

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.*

1 Which of the following substance is an electrolyte?

Antara berikut bahan manakah elektrolit?

- A Pure ethanol
Etanol tulen
- B Molten naphthalene
Naftalena lebur
- C Tetrachloromethane
Tetraklorometana
- D Dilute nitric acid
Asid nitrik cair

2 Which of the following substances consist of atoms?

Antara berikut bahan manakah terdiri daripada atom?

- A Lead (II) bromide
Plumbum (II) bromida
- B Oxygen
Oksigen
- C Magnesium
Magnesium
- D Naphthalene
Naftalena

3 What is the meaning of electrolytes?

Apakah maksud elektrolit?

A Metals that can conduct electricity in solid state

Logam yang boleh menghkonduksikan elektrik dalam keadaan pepejal

B Elements that conduct electricity in molten state

Unsur yang menghkonduksikan elektrik dalam keadaan leburan

C Compounds that can conduct electricity in any state

Sebatian yang boleh menghkonduksikan elektrik dalam sebarang keadaan

D Compounds that can conduct electricity in molten state or aqueous solution

Sebatian yang boleh menghkonduksikan elektrik dalam keadaan leburan atau larutan akueus

4 What is the chemical added to prevent food from becoming rancid?

Apakah bahan kimia yang ditambahkan untuk menghalang makanan daripada menjadi tengik?

A Thickener

Pemekat

B Dye

Pewarna

C Stabiliser

Penstabil

D Antioxidant

Anti pengoksidaan

5 Diagram 1 shows an organic compound.

Rajah 1 menunjukkan satu sebatian organik.

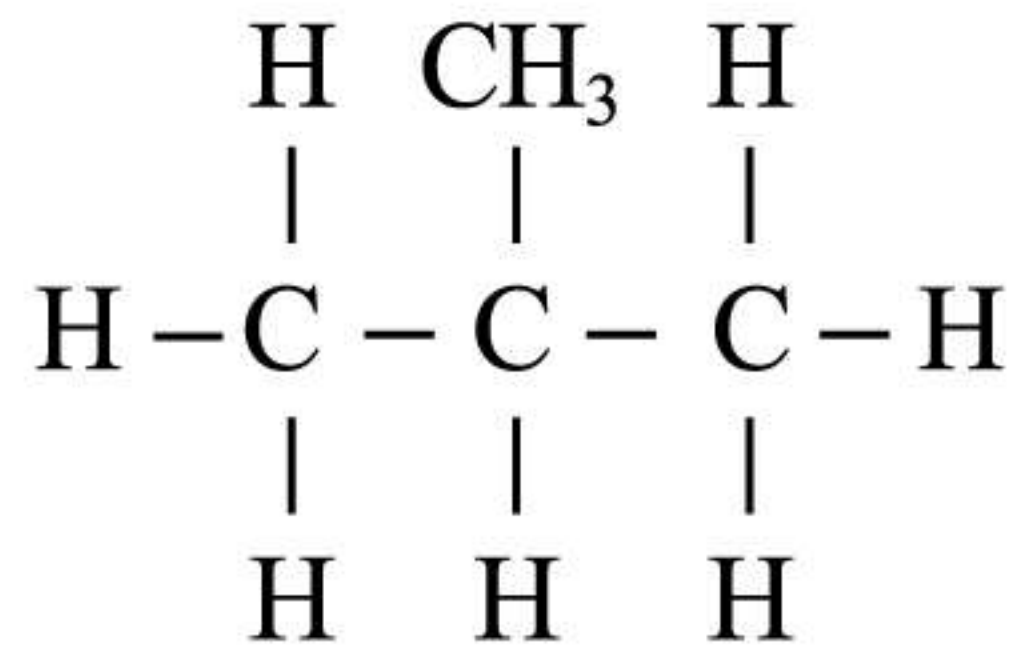


Diagram 1

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

6 The pH scale indicates the degree of acidity or alkalinity of a certain solution. Which of the following pH values is for strong alkaline solution?

Skala pH menunjukkan darjah keasidan atau kealkalian sesuatu larutan. Antara berikut, yang manakah nilai pH bagi larutan alkali kuat?

- A pH 3
- B pH 6
- C pH 10
- D pH 13

- 7 Diagram 2 shows the number of atoms in a molecule.
Rajah 2 menunjukkan bilangan atom dalam satu molekul.

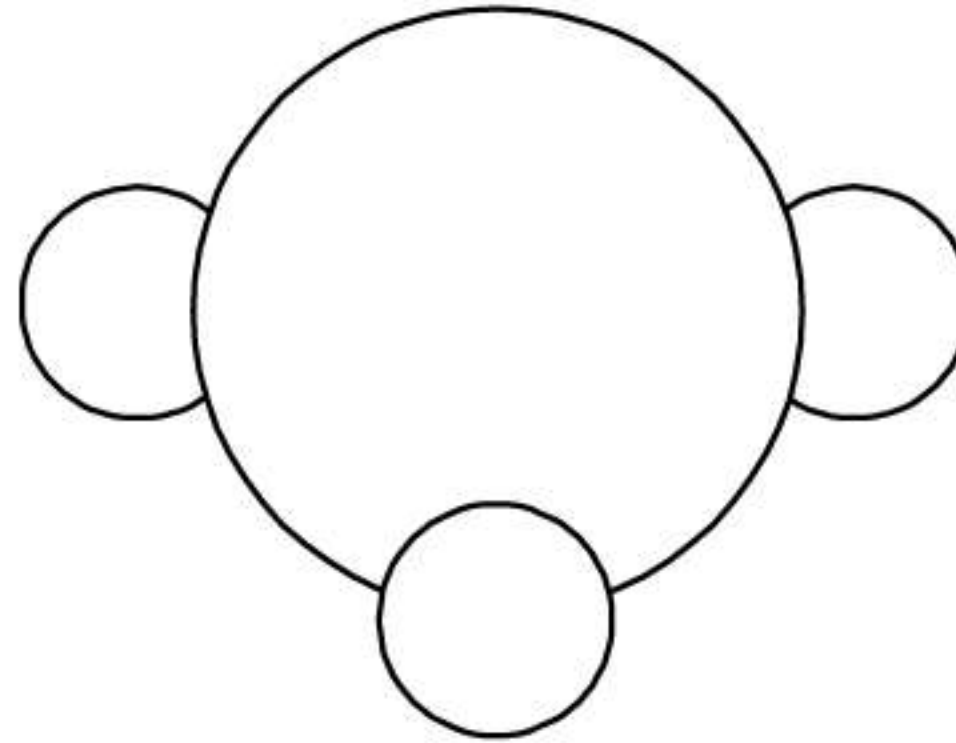


Diagram 2
Rajah 2

Which of the following could be the molecule?
Antara berikut, yang manakah mungkin molekul itu?

- A** Carbon dioxide
Karbon dioksida
- B** Ammonia
Ammonia
- C** Chlorine
Klorin
- D** Water
Air

- 8 Which of the following elements are in Group 17 of the Periodic Table of Elements?
Antara berikut unsur-unsur manakah terdapat dalam Kumpulan 17 pada Jadual Berkala Unsur?
- A Fluorine and iodine
Fluorin dan iodin
 - B Oxygen and bromine
Oksigen dan bromin
 - C Hydrogen and chlorine
Hidrogen dan klorin
 - D Hydrogen and bromine
Hidrogen dan bromin
- 9 Which of the following compounds is an ionic compound?
Antara berikut sebatian manakah adalah sebatian ion?
- A NO_2
 - B SO_3
 - C H_2O
 - D MgBr_2
- 10 Which of the following substances is acidic?
Antara berikut bahan manakah bersifat asid?
- A Ammonia
Ammonia
 - B Potassium oxide
Kalium oksida
 - C Carbon dioxide
Karbon dioksida
 - D Sodium hydroxide
Natrium hidroksida

11 The electron arrangement of an atom of a noble gas can be represented by

Susunan elektron bagi atom gas adi boleh diwakili oleh

- A 2.1
- B 2.8
- C 2.8.4
- D 2.8.7

12 Which of the following cells are rechargeable?

Antara berikut sel manakah yang boleh dicas semula?

- A Dry cell
Sel kering
- B Daniell cell
Sel Daniell
- C Nickel-cadmium cell
Sel nikel-kadmium
- D Mercury cell
Sel merkuri

13 Which of the following particles contain 10 electrons?

[Proton number : Ne = 10, Na = 11, K = 19]

Antara berikut zarah manakah yang mengandungi 10 elektron?

[Nombor proton : Ne = 10, Na = 11, K = 19]

- I Na
 - II Ne
 - III Na⁺
 - IV K⁺
-
- A I and II
I dan II
 - B II and III
II dan III
 - C III and IV
III dan IV
 - D I and IV
I dan IV

14 Which salt is insoluble in water?

Garam manakah tidak larut dalam air?

A Copper (II) sulphate

Kuprum (II) sulfat

B Lead (II) nitrate

Plumbum (II) nitrat

C Silver chloride

Argentum klorida

D Sodium carbonate

Natrium karbonat

15 When a substance Q is added to latex, the process of coagulation of latex slows down.
What is Q?

*Apabila satu bahan Q ditambahkan pada lateks, proses penggumpalan lateks menjadi perlahan.
Apakah Q?*

A Water

Air

B Ethanol

Etanol

C Ethanoic acid

Asid etanoik

D Aqueous ammonia

Akueus ammonia

16 Which substance is an oxidizing agent?
Bahan manakah adalah agen pengoksidaan?

- A Bromine water
Air bromin
- B Magnesium powder
Serbuk magnesium
- C Iron (II) chloride solution
Larutan ferum (II) klorida
- D Potassium iodide solution
Larutan kalium iodida

17 Name the process of soap preparation.
Namakan proses penyediaan sabun.

- A Dehydration
Pendehidratan
- B Sulphonation
Pengulfonan
- C Saponification
Saponifikasi
- D Polymerisation
Pempolimeran

- 18 Diagram 3 shows an energy level diagram.
Rajah 3 menunjukkan satu rajah aras tenaga.

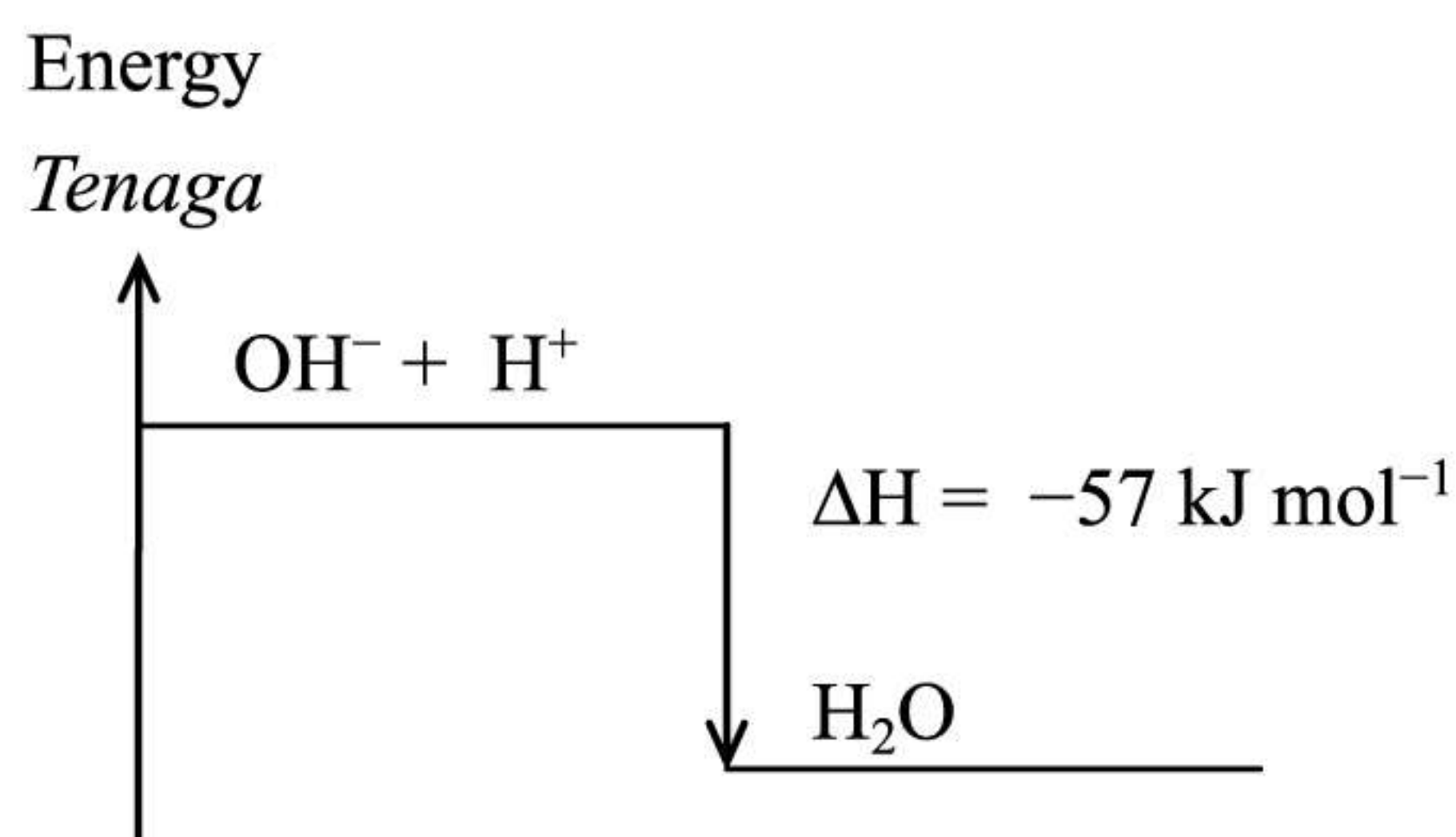


Diagram 3
Rajah 3

Based on Diagram 3, which of the following can be deduced?

Berdasarkan Rajah 3, manakah antara yang berikut boleh dirumuskan?

- A** The heat of neutralisation is -57 kJ mol^{-1}
Haba peneutralan ialah -57 kJ mol^{-1}
- B** 57 kJ of energy is needed for the reaction
57 kJ tenaga yang diperlukan dalam tindak balas
- C** The total energy content in the products is higher than the total energy content in the reactants
Jumlah kandungan tenaga dalam hasil tindak balas lebih tinggi daripada jumlah kandungan tenaga dalam bahan tindak balas
- D** The final temperature of the reaction is lower than the initial temperature of the reaction
Suhu akhir tindak balas adalah lebih rendah daripada suhu awal tindak balas

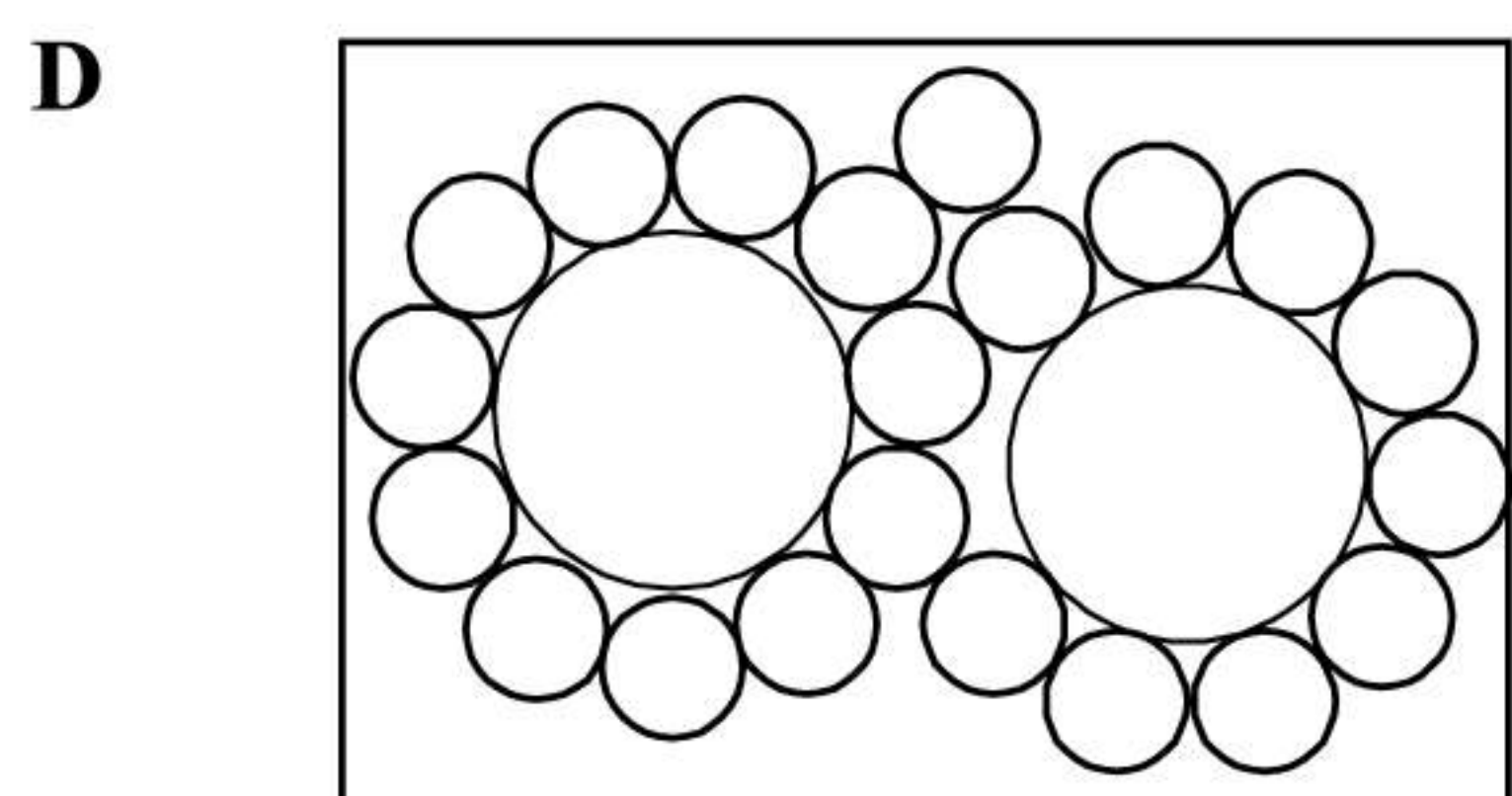
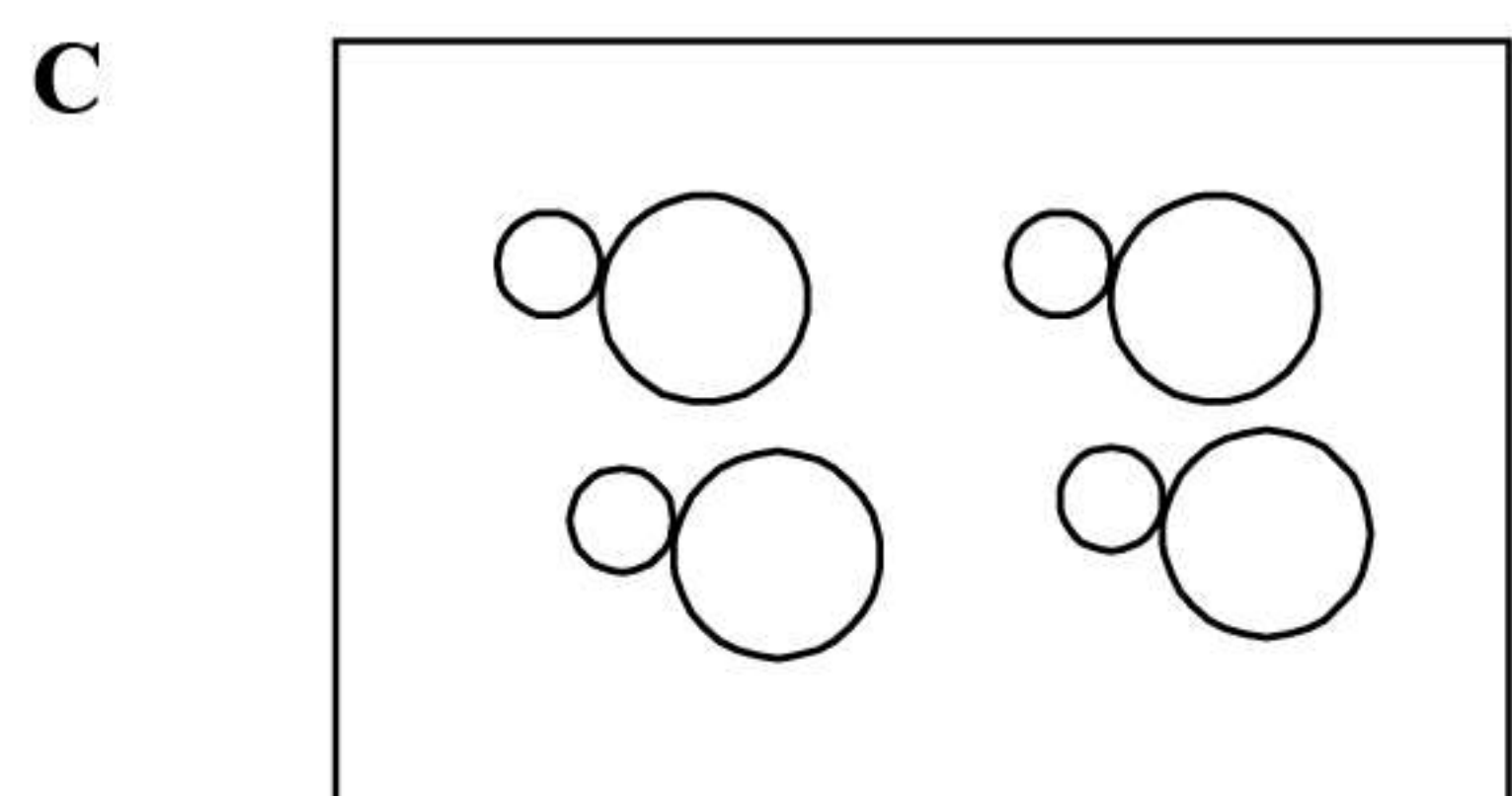
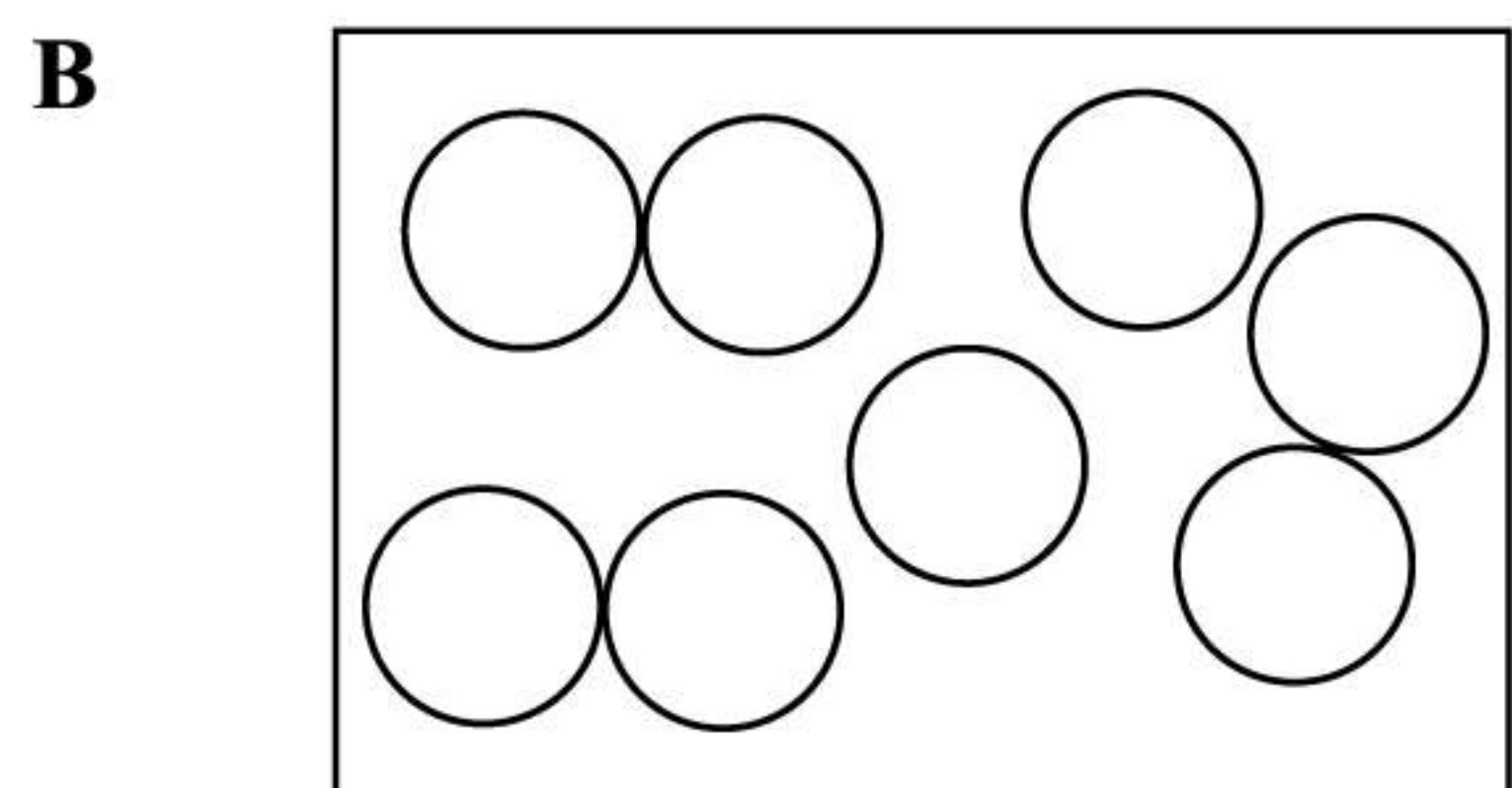
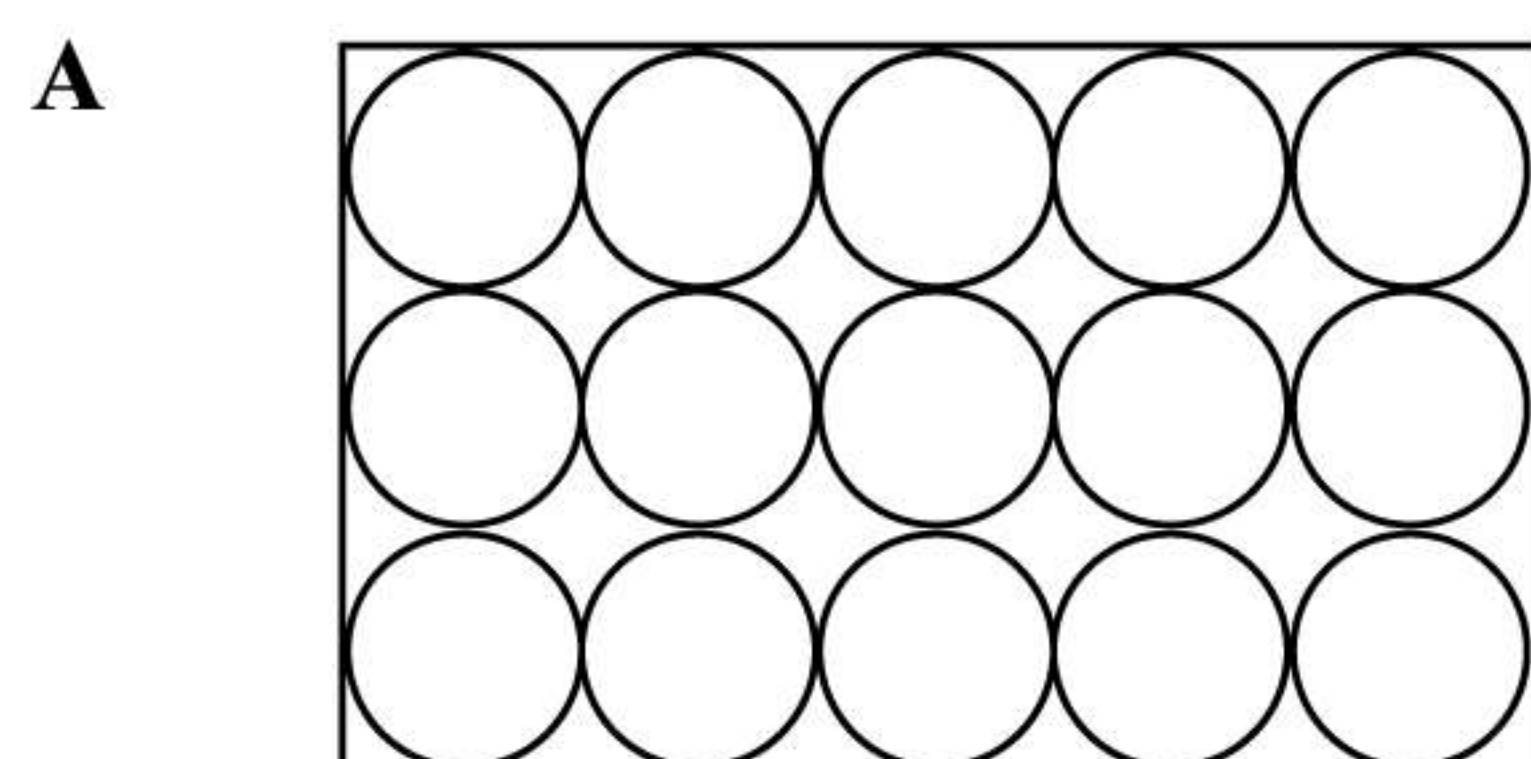
- 19 A beaker contains 100 cm^3 of 0.5 mol dm^{-3} sodium hydroxide solution. Calculate the number of moles of sodium hydroxide in the beaker.

Sebuah bikar mengandungi 100 cm^3 larutan natrium hidroksida 0.5 mol dm^{-3} . Hitung bilangan mol bagi natrium hidroksida di dalam bikar tersebut.

- A 0.05 mol
- B 0.50 mol
- C 5.00 mol
- D 50.0 mol

- 20 Which diagram shows the arrangement of particles in an alloy?

Rajah manakah yang menunjukkan susunan zarah dalam aloi?



21 What is the oxidation number for sulphur in the thiosulphate ion, $S_2O_3^{2-}$?

Apakah nombor pengoksidaan sulfur dalam ion tiosulfat, $S_2O_3^{2-}$?

A -3

B -2

C +2

D +3

22 Table 1 shows the electron arrangement of element P and Q.

Jadual 1 menunjukkan susunan elektron bagi unsur P dan Q.

Element P <i>Unsur P</i>	Element Q <i>Unsur Q</i>
2.4	2.8.7

Table 1

Jadual 1

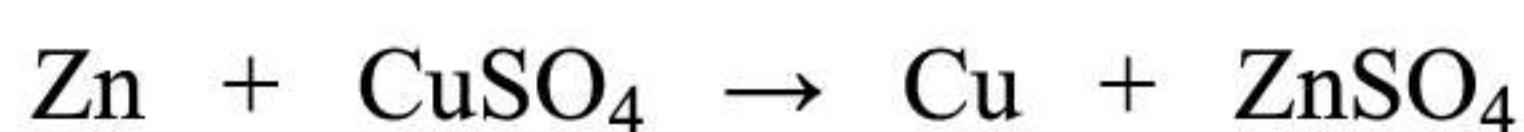
What is the chemical formula and the type of bond of the compound formed from the reaction between P and Q?

Apakah formula kimia dan jenis ikatan bagi sebatian yang terbentuk daripada tindak balas antara P dan Q?

	Chemical formula <i>Formula kimia</i>	Type of bond <i>Jenis ikatan</i>
A	P_4Q	Ionic <i>Ion</i>
B	P_4Q	Covalent <i>Kovalen</i>
C	PQ_4	Ionic <i>Ion</i>
D	PQ_4	Covalent <i>Kovalen</i>

23 The following equation represents a redox reaction.

Persamaan berikut mewakili satu tindak balas redoks.



Which of the following change in oxidation number is correct for Zn?

Antara berikut, perubahan nombor pengoksidaan yang manakah betul bagi Zn?

- A 0 → +1
- B +1 → 0
- C 0 → +2
- D +2 → 0

24 Diagram 4 shows the set-up of apparatus of a chemical cell.

Rajah 4 menunjukkan susunan radas sebuah sel kimia.

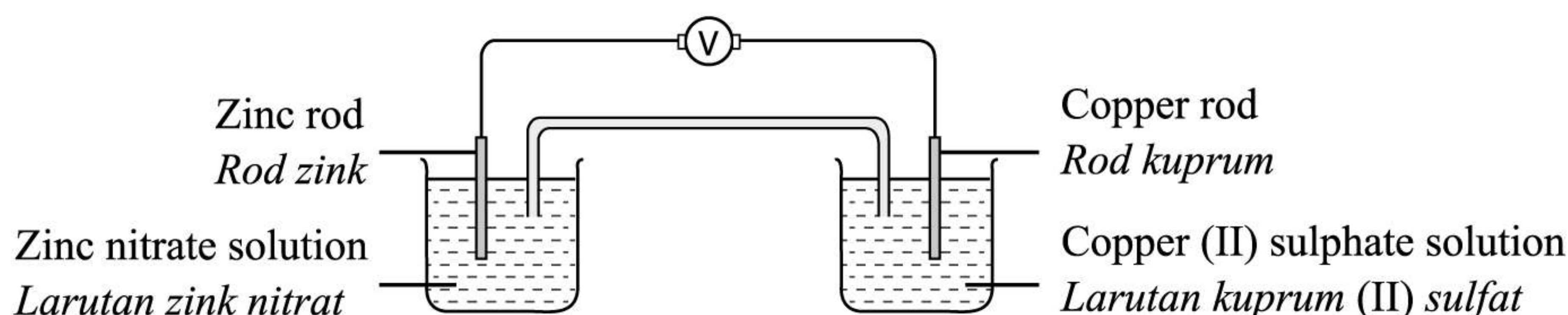


Diagram 4

Rajah 4

Which of the following observation is true in the chemical cell in Diagram 4?

Antara berikut pemerhatian manakah benar dalam sel kimia dalam Rajah 4?

- A The copper rod becomes thinner
Rod kuprum menjadi lebih nipis
- B The zinc rod becomes thicker
Rod zink menjadi lebih tebal
- C Zinc nitrate solution becomes blue
Larutan zink nitrat menjadi biru
- D The blue intensity of copper (II) sulphate solution decreases
Keamatan warna biru larutan kuprum (II) sulfat berkurangan

- 25 Which of the mixture will produce the highest heat of displacement?
Campuran yang manakah akan menghasilkan haba penyesaran yang tertinggi?
- A** Magnesium and copper (II) sulphate
Magnesium dan kuprum (II) sulfat
- B** Zinc and copper (II) sulphate
Zink dan kuprum (II) sulfat
- C** Iron and copper (II) sulphate
Besi dan kuprum (II) sulfat
- D** Tin and copper (II) sulphate
Timah dan kuprum (II) sulfat

26 Diagram 5 shows the set-up of apparatus for a voltaic cell.

Rajah 5 menunjukkan susunan radas sebuah sel voltan.

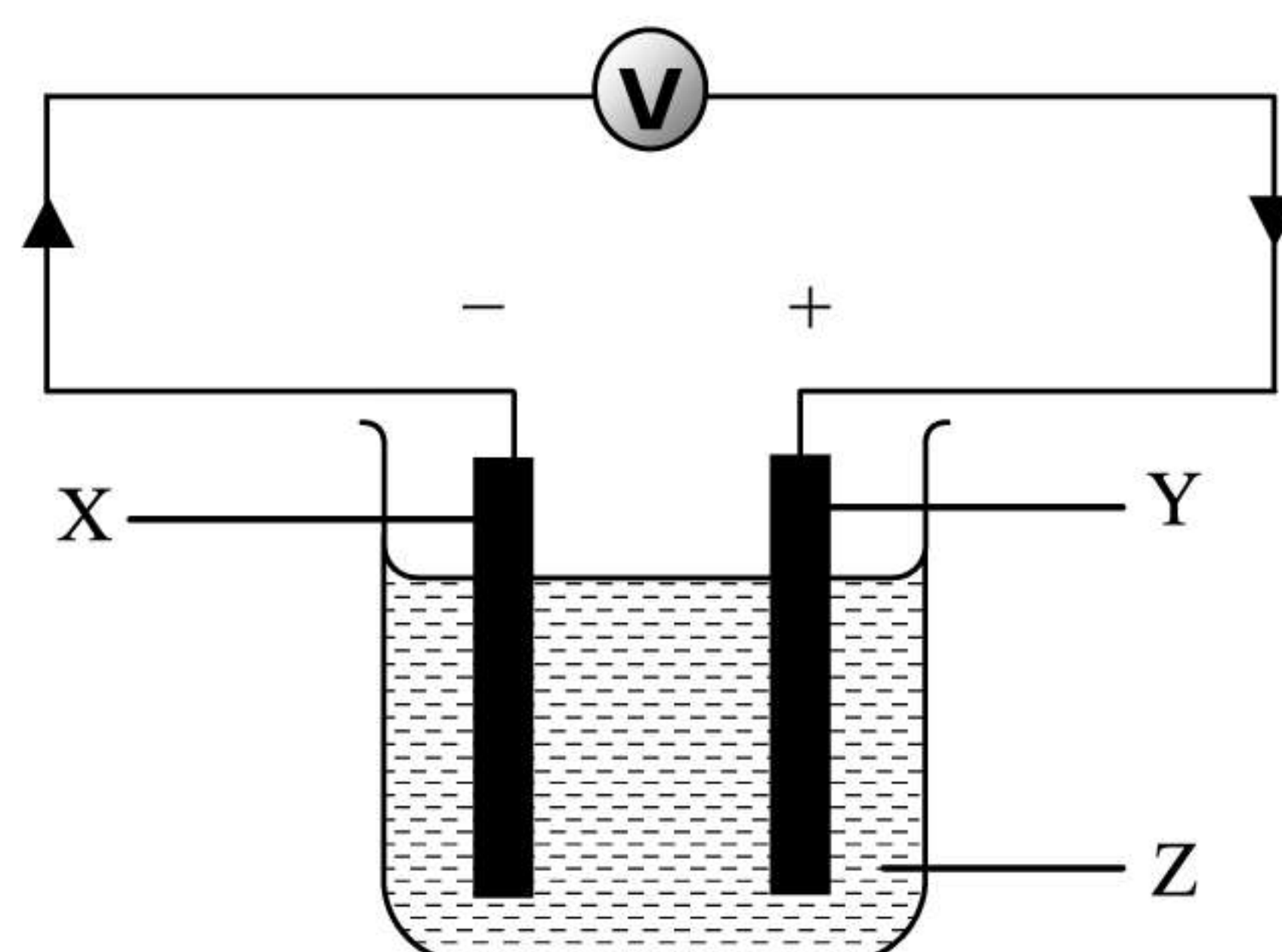


Diagram 5

Rajah 5

Which of the following sets of material would cause the electric current to flow?

Antara berikut, set bahan yang manakah menyebabkan arus elektrik mengalir?

	X	Y	Z
A	Zinc <i>Zink</i>	Copper <i>Kuprum</i>	Copper (II) sulphate solution <i>Larutan kuprum (II) sulfat</i>
B	Zinc <i>Zink</i>	Magnesium <i>Magnesium</i>	Dilute hydrochloric acid <i>Asid hidroklorik cair</i>
C	Iron <i>Besi</i>	Zinc <i>Zink</i>	Zinc chloride solution <i>Larutan zink klorida</i>
D	Silver <i>Argentum</i>	Zinc <i>Zink</i>	Silver nitrate solution <i>Larutan argentum nitrat</i>

27 Which of the following is isomer for pentane, C_5H_{12} ?
Antara berikut yang manakah isomer bagi pentana, C_5H_{12} ?

- A 2-methylpropane
2-metilpropana
- B 2,2-dimethylpropane
2,2-dimetilpropana
- C 2,2-dimethylbutane
2,2-dimetilbutana
- D 2-ethylpropane
2-etilpropana

28 Diagram 6 shows the Lewis structure of compound PQ.
Rajah 6 menunjukkan struktur Lewis bagi sebatian PQ.

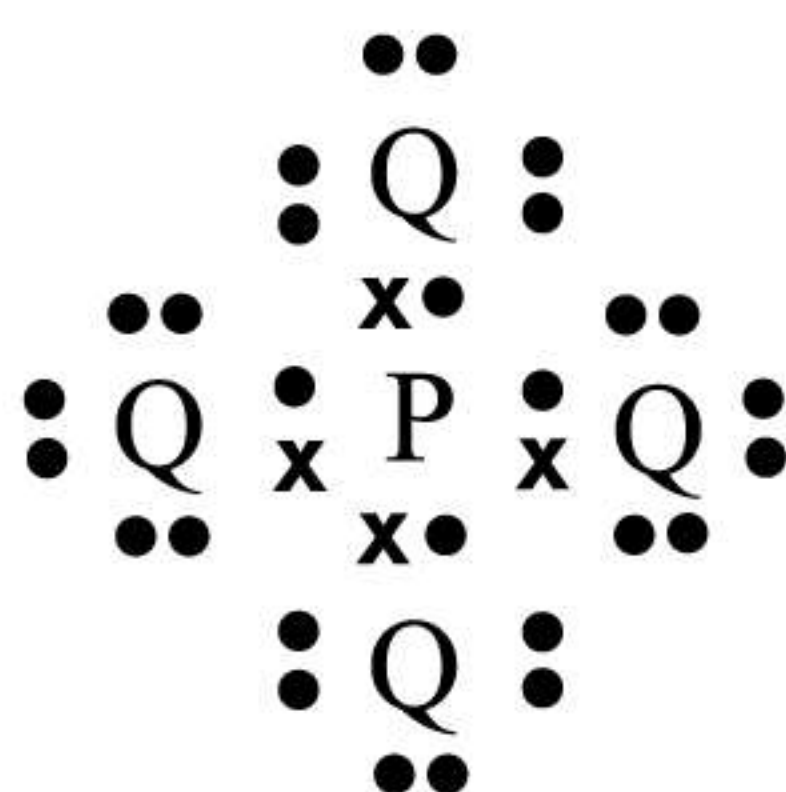


Diagram 6

Rajah 6

What is the valence electrons of the atoms of element P and element Q?

Apakah elektron valens untuk atom unsur P dan unsur Q?

	P	Q
A	4	4
B	4	6
C	7	4
D	4	7

- 29 The rate of reaction for the decomposition of hydrogen peroxide decreases with time because
Kadar tindak balas bagi penguraian hidrogen peroksida berkurangan dengan masa kerana
- A** the product of reaction decreases
hasil tindak balas berkurangan
- B** the volume of hydrogen peroxide decreases
isi padu hidrogen peroksida berkurangan
- C** the temperature of hydrogen peroxide increases
suhu hidrogen peroksida bertambah
- D** the concentration of hydrogen peroxide increases
kepekatan hidrogen peroksida bertambah

- 30 Table 2 shows the position of four elements in the Periodic Table.
Jadual 2 menunjukkan kedudukan empat unsur dalam Jadual Berkala.

A					C			
	B						D	

Table 2
Jadual 2

Which of the elements that can react to form a compound with a low melting point and boiling point?

Manakah antara unsur-unsur tersebut dapat bertindak balas membentuk suatu sebatian dengan takat lebur dan takat didih yang rendah?

- A** A and D
A dan D
- B** B and C
B dan C
- C** C and D
C dan D
- D** A and B
A dan B

31 Which of the following substances ionise completely in water?

Antara berikut, bahan-bahan manakah mengion dengan lengkap dalam air?

- | | | | |
|----------|---|----------|---------------------------------|
| I | Nitric acid
<i>Asid nitrik</i> | | |
| II | Ammonia
<i>Ammonia</i> | | |
| III | Ethanoic acid
<i>Asid etanoik</i> | | |
| IV | Sodium hydroxide
<i>Natrium hidroksida</i> | | |
| A | I and II
<i>I dan II</i> | B | II and III
<i>II dan III</i> |
| C | III and IV
<i>III dan IV</i> | D | I and IV
<i>I dan IV</i> |

32 An organic compound Q has the following properties.

Satu sebatian organik Q mempunyai sifat-sifat berikut.

Colourless liquid <i>Cecair tidak bewarna</i>	Insoluble in water <i>Tak larut dalam air</i>	Has a sweet smell <i>Mempunyai bau yang wangi</i>
--	--	--

Which substance could be Q?

Bahan manakah mungkin bagi Q?

- A** Ethene
Etena
- B** Ethanol
Etanol
- C** Ethanoic acid
Asid etanoik
- D** Ethyl ethanoate
Etil etanoat

33 Diagram 7 shows the method of preparing a salt.

Rajah 7 menunjukkan kaedah penyediaan satu garam.

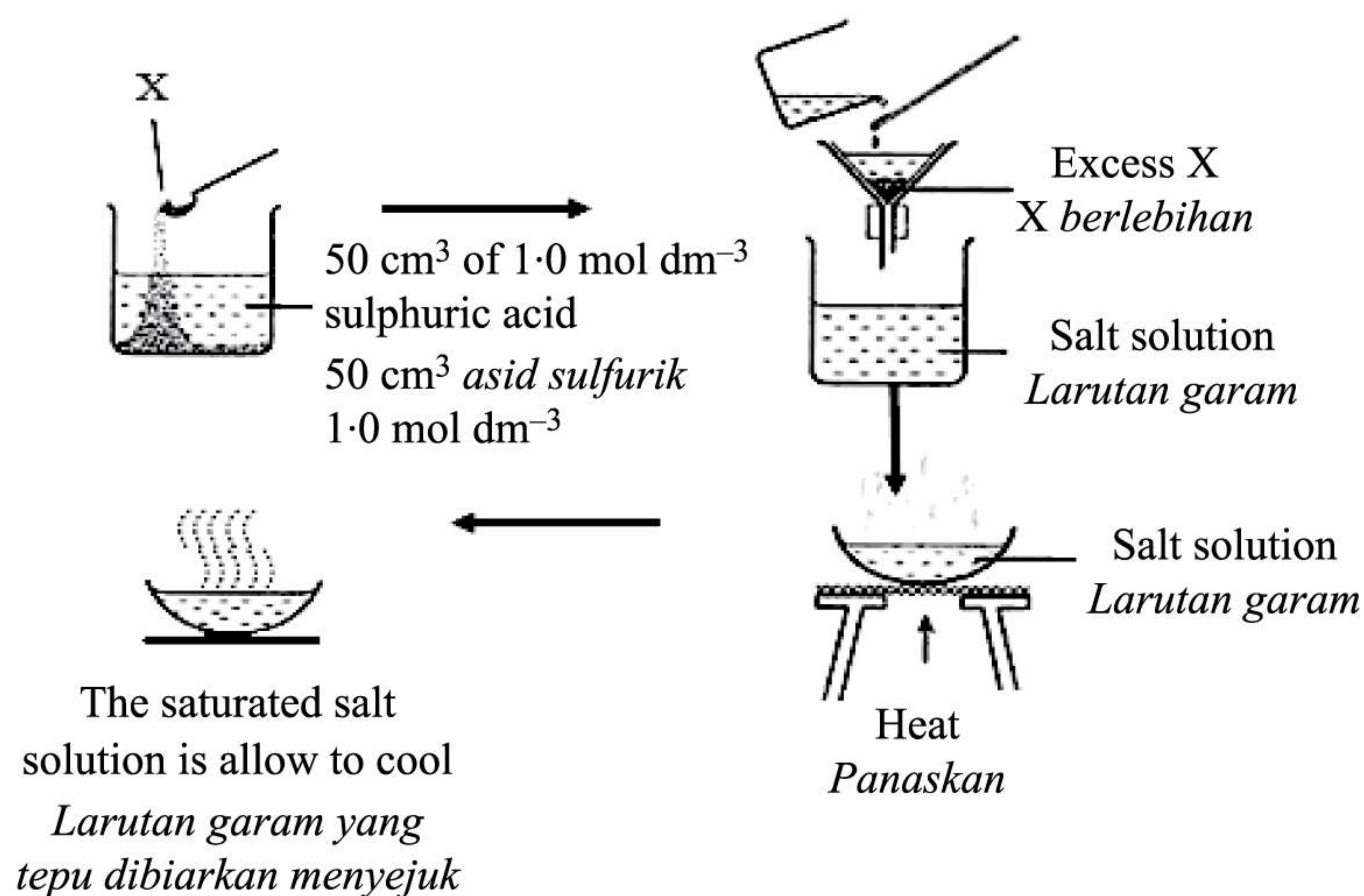


Diagram 7

Rajah 7

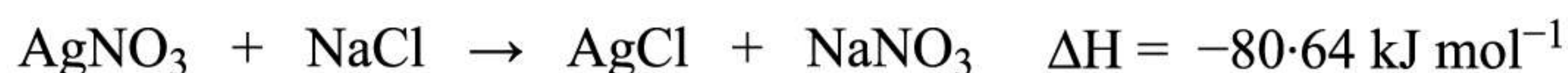
What is X?

Apakah X?

- A Copper
Kuprum
- B Copper (II) oxide
Kuprum (II) oksida
- C Copper (II) chloride
Kuprum (II) klorida
- D Copper (II) nitrate
Kuprum (II) nitrat

- 34 The following equation shows the reaction between silver nitrate solution, AgNO_3 and sodium chloride solution, NaCl .

Persamaan berikut menunjukkan tindak balas antara larutan argentum nitrat, AgNO_3 dan larutan natrium klorida, NaCl .



Which of the following is true about the heat change and type of reaction for the chemical equation?

Antara berikut yang manakah benar mengenai perubahan haba dan jenis tindak balas bagi persamaan kimia ini?

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

- 35 Table 3 shows the proton number of elements P, Q, R and S.

Jadual 3 menunjukkan nombor proton bagi unsur-unsur P, Q, R dan S.

Element <i>Unsur</i>	P	Q	R	S
Proton number <i>Nombor proton</i>	4	6	12	16

Table 3

Jadual 3

Which arrangement shows the atomic size of the elements in ascending order?

Susunan manakah yang menunjukkan saiz atom unsur-unsur dalam tertib menaik?

- A** R, S, P, Q **B** Q, P, S, R
C P, Q, R, S **D** S, R, Q, P

- 36 Table 4 shows the percentage by mass of each element in a compound and their relative atomic masses.

Jadual 4 menunjukkan peratusan mengikut jisim bagi setiap unsur dalam satu sebatian dan juga jisim atom relatif masing-masing.

Elements <i>Unsur</i>	C	H	O
Percentage (%) <i>Peratus (%)</i>	37.50	12.50	50.00
Relative atomic mass <i>Jisim atom relatif</i>	12	1	16

Table 4

Jadual 4

What is the empirical formula of the compound?

Apakah formula empirik bagi sebatian tersebut?

- A CH₄O
- B CHO₂
- C CH₂O
- D C₂HO

- 37 The following equation shows the reaction of heating 2.5 g of zinc carbonate.

Persamaan berikut menunjukkan tindak balas pemanasan 2.5 g zink karbonat.



What is the mass of zinc oxide formed?

[Relative atomic mass : C = 12, O = 16, Zn = 65]

Berapakah jisim zink oksida yang terbentuk?

[*Jisim atom relatif* : C = 12, O = 16, Zn = 65]

- A 1.62 g
- B 16.2 g
- C 2.50 g
- D 3.85 g

- 38 Element V is a metal with oxidation number +1 and can react with oxygen to produce a compound with formula V_2O .

What is the possible element of V?

Unsur V merupakan satu logam dengan nombor pengoksidaan +1 dan boleh bertindak balas dengan oksigen untuk menghasilkan sebatian dengan formula V_2O .

Apakah unsur yang mungkin bagi V?

- | | | | |
|-----|-------------------|---|-------------------|
| I | Magnesium | | |
| | <i>Magnesium</i> | | |
| II | Sodium | | |
| | <i>Natrium</i> | | |
| III | Silver | | |
| | <i>Argentum</i> | | |
| IV | Chlorine | | |
| | <i>Klorin</i> | | |
| A | I and II | B | II and III |
| | <i>I dan II</i> | | <i>II dan III</i> |
| C | III and IV | D | I and IV |
| | <i>III dan IV</i> | | <i>I dan IV</i> |

- 39 A student is stung by an insect with an alkaline sting.

Which of the following substances is the most suitable to be applied to the part stung to treat the student?

Seorang murid disengat oleh serangga yang mempunyai sengatan yang beralkali.

Antara berikut bahan manakah yang paling sesuai disapukan pada tempat yang disengat untuk merawat murid itu?

- | | |
|---|---------------------|
| A | Vinegar |
| | <i>Cuka</i> |
| B | Ethanol |
| | <i>Etanol</i> |
| C | Tooth paste |
| | <i>Ubat gigi</i> |
| D | Cooking oil |
| | <i>Minyak masak</i> |

- 40 Table 5 shows the total volume of gas collected at regular intervals in a reaction between calcium carbonate and hydrochloric acid.

Jadual 5 menunjukkan jumlah isi padu gas yang terkumpul pada sela masa tertentu dalam satu tindak balas antara kalsium karbonat dengan asid hidroklorik.

Time (s) <i>Masa (s)</i>	Volume of carbon dioxide gas (cm³) <i>Isi padu gas karbon dioksida (cm³)</i>
0	0.00
30	14.00
60	26.50
90	34.00
120	39.00
150	43.00
180	43.00
210	43.00

Table 5

Jadual 5

Which of the following is the average rate of reaction in the second minute?

Antara berikut, yang manakah kadar tindak balas purata dalam minit kedua?

- A 0.167 cm³ s⁻¹
- B 0.208 cm³ s⁻¹
- C 0.325 cm³ s⁻¹
- D 0.442 cm³ s⁻¹

- 41 A series of tests were carried out on a solution of salt X.
Table 6 shows the results of the tests.

*Satu siri ujian telah dijalankan ke atas larutan garam X.
Jadual 6 menunjukkan keputusan ujian tersebut.*

Test <i>Ujian</i>	Observation <i>Pemerhatian</i>
Add lead (II) nitrate solution <i>Tambahkan larutan plumbum (II) nitrat</i>	White precipitate dissolves in water when heated <i>Mendakan putih larut dalam air apabila dipanaskan</i>
Add dilute sulphuric acid <i>Tambahkan asid sulfurik cair</i>	No change <i>Tiada perubahan</i>
Add sodium hydroxide solution until excess <i>Tambahkan larutan natrium hidroksida sehingga berlebihan</i>	White precipitate is formed Insoluble in excess sodium hydroxide solution <i>Mendakan putih terbentuk Tidak larut dalam larutan natrium hidroksida berlebihan</i>
Add ammonia solution until excess <i>Tambahkan larutan ammonia sehingga berlebihan</i>	White precipitate is formed Insoluble in excess ammonia solution <i>Mendakan putih terbentuk Tidak larut dalam larutan ammonia berlebihan</i>

Table 6

Jadual 6

Based on the results of the experiment, what is salt X?

Berdasarkan keputusan eksperimen, apakah garam X?

- A** Magnesium chloride
Magnesium klorida
- B** Calcium carbonate
Kalsium karbonat
- C** Aluminium sulphate
Aluminium sulfat
- D** Zinc chloride
Zink klorida

- 42 Diagram 8 shows curve S which is obtained when excess granulated zinc is reacted with 50 cm³ of 1.0 mol dm⁻³ nitric acid.

Rajah 8 menunjukkan lengkung S yang diperolehi apabila ketulan zink berlebihan bertindak balas dengan 50 cm³ asid nitrik 1.0 mol dm⁻³.

Volume of hydrogen gas (cm³)

Isi padu gas hidrogen (cm³)

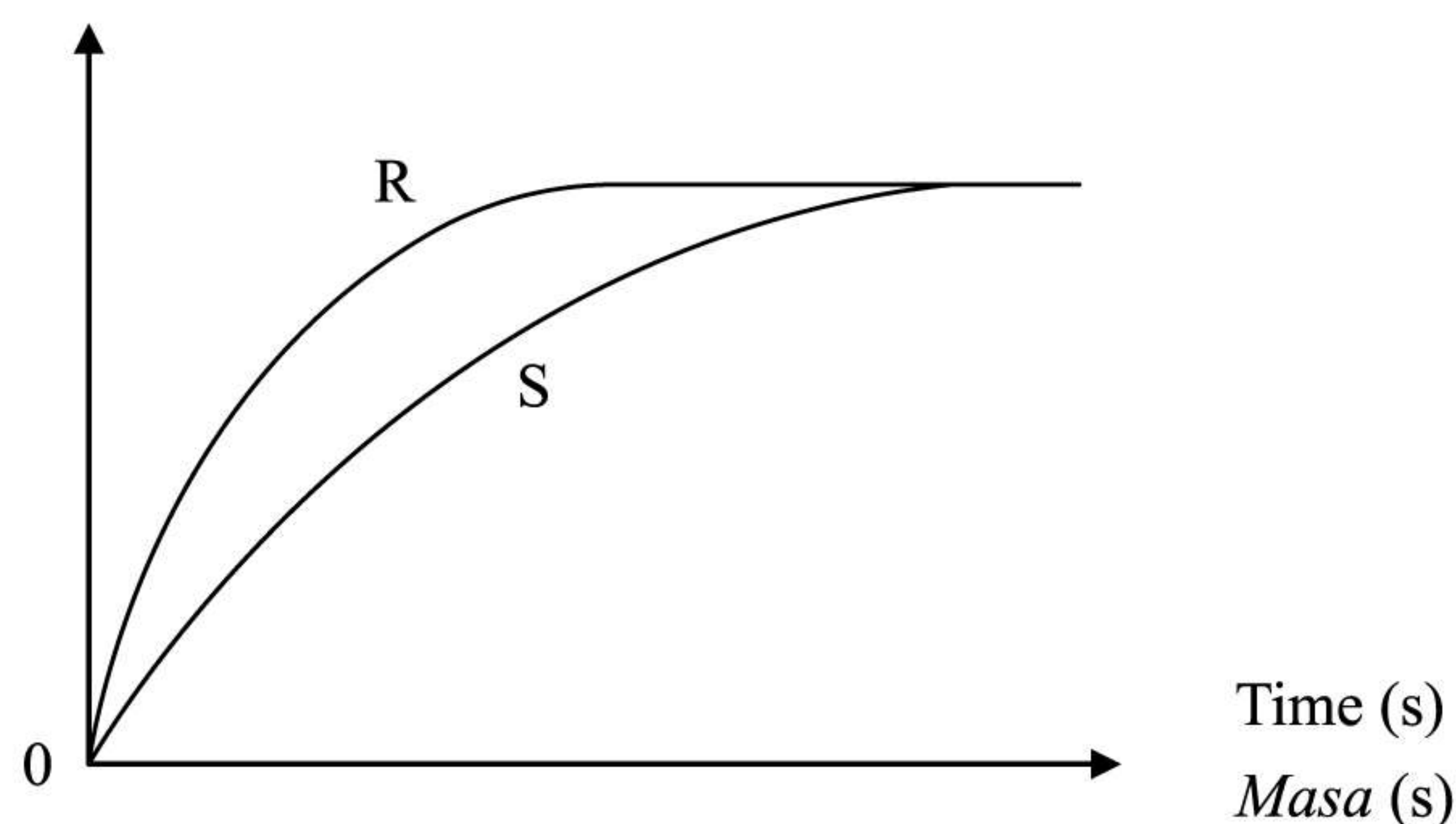


Diagram 8

Rajah 8

Which of the following reactions produces curve R?

Antara berikut tindak balas manakah yang menghasilkan lengkung R?

- A** Excess zinc powder + 50 cm³ of 2.0 mol dm⁻³ of nitric acid
Serbuk zink berlebihan + 50 cm³ asid nitrik 2.0 mol dm⁻³
- B** Excess zinc powder + 50 cm³ of 1.0 mol dm⁻³ of nitric acid
Serbuk zink berlebihan + 50 cm³ asid nitrik 1.0 mol dm⁻³
- C** Excess granulated zinc + 100 cm³ of 1.0 mol dm⁻³ of nitric acid
Ketulan zink berlebihan + 100 cm³ asid nitrik 1.0 mol dm⁻³
- D** Excess granulated zinc + 50 cm³ of 2.0 mol dm⁻³ of nitric acid
Ketulan zink berlebihan + 50 cm³ asid nitrik 2.0 mol dm⁻³

- 43 Diagram 9 shows the set-up of apparatus of an experiment which pair of metal, X and Y is used as electrodes.

Rajah 9 menunjukkan susunan radas bagi satu eksperimen di mana pasangan logam X dan Y digunakan sebagai elektrod.

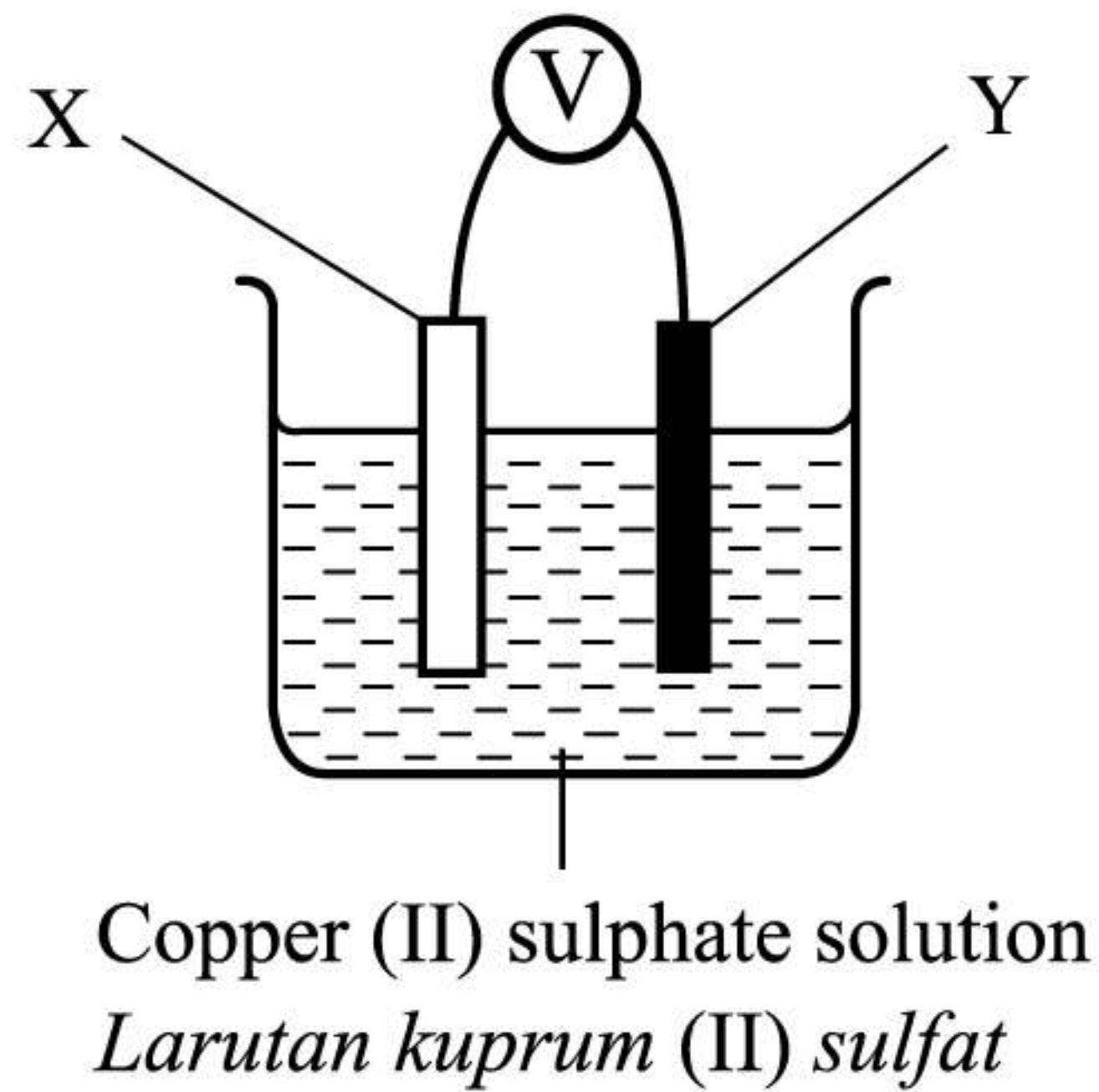


Diagram 9

Rajah 9

Table shows voltmeter reading obtained when this experiment are repeated using different pair of metal. What is the value of W?

Jadual menunjukkan bacaan voltmeter yang diperoleh apabila eksperimen diulangi dengan menggunakan pasangan logam yang berlainan. Apakah nilai W?

Electrode <i>Elektrod</i>		Voltmeter reading (V) <i>Bacaan voltmeter (V)</i>
X	Y	
Copper <i>Kuprum</i>	Iron <i>Ferum</i>	0.8
Zinc <i>Zink</i>	Magnesium <i>Magnesium</i>	W
Iron <i>Ferum</i>	Zinc <i>Zink</i>	0.2
Copper <i>Kuprum</i>	Magnesium <i>Magnesium</i>	2.6

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

44 Diagram 10 shows the process to produce compound J.

Rajah 10 menunjukkan proses menghasilkan sebatian J.

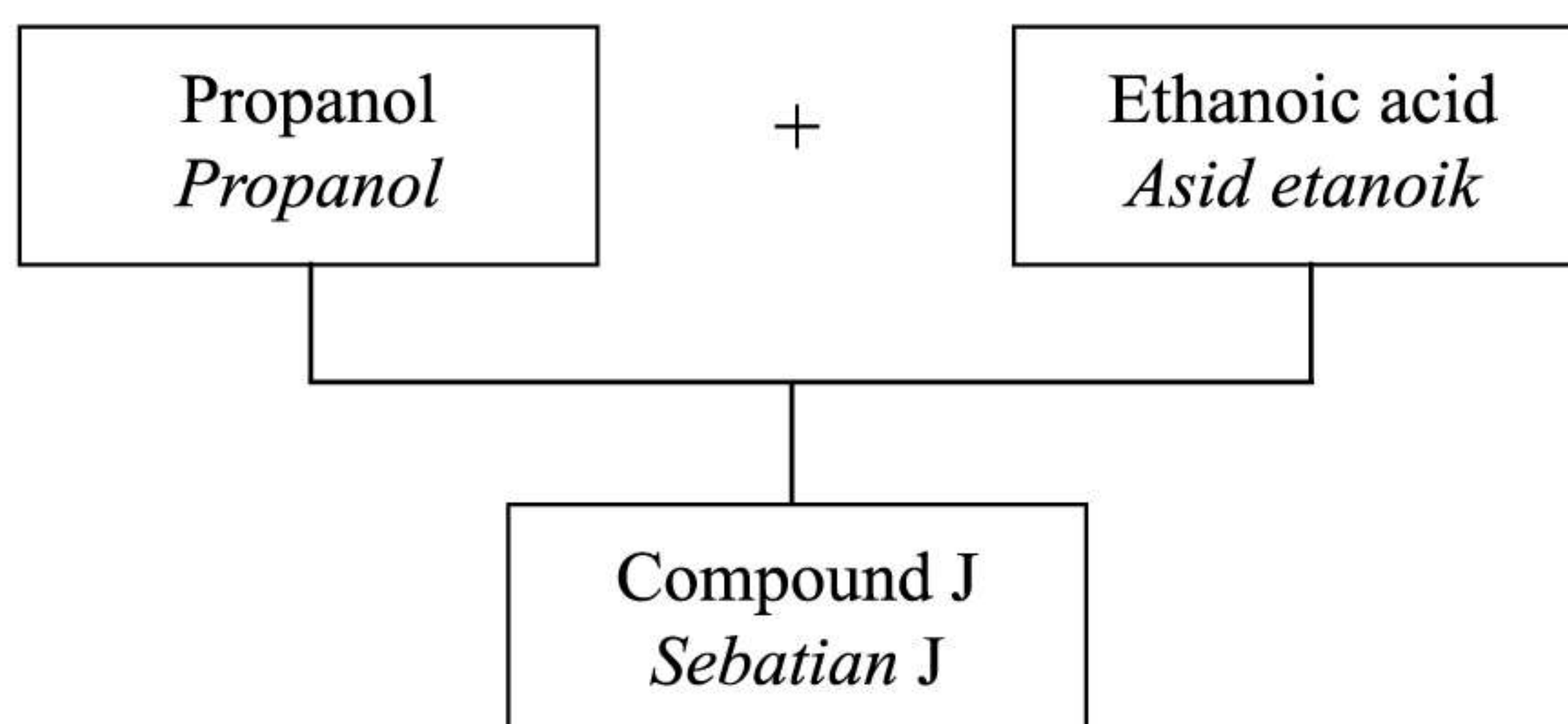


Diagram 10

Rajah 10

Which of the following structural formula is compound J?

Antara berikut yang manakah formula struktur bagi sebatian J?

- A $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{O} - \text{CH}_2 - \text{CH}_3$
- B $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{O} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$
- C $\text{CH}_3 - \text{CH}_2 - \overset{\text{O}}{\parallel} \text{C} - \text{O} - \text{CH}_2 - \text{CH}_3$
- D $\text{CH}_3 - \text{CH}_2 - \overset{\text{O}}{\parallel} \text{C} - \text{O} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$

- 45 Diagram 11 shows a set-up of apparatus for the titration of potassium hydroxide solution and sulphuric acid.

Rajah 11 menunjukkan susunan radas bagi pentitratan larutan kalium hidroksida dan asid sulfurik.

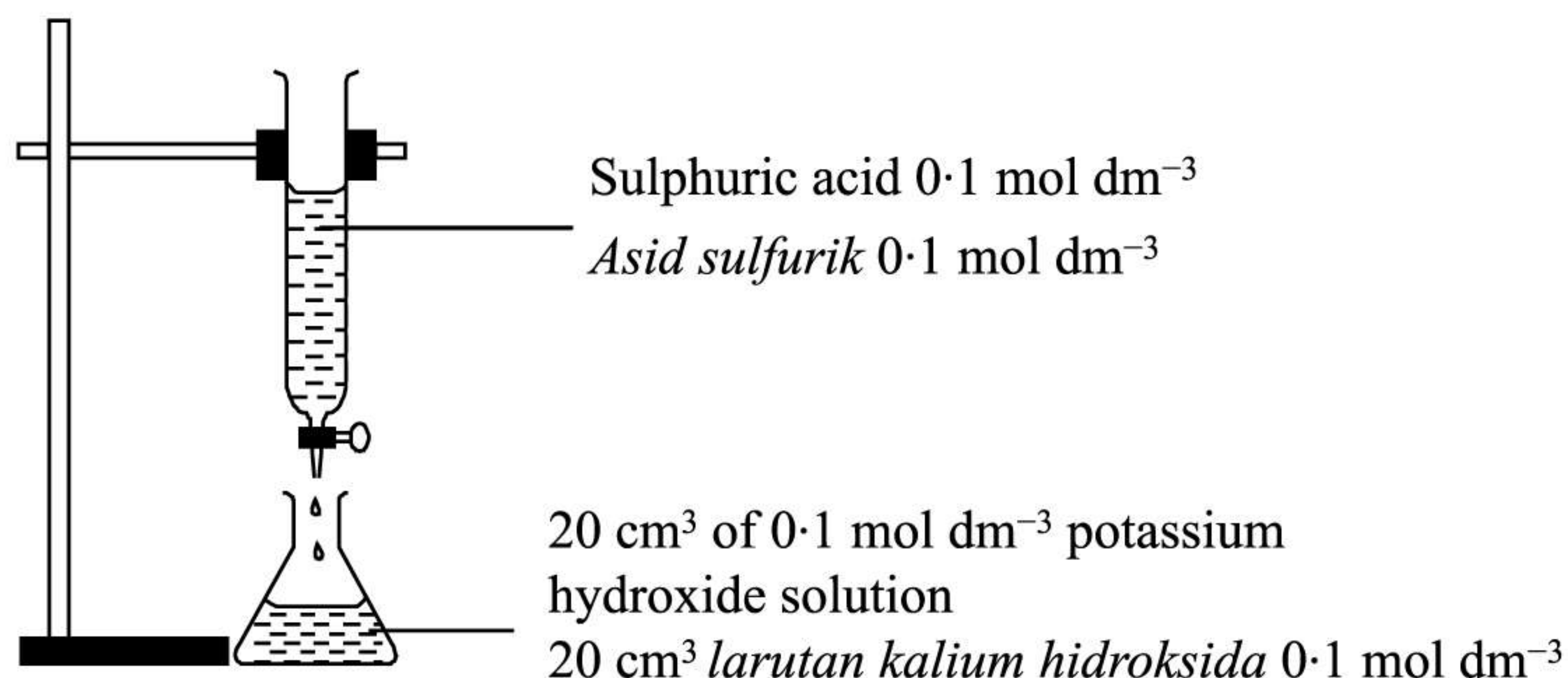


Diagram 11

Rajah 11

What is the volume of sulphuric acid needed to neutralise potassium hydroxide solution?

Berapakah isi padu asid sulfurik yang diperlukan untuk meneutralkan larutan kalium hidroksida?

- | | | | |
|----------|--------------------|----------|--------------------|
| A | 10 cm ³ | B | 20 cm ³ |
| C | 30 cm ³ | D | 40 cm ³ |

- 46 The following thermochemical equation shows the displacement of copper by zinc.

Persamaan termokimia berikut menunjukkan penyesaran kuprum oleh zink.



What is the quantity of heat energy released if 6.4 g of copper is displaced?

[Relative atomic mass : Cu = 64]

Berapakah kuantiti tenaga haba yang dibebaskan jika 6.4 g kuprum disesarkan?

[Jisim atom relatif : Cu = 64]

- | | |
|----------|----------|
| A | 1.9 kJ |
| B | 19 kJ |
| C | 190 kJ |
| D | 1 900 kJ |

- 47 Which of the following is the oxidation number of manganese, Mn in the corresponding substances?

Antara berikut, yang manakah nombor pengoksidaan mangan, Mn yang sepadan dengan bahannya?

	KMnO₄	MnO₂	Mn₂O₃
A	+7	+2	+3
B	+3	+4	+2
C	+7	+4	+3
D	+4	+2	+6

- 48 The following thermochemical equation shows the combustion of methane in excess oxygen.

Persamaan termokimia berikut menunjukkan pembakaran metana dalam oksigen berlebihan.



Which of the following are true when 3.2 g methane was burnt in excess oxygen?

[Relative atomis mass : H = 1, C = 12, O = 16, Molar volume of gas = 24 dm³ mol⁻¹ at room condition]

Antara berikut yang manakah adalah benar apabila 3.2 g metana terbakar dalam oksigen berlebihan?

[Jisim atom relatif : H = 1, C = 12, O = 16, Isi padu molar gas = 24 dm³ mol⁻¹ pada keadaan bilik]

- | | | | |
|----------|--|----------|--------------------------|
| I | 2.225 kJ heat was evolved
2.225 kJ haba dibebaskan | | |
| II | 0.2 mol of oxygen used
0.2 mol oksigen digunakan | | |
| III | 7.2 g water produced
7.2 g air dihasilkan | | |
| IV | 4.8 dm ³ carbon dioxide evolved
4.8 dm ³ karbon dioksida dibebaskan | | |
| A | I and II
I dan II | B | II and III
II dan III |
| C | III and IV
III dan IV | D | I and IV
I dan IV |

- 49 Diagram 12 shows the set-up of the apparatus to determine the heat of precipitation of silver chloride.

Rajah 12 menunjukkan susunan radas untuk menentukan haba pemendakan bagi argentum klorida.

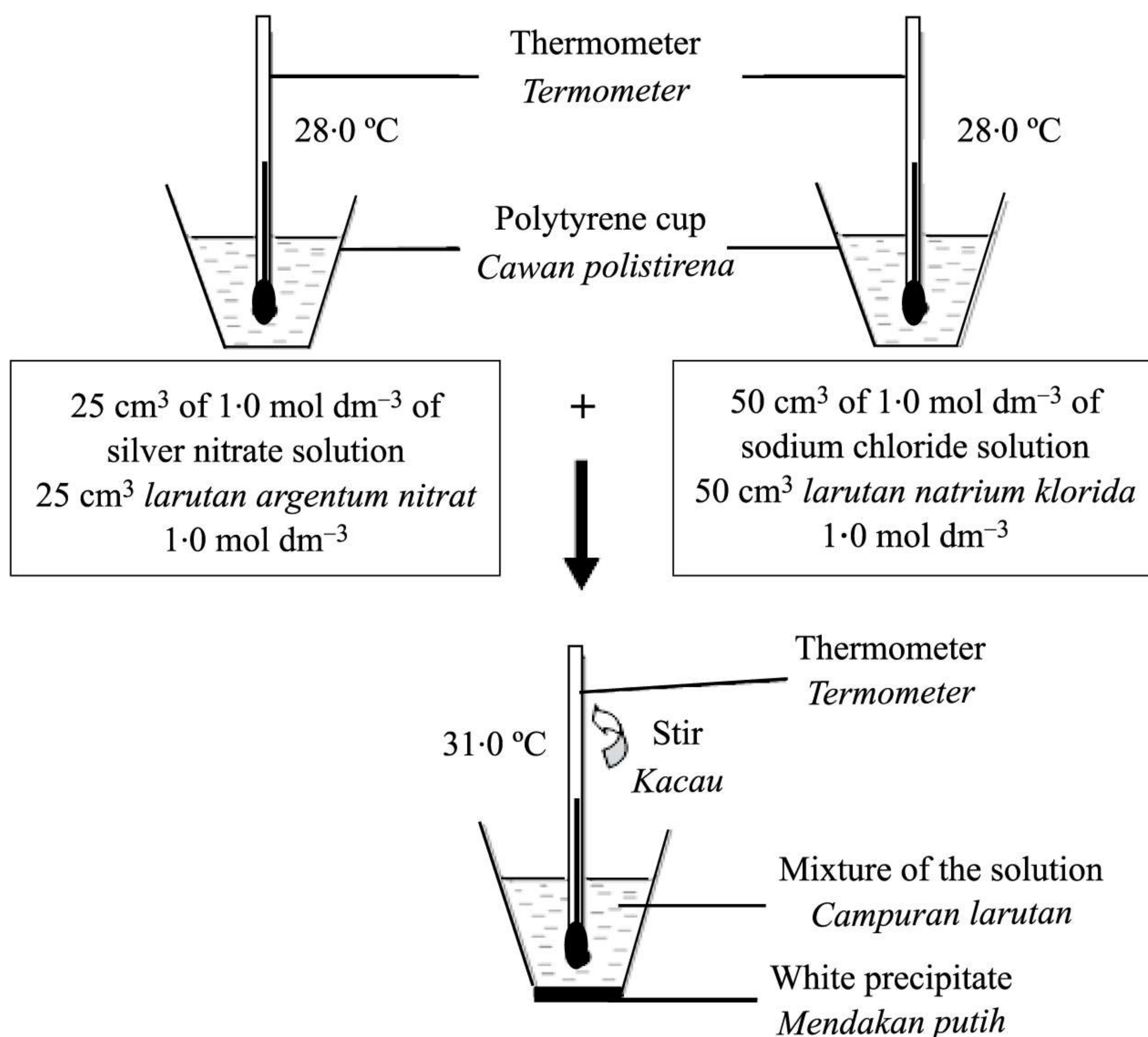


Diagram 12

Rajah 12

What is the heat of precipitation of silver chloride?

[Specific heat capacity of water = 4.2 J g⁻¹ °C⁻¹, Density of solution = 1 g cm⁻³]

Berapakah haba pemendakan bagi argentum klorida?

[Muatan haba tentu air = 4.2 J g⁻¹ °C⁻¹, Ketumpatan larutan = 1 g cm⁻³]

- A -18.9 kJ mol⁻¹
- B -37.8 kJ mol⁻¹
- C -18 900 kJ mol⁻¹
- D -37 800 kJ mol⁻¹

- 50 The number of road accidents caused by misuse of alcohol is increasing. The police always carry out road block to test the presence of alcohol in the air exhaled by the road users by using device which contains substance X.

What is substance X?

Peningkatan kadar kemalangan jalan raya adalah disebabkan oleh penyalahgunaan alkohol. Pihak polis sentiasa menjalankan sekatan jalan raya untuk menguji kehadiran alkohol dalam hembusan nafas pengguna jalan raya dengan menggunakan suatu alat yang mengandungi bahan X.

Apakah bahan X?

- A** Acidified potassium manganate (VII) solution
Larutan kalium manganat (VII) berasid
- B** Acidified potassium dichromate (VI) solution
Larutan kalium dikromat (VI) berasid
- C** Bromine water
Air bromin
- D** Chlorine water
Air klorin

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.