

	Reaction <i>Tindak balas</i>	Half equation <i>Persamaan setengah</i>
A	Oxidation <i>Pengoksidaan</i>	$\text{Cu}^{2+} + 2\text{e} \rightarrow \text{Cu}$
B	Oxidation <i>Pengoksidaan</i>	$2\text{H}^{+} + 2\text{e} \rightarrow \text{H}_2$
C	Reduction <i>Penurunan</i>	$\text{Cu}^{2+} + 2\text{e} \rightarrow \text{Cu}$
D	Reduction <i>Penurunan</i>	$2\text{H}^{+} + 2\text{e} \rightarrow \text{H}_2$

- 43 Table 6 shows the potential differences of three simple voltaic cells.

Jadual 6 menunjukkan beza upaya untuk tiga sel voltan ringkas.

Cell <i>Sel</i>	Pair of metal <i>Pasangan logam</i>	Potential differences (V) <i>Beza upaya (V)</i>	Negative terminal <i>Terminal negatif</i>
I	Mg and Cu <i>Mg dan Cu</i>	3.0	Mg
II	Mg and Zn <i>Mg dan Zn</i>	1.5	Mg
III	Zn and Fe <i>Zn dan Fe</i>	0.5	Zn

Table 6
Jadual 6

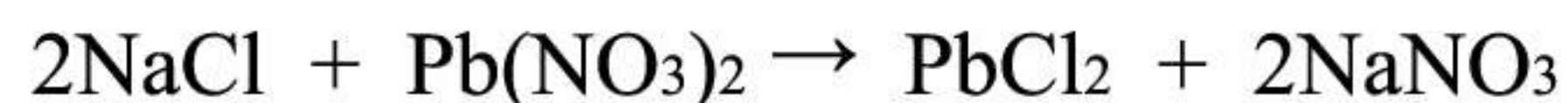
What is the potential difference of a simple voltaic cell for pair of iron and copper?

Apakah beza upaya untuk sel voltan ringkas bagi pasangan ferum dan kuprum?

- A 0.5 V
- B 1.0 V
- C 1.5 V
- D 2.5 V

- 44 The following equation represents the reaction between sodium chloride solution and lead (II) nitrate solution.

Persamaan berikut mewakili tindak balas di antara larutan natrium klorida dan larutan plumbum (II) nitrat.



What is the mass of lead (II) chloride precipitate produced when 200 cm³ of 0.1 mol dm⁻³ sodium chloride solution reacts completely with excess lead (II) nitrate solution?

[Relative atomic mass: Pb = 207, Cl = 35.5]

Berapakah jisim mendakan plumbum (II) klorida yang terhasil apabila 200 cm³ larutan natrium klorida 0.1 mol dm⁻³ bertindak balas lengkap dengan larutan plumbum (II) nitrat berlebihan?

[Jisim atom relatif: Pb = 207, Cl = 35.5]

- A 2.78 g
- B 5.56 g
- C 9.70 g
- D 11.12 g

45 Table 7 shows the information about the reactants used in Experiment I and II.

Jadual 7 menunjukkan maklumat mengenai bahan tindak balas yang digunakan dalam Eksperimen I dan II.

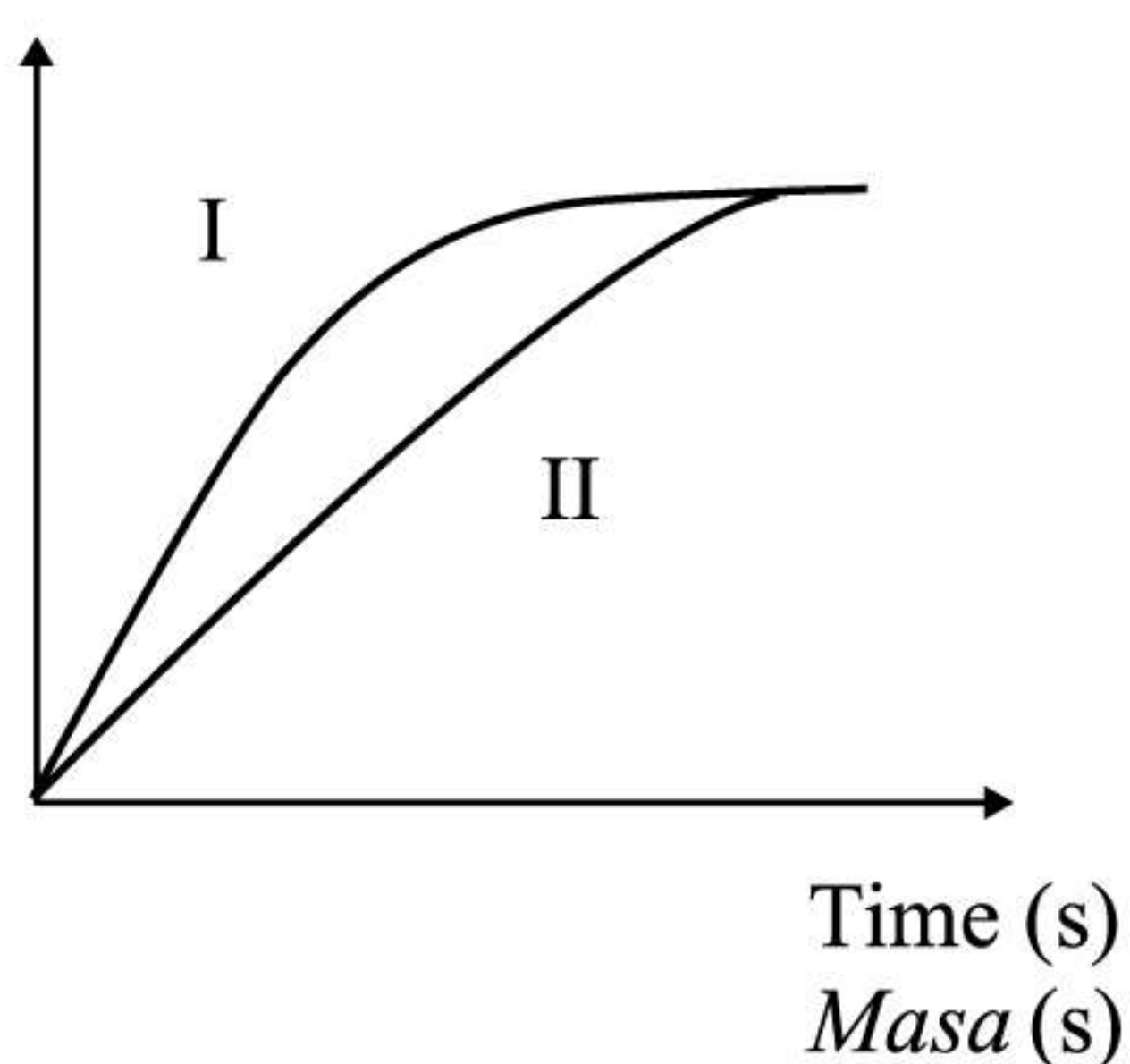
Experiment <i>Eksperimen</i>	Reactants <i>Bahan tindak balas</i>
I	20 cm ³ of 0.1 mol dm ⁻³ sulphuric acid and excess zinc powder <i>20 cm³ asid sulfurik 0.1 mol dm⁻³ dan serbuk zink berlebihan</i>
II	20 cm ³ of 0.1 mol dm ⁻³ nitric acid and excess zinc powder <i>20 cm³ asid nitrik 0.1 mol dm⁻³ dan serbuk zink berlebihan</i>

Table 7
Jadual 7

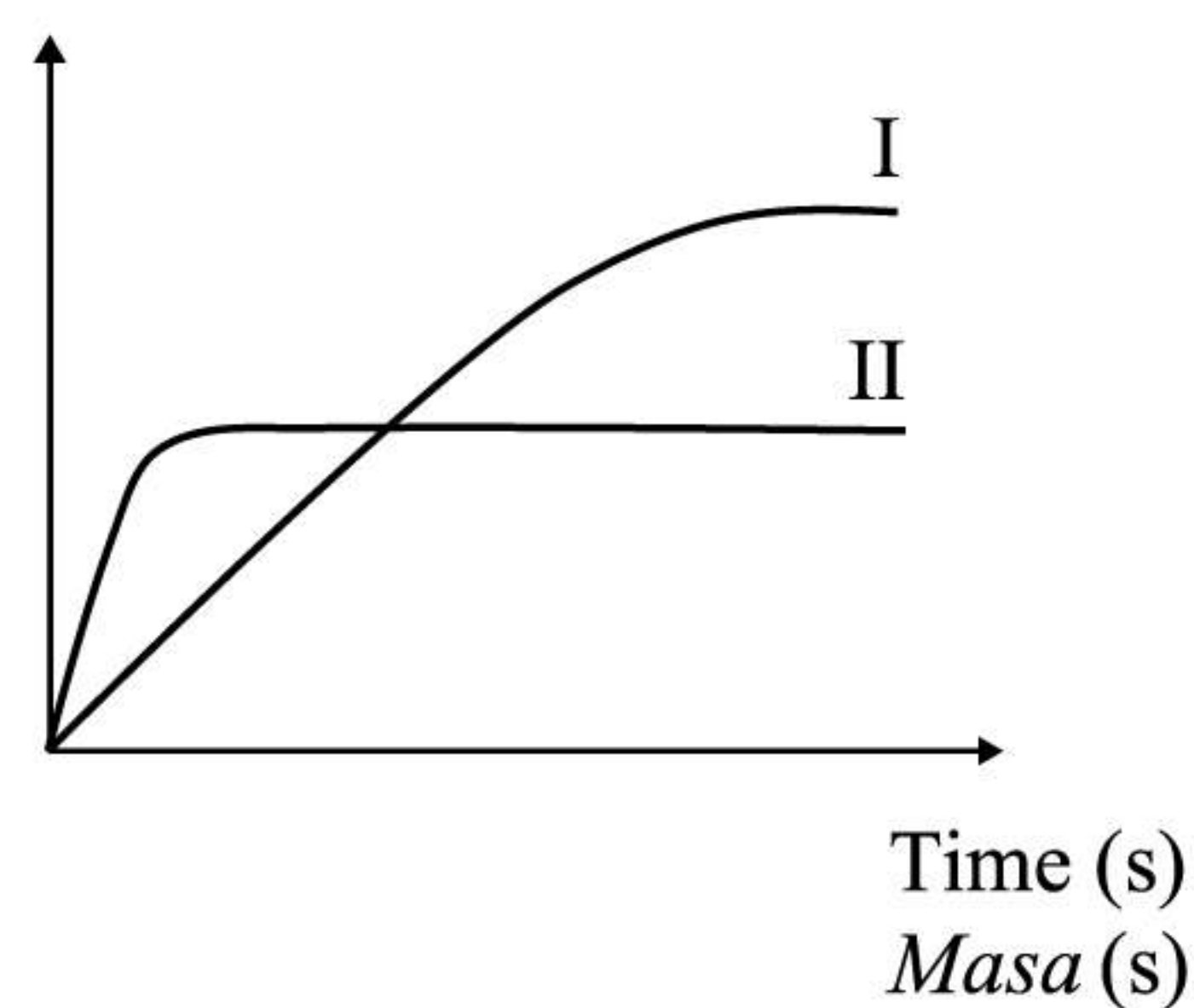
Which graphs represents the reaction in Experiment I and II?

Graf manakah yang mewakili tindak balas dalam Eksperimen I dan II?

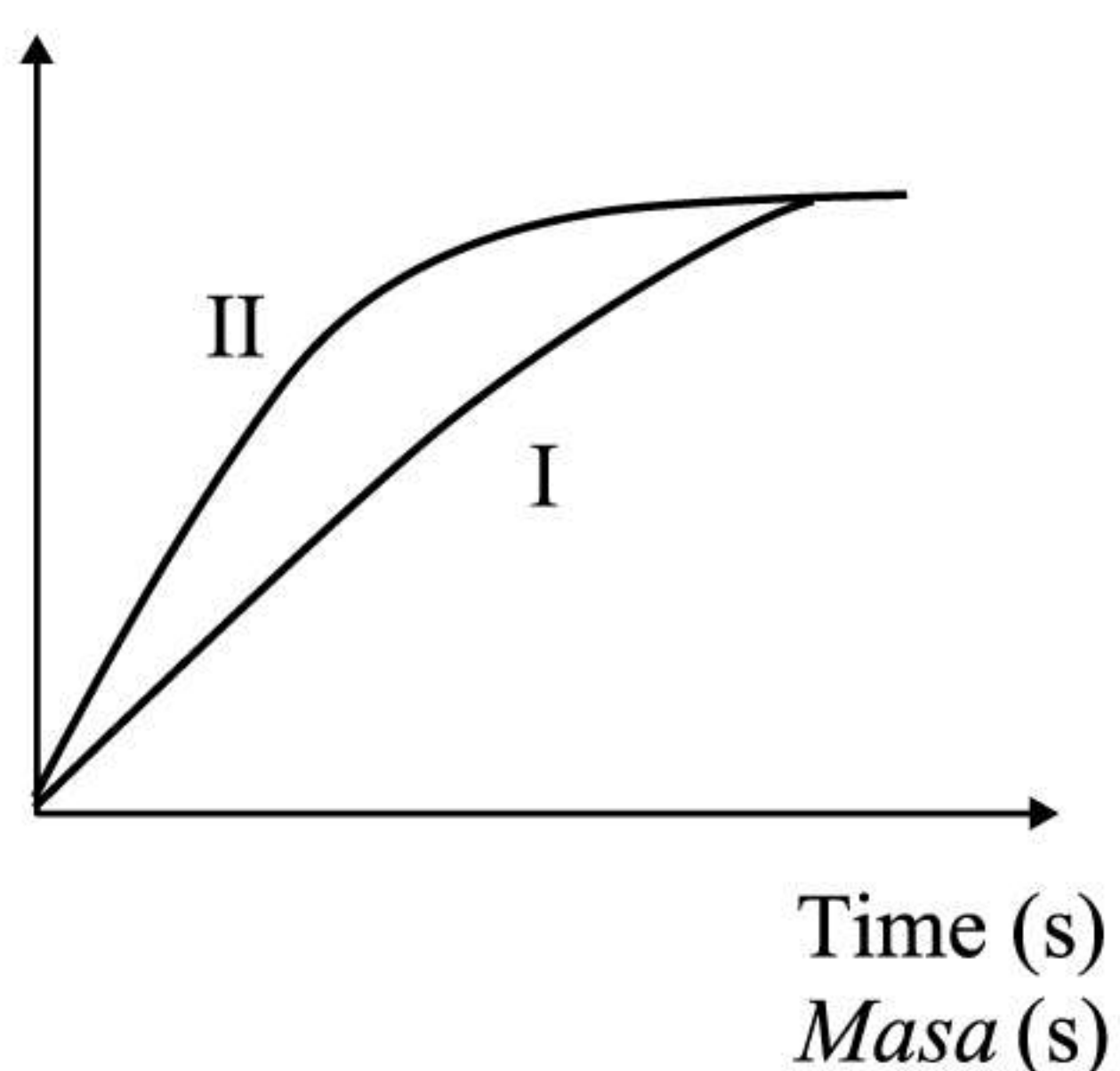
A Volume of H₂ gas (cm³)
Isi padu gas H₂ (cm³)



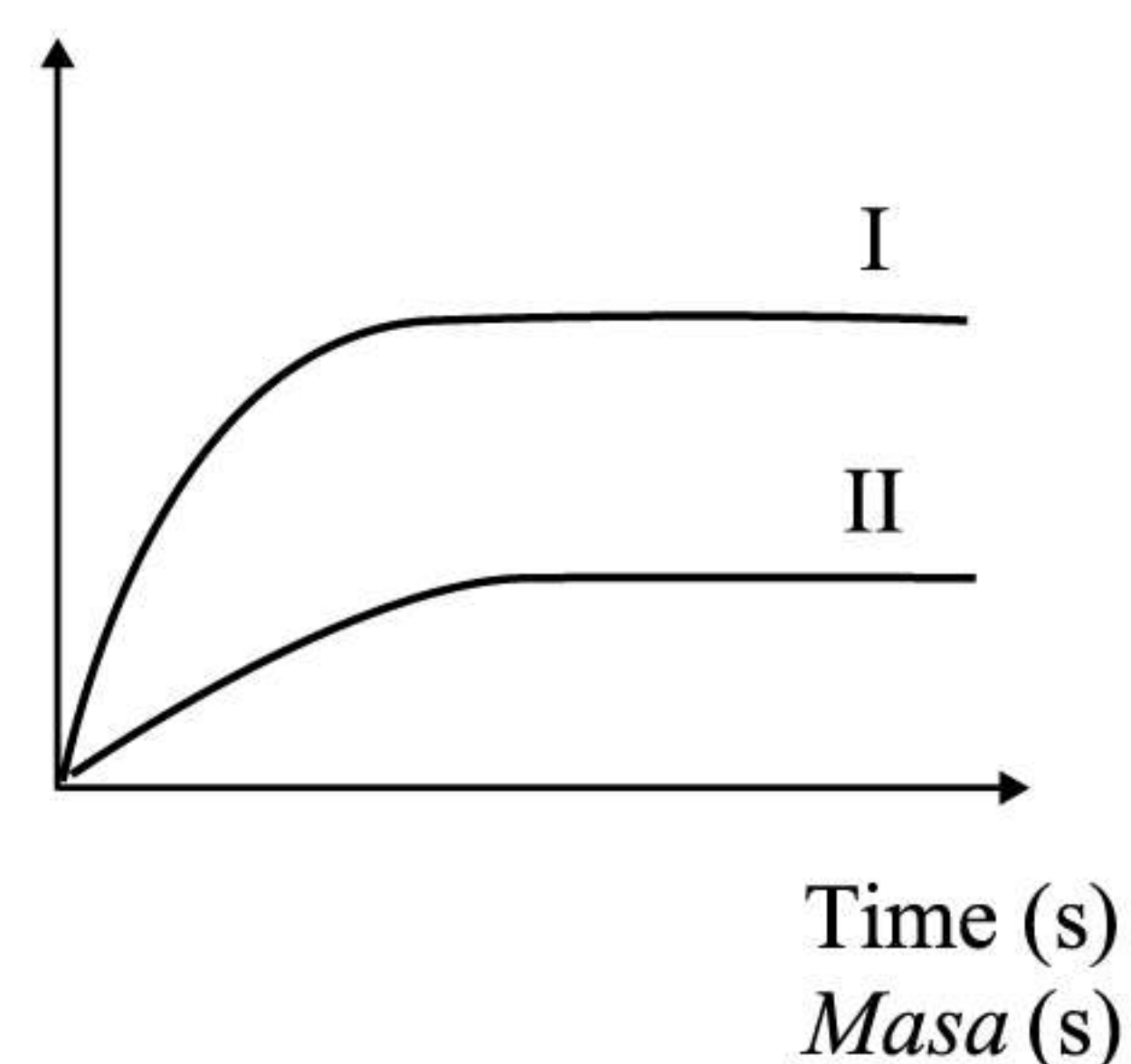
B Volume of H₂ gas (cm³)
Isi padu gas H₂ (cm³)



C Volume of H₂ gas (cm³)
Isi padu gas H₂ (cm³)



D Volume of H₂ gas (cm³)
Isi padu gas H₂ (cm³)



- 46 In an experiment, 2.4 g of magnesium powder is added to 100 cm³ of 2.0 mol dm⁻³ copper (II) sulphate solution. The temperature of the mixture increases by 1.0 °C.

What is the heat of the reaction in the experiment?

[Specific heat capacity of solution is 4.2 J g⁻¹ °C⁻¹ ; Relative atomic mass of Mg = 24]

Dalam satu eksperimen, 2.4 g serbuk magnesium ditambahkan kepada 100 cm³ larutan kuprum (II) sulfat 2.0 mol dm⁻³. Suhu campuran meningkat sebanyak 1.0 °C.

Berapakah haba tindak balas dalam eksperimen itu?

[Muatan haba tentu larutan ialah 4.2 J g⁻¹ °C⁻¹ ; Jisim atom relatif Mg = 24]

- A -0.42 kJ mol⁻¹
- B -0.48 kJ mol⁻¹
- C -4.20 kJ mol⁻¹
- D -4.80 kJ mol⁻¹

- 47 Bazli's sprain his leg during loosening the soil in his farm. Bazli asked his son to take substance X from the store and mix it into a plastic bag containing water. His son shook the plastic bag and pressed it onto the sprain part.

Kaki Bazli terseliuh ketika sedang menggembur tanah kebunnya. Bazli meminta anaknya untuk mengambil bahan X dari stor dan mencampurkannya ke dalam beg plastik yang mengandungi air. Anaknya menggoncangkan beg plastik itu dan menepak ke atas bahagian yang terseliuh.

What are the probable of substance X?

Apakah kemungkinan bahan X?

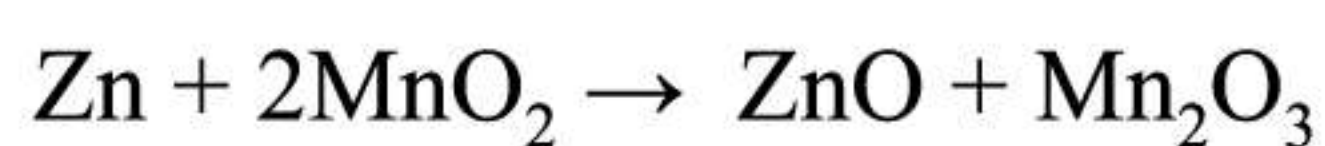
- | | | | |
|-----|---------------------------------|---|-------------------|
| I | Ammonium nitrate | | |
| | <i>Ammonium nitrat</i> | | |
| II | Potassium nitrate | | |
| | <i>Kalium nitrat</i> | | |
| III | Anhydrous magnesium sulphate | | |
| | <i>Magnesium sulfat kontang</i> | | |
| IV | Calcium oxide | | |
| | <i>Kalsium oksida</i> | | |
| A | I and II | B | I and III |
| | <i>I dan II</i> | | <i>I dan III</i> |
| C | II and IV | D | III and IV |
| | <i>II dan IV</i> | | <i>III dan IV</i> |

- 48 Diagram 9 shows a type of chemical cell.
Rajah 9 menunjukkan sejenis sel kimia.



Diagram 9
Rajah 9

Electricity is generated when the following reaction occurs in the cell.
Elektrik dihasilkan apabila tindak balas berikut berlaku dalam sel tersebut.



Which of the following is correct about change in the oxidation number of zinc and manganese?
Antara berikut, yang manakah betul tentang perubahan nombor pengoksidaan zink dan mangan?

	Change in oxidation number of zinc <i>Perubahan nombor pengoksidaan zink</i>	Change in oxidation number of manganese <i>Perubahan nombor pengoksidaan mangan</i>
A	+2 to 0	+2 to +6
B	+2 to 0	+2 to +3
C	0 to +2	+4 to +3
D	0 to +2	+4 to +6

- 49 Diagram 10 shows an energy level diagram.
Rajah 10 menunjukkan satu rajah aras tenaga.

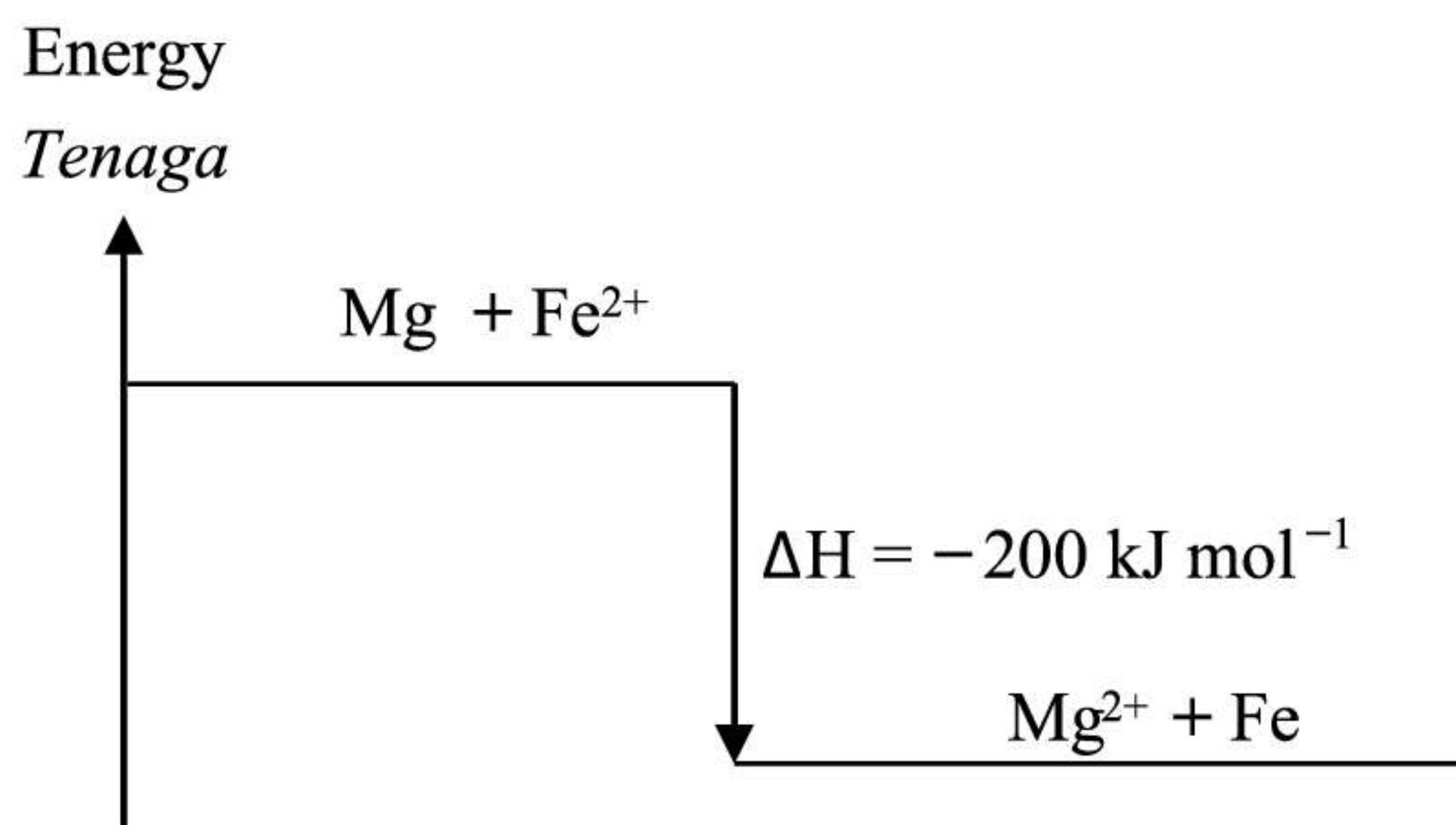


Diagram 10
Rajah 10

What is the increase in temperature of the solution if excess magnesium is dissolved in 50 cm³ of 0.2 mol dm⁻³ iron (II) sulphate solution?

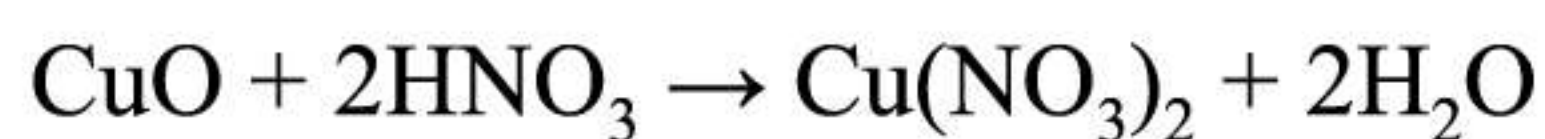
[Specific heat capacity of solution = 4.2 J g⁻¹ °C⁻¹]

Berapakah kenaikan suhu larutan jika magnesium berlebihan dilarutkan dalam 50 cm³ larutan ferum (II) sulfat 0.2 mol dm⁻³?

[*Muatan haba tentu larutan* = 4.2 J g⁻¹ °C⁻¹]

- A 0.01 °C
- B 9.5 °C
- C 0.1 °C
- D 95.2 °C

- 50 The following chemical reaction shows the reaction between copper (II) oxide and nitric acid.
Persamaan kimia berikut menunjukkan tindak balas antara kuprum (II) oksida dan asid nitrik.



If 10 g of copper (II) oxide powder is added to 50 cm³ of 2.0 mol dm⁻³ nitric acid, calculate the mass of unreacted copper (II) oxide.

[Relative formula mass of CuO = 80]

Sekiranya 10 g serbuk kuprum (II) oksida ditambahkan kepada 50 cm³ asid nitrik 2.0 mol dm⁻³, hitung jisim kuprum (II) oksida yang tidak bertindak balas.

[Jisim formula relatif CuO = 80]

- A 2 g
- B 4 g
- C 5 g
- D 6 g

END OF QUESTION PAPER
KERTAS PEPERIKSAAN TAMAT

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper consists of **50** questions.
Kertas peperiksaan 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 blackened mark that you have made.
Then blacken the new answer.
*Sekiranya anda hendak menukar jawapan, padamkan tanda yang telah dibuat.
Kemudian hitamkan jawapan yang baharu.*
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.