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NO KAD PENGENALAN

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KERTAS 1

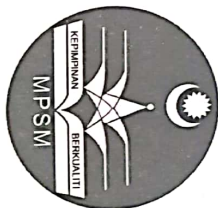
Nama Pelajar :

OGOS 2019

Tingkatan :

1 JAN 15 MINIT

KIMIA K1 TING 5



**MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
(CAWANGAN KELANTAN)**

MODUL KOLEKSI ITEM

PERCUBAAN SPM

2019

KIMIA

KERTAS 1

MASA : SATU JAM LIMA BELAS MINIT

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

ARAHAN:

1. Tulis nama dan kad pengenalan anda.
2. Kertas soalan ini mengandungi **dua** bahagian. Terdapat **satu** soalan bagi setiap bahagian. Baca arahan bagi setiap bahagian dengan teliti.
3. Jawab **semua** soalan.
4. Tulis jawapan anda pada ruang jawapan yang disediakan di dalam kertas soalan ini.

Kertas soalan ini mengandungi 28 halaman bercetak.

- A S
B P
C Si
D Al

7 Which substance is an ionic compound?
Bahan manakah sebatian ion?

- A Glucose
Glukosa
B Methanol
Metanol
C Zinc oxide
Zink oksida
D Carbon dioxide
Karbon dioksida

8 Diagram 1 shows the electron arrangement of a compound with a formula VW_2 .
Rajah 1 menunjukkan susunan elektron bagi satu sebatian dengan formula VW_2 .

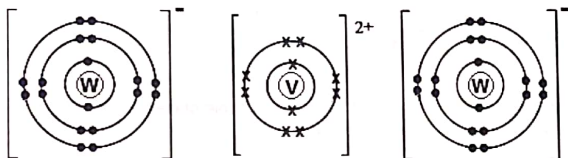


Diagram 1
Rajah 1

What are the proton number of atoms V and W?
Apakah nombor proton bagi atom V dan atom W?

	Atom V	Atom W
A	8	19
B	10	18
C	12	17
D	11	16

9 What is the meaning of electrolytes?
Apakah maksud elektrolit?

- A Metal that can conduct electricity.
Logam yang menghantarkan elektrik dalam keadaan pepejal.
B Element that conduct electricity in molten state.
Unsur yang menghantarkan elektrik dalam keadaan leburan.
C Compound that can conduct electricity in any state.
Sebatian yang menghantarkan elektrik dalam sebarang keadaan.
D Compound that can conduct electricity in molten state or aqueous solution and undergoes chemical changes.
Sebatian yang menghantarkan elektrik dalam keadaan leburan atau larutan akueus dan mengalami perubahan kimia.

10 Diagram 2 shows a simple chemical cell.
Two different metals are used as electrodes.
Rajah 2 menunjukkan satu sel kimia ringkas.
Dua logam yang berlainan digunakan sebagai elektrod.

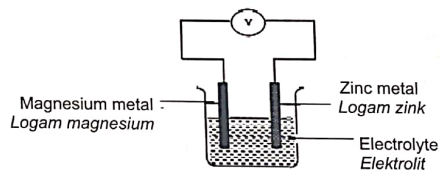


Diagram 2
Rajah 2

Which metal can be used to replace zinc metal to obtain the highest voltage reading?
Logam yang manakah boleh menggantikan logam zink untuk mendapatkan bacaan voltan yang paling tinggi?

- A Tin
Stanum
B Silver
Argentum
C Iron
Ferum
D Lead
Plumbum

- 11 Diagram 3 shows the reading of pH meter in a beaker.
Rajah 3 menunjukkan bacaan meter pH suatu larutan di dalam bikar.

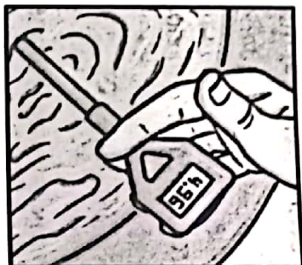


Diagram 3
Rajah 3

- Suggest solution X.
Cadangkan larutan X.
- Ethanoic acid
Asid etanoik
 - Sulphuric acid
Asid sulfurik
 - Ammonia
Ammonia
 - Potassium hydroxide
Kalium hidroksida

- 12 Table 2 shows the information of two types of acids.
Jadual 2 menunjukkan maklumat dua jenis asid.

Acid Asid	Concentration Kepakatan (mol dm ⁻³)	pH value Nilai pH
Sulphuric acid Asid sulfurik	0.01	1.1
Hydrochloric acid Asid hidroklorik	0.01	2.0

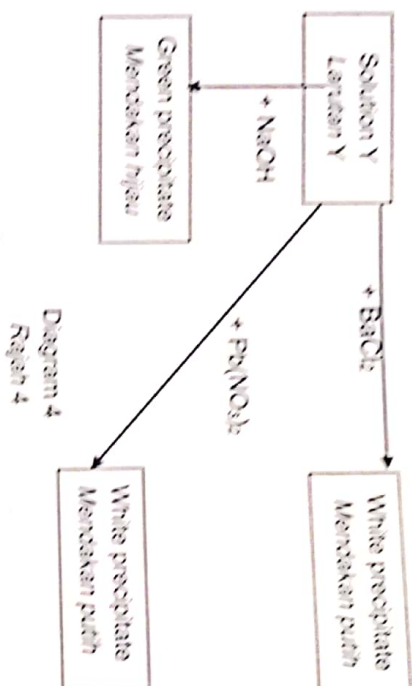
Table 2
Jadual 2

Which statement is true?
Pernyataan manakah yang benar?

- Sulphuric acid is more concentrated than hydrochloric acid.
Asid sulfurik lebih pekat daripada asid hidroklorik
- Sulphuric acid is a strong acid while hydrochloric acid is a weak acid
Asid sulfurik ialah asid kuat manakala asid hidroklorik ialah asid lemah
- Concentration of hydrogen ion in sulphuric acid is higher than in hydrochloric acid.
Kepakatan ion hidrogen dalam asid sulfurik lebih tinggi daripada dalam asid hidroklorik
- Sulphuric acid ionises completely while hydrochloric acid ionises partially in water.
Asid sulfurik mengion lengkap manakala asid hidroklorik mengion separa dalam air.

- 13 Diagram 4 shows the result of a series of test that is carried out by a student on solution Y.

Rajah 4 menunjukkan keputusan satu siri ujian yang dijalankan oleh seorang pelajar terhadap larutan Y.



- 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 Ferum(II) sulphate
Ferum(II) sulfat
- D Lead(II) sulphate
Plumbum(II) sulfat

- 14 Which of the following salts can be prepared by precipitation reaction?
Manakah antara berikut garam yang boleh disediakan dengan kaedah pemendakan?

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

- 15 Ceramic is suitable for making the exterior of space shuttle because ceramic.
Seramik sesuai digunakan untuk membuat bahagian luar kapal angkasa kerana

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

- 16 Which of the following is a composite material?
Antara berikut, yang manakah bahan komposit?

- A Ceramic
Seramik
- B Polythene
Politena
- C Fiber glass
Kaca gentian
- D Stainless steel
Keluli tidak karat

- 17 Which is the slowest reaction?
Yang manakah tindak balas paling perlahan?

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

- 18 The reaction between zinc and hydrochloric acid is represented by the following chemical equation:

Tindak balas antara zink dengan asid hidroklorik diwakili oleh persamaan kimia berikut



Which of the following methods is the **most** suitable to determine the rate of the above reaction?

Antara kaedah berikut yang manakah **paling** sesuai untuk menentukan kadar bagi tindak balas di atas?

- A Determine the change in temperature of the solution with time
Menentukan perubahan suhu larutan berkadat dengan masa
- B Determine the change in the concentration of zinc chloride with time
Menentukan perubahan kepekatan zink berkadat dengan masa
- C Determine the volume of hydrogen gas given off with time
Menentukan isipadu gas hidrogen yang dihasilkan berkadat dengan masa
- D Determine the change in the concentration of hydrochloric acid with time
Menentukan perubahan kepekatan asid hidroklorik berkadat dengan masa

- 19 Diagram 5 shows a structural formula for an organic compound.
Rajah 5 menunjukkan formula struktur bagi satu sebatian organik.

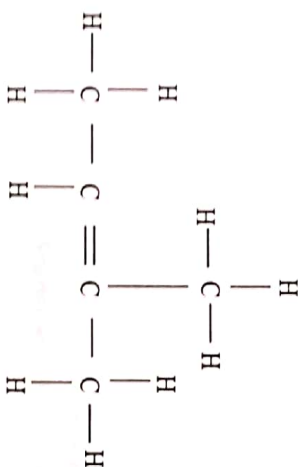


Diagram 5
Rajah 5

What is the homologous series for the compound?
Apakah siri homolog bagi sebatian itu?

- A Alkene
Alkena
- B Alkane
Alkana
- C Alcohol
Alkohol
- D Carboxylic acid
Asid karboksilik

- 20 Diagram 6 shows a combustion of hydrocarbon.
Rajah 6 menunjukkan pembakaran hidrokarbon.

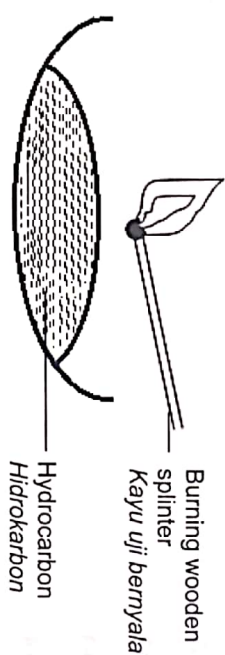


Diagram 6
Rajah 6

What is the gas released?

Apakah gas yang terbebas?

- A Oxygen
Oksigen
- B Hydrogen
Hidrogen
- C Carbon dioxide
Karbon dioksida
- D Carbon monoxide
Karbon monoksida.

21

A redox reaction is a chemical reaction involved the transfer of
Tindak balas redoks ialah suatu tindak balas kimia yang melibatkan pemindahan

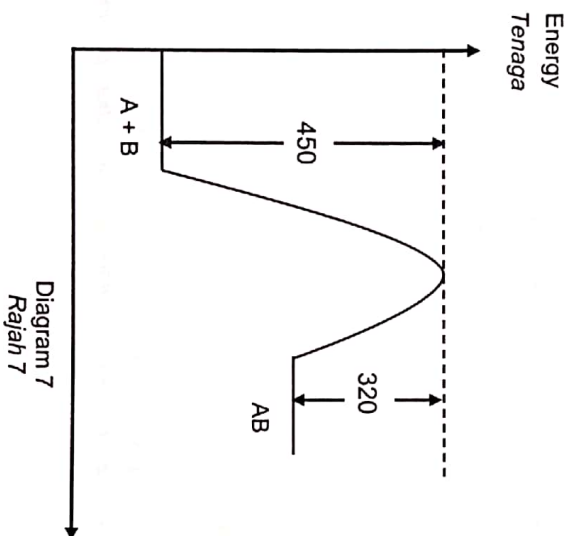
- A proton
proton
- B neutron
neutron
- C electron
elektron
- D proton and electron
proton dan elektron

- 22 The compound in glass is sodium silicate, Na_2SiO_3 .
What is the oxidation number of silicon in Na_2SiO_3 ?

Sebatian yang terdapat dalam kaca adalah natrium silikat, Na_2SiO_3 .
Apakah nombor pengoksidaan bagi silikon dalam Na_2SiO_3 ?

- A -2
B +2
C +3
D +4

- 23 Diagram 7 shows the energy level diagram of reaction $\text{A} + \text{B} \rightarrow \text{AB}$.
Rajah 7 menunjukkan gambarajah aras tenaga bagi tindak balas $\text{A} + \text{B} \rightarrow \text{AB}$



What is the activation energy of this reaction?
Berapakah tenaga pengaktifan bagi tindak balas ini?

- A 450 kJ
B 130 kJ
C 320 kJ
D 770 kJ

- 24 Thermochemical equation in Diagram 8 shows the heat of combustion of methane gas, CH_4 .
Persamaan termokimia dalam Rajah 8 menunjukkan haba pembakaran gas metana, CH_4



Diagram 8
Rajah 8

What is meant by $\Delta H = -890 \text{ kJ mol}^{-1}$?
Apakah yang dimaksudkan dengan $\Delta H = -890 \text{ kJ mol}^{-1}$?

- A 890 kJ heat is absorbed from surrounding when 1 mole of methane is burnt completely in oxygen gas
890 kJ haba diserap dari persekitaran bila 1 mol metana dibakar dengan lengkap dalam gas oksigen.
- B 890 kJ heat is absorbed from surrounding when 1 mole of carbon dioxide is released from the combustion of methane.
890 kJ haba diserap dari persekitaran bila 1 mol gas karbon dioksida terbebas daripada tindak balas pembakaran metana.
- C 890 kJ heat is released to surrounding when 1 mole of water is formed from combustion of methane.
890 kJ haba dibebaskan ke persekitaran bila 1 mol air terbentuk daripada tindak balas pembakaran metana.
- D 890 kJ heat is released to surrounding when 1 mole of methane is burnt completely in oxygen gas.
890 kJ haba dibebaskan ke persekitaran bila 1 mol metana dibakar dengan lengkap dalam gas oksigen.

- 25 Which cleaning agent molecule that cannot function effectively in hard water?
Molekul agen pencuci yang mana tidak berkesan di dalam air liat?

- A $\text{CH}_3(\text{CH}_2)_{14}\text{COOCH}_3$
B $\text{CH}_3(\text{CH}_2)_{14}\text{COONa}$
C $\text{CH}_3(\text{CH}_2)_{11}\text{OSONa}$
D $\text{CH}_3(\text{CH}_2)_{14}\text{COOH}$

- 26 Diagram 9 shows a patient is experiencing depression and has difficulty to sleep.
Rajah 9 menunjukkan pesakit yang mengalami kemurungan dan susah untuk tidur.



Diagram 9
Rajah 9

Which medicine is suitable for treating the patient?
Ubat mana yang sesuai untuk merawat pesakit itu?

- A Codeine
Kodeina
- B Barbiturate
Barbiturat
- C Paracetamol
Parasetamol
- D Streptomycin
Streptomisin

- 27 The equation below shows the action of heat on magnesium nitrate salt.
Persamaan kimia berikut menunjukkan tindakan haba ke atas garam magnesium nitrat.



How many moles of $\text{Pb}(\text{NO}_3)_2$ are needed to produce 11.15 g of lead(II) oxide?
[Relative atomic mass: N = 14, O = 16 and Pb = 207]

Berapakah bilangan mol $\text{Pb}(\text{NO}_3)_2$ yang diperlukan untuk menghasilkan 11.15 g plumbum(II) oksida?
[Jisim atom relatif : N = 14, O = 16 dan Pb = 207]

- A 0.5 mol
- B 0.05 mol
- C 0.10 mol
- D 0.15 mol

- 28 Diagram 10 shows a graph of temperature against time for heating of compound from solid to gas.

Rajah 10 berikut menunjukkan graf suhu melawan masa bagi pemanasan suatu bahan dari keadaan pepejal sehingga keadaan gas.

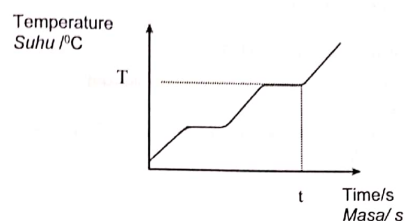


Diagram 10
Rajah 10

Which of following, which process occur at T temperature and state of condition of t time?

Antara berikut, proses manakah yang berlaku pada suhu T dan keadaan bahan pada masa t?

	Process at T temperature Proses pada suhu T	State of matter at t time Keadaan bahan pada masa t
A	Melting Peleburan	Liquid and solid Cecair dan pepejal
B	Boiling Pendidihan	Gases and liquid Gas dan cecair
C	Freezing Pembekuan	Liquid and solid Cecair dan pepejal
D	Condensation Kondensasi	Gases and liquid Gas dan cecair

- 29 A group of 5 Cekal students carry out an experiment to study the reaction between hydrochloric acid with egg shell. The following equation represents the reaction between 50 cm^3 of 1.0 mol dm^{-3} nitric acid with egg shell.

Satu kumpulan pelajar 5 Cekal menjalankan eksperimen untuk mengkaji tindak balas antara asid hidroklorik dengan kulit telur. Persamaan berikut mewakili tindak balas antara 50 cm^3 asid hidroklorik 1.0 mol dm^{-3} dengan kulit telur.



What is the number of atoms in carbon dioxide molecules released?

[Avogadro constant: 6.02×10^{23}]

Berapakah bilangan atom dalam molekul karbon dioksida yang dibebaskan?
[Pemalar Avogadro: 6.02×10^{23}]

- A $0.025 \times 6.02 \times 10^{23}$
B $0.05 \times 6.02 \times 10^{23}$
C $0.075 \times 6.02 \times 10^{23}$
D $0.15 \times 6.02 \times 10^{23}$

- 30 Diagram 13 shows the atomic arrangements of substances X and Y
Rajah 13 menunjukkan susunan atom bahan X dan Y

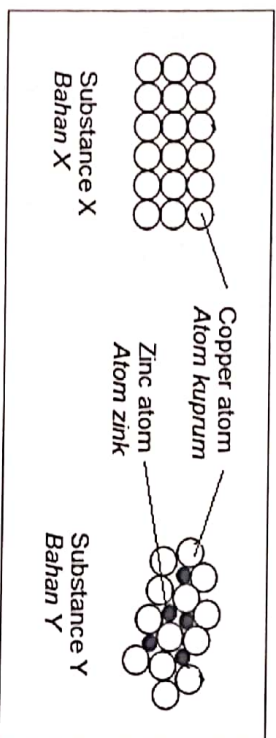


Diagram 13
Rajah 13

Substance Y is harder than substance X because atoms in Y
Bahan Y lebih keras daripada bahan X kerana atom-atom dalam Y

- A are closer to each other
rapat antara satu sama lain
B are properly arranged
tersusun secara teratur
C do not slide easily
tidak menggelongsor dengan mudah
D are strongly bonded to each other
terket dengan kuat antara satu sama lain

- 31 Diagram 11 shows the process P in preparation of detergent
Rajah 11 menunjukkan proses P dalam penyediaan detergen.

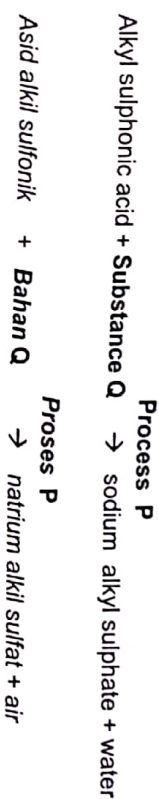


Diagram 11
Rajah 11

What is process P and substance Q?
Apakah proses P dan bahan Q?

- | | |
|-------------------------------------|--|
| Process P
Proses P | Substance Q
Bahan Q |
| A Sulphonation
Pensulfonan | Sodium chloride
Natrium klorida |
| B Sulphonation
Pensulfonan | Sodium hydroxide
Natrium hidroksida |
| C Neutralisation
Peneutralan | Sodium hydroxide
Natrium hidroksida |
| D Neutralisation
Peneutralan | Sodium chloride
Natrium klorida |

- 32 Bromine water is added into a solution X and the mixture is shaken.
The colour of bromine water is decolourised.

What is the molecular formulae of compound contain in solution X?

Air bromin ditambah kepada larutan X dan campuran digoncang.
Warna air bromin dinyahwarnakan.

Apakah formula molekul bagi sebatian yang terdapat dalam larutan X?

- A $\text{C}_4\text{H}_7\text{Cl}$
B $\text{C}_2\text{H}_5\text{OH}$
C C_5H_{10}
D CH_3COOH

- 33 Diagram 12 shows a series of reaction for a carbon compound
Rajah 12 menunjukkan beberapa siri tindak balas ke atas sebatian karbon.

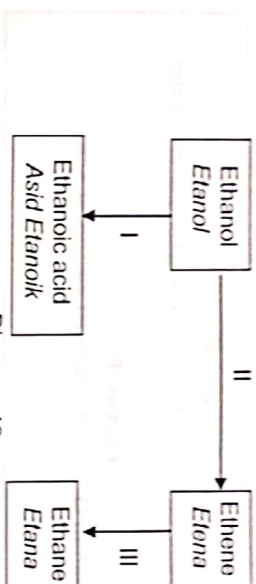


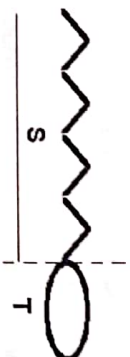
Diagram 12

Rajah 12

Which of process match for the reaction above?

Antara proses berikut yang manakah sepadan bagi tindak balas di atas?

- | | | |
|-----------------------------------|------------------------------|---------------------------------|
| I | II | III |
| A Oxidation
Pengoksidaan | Dehydration
Pendehidratan | Hydrogenation
Penghidrogenan |
| B Substitution
Penkargan | Oxidation
Pengoksidaan | Addition
Penambahan |
| C Oxidation
Pengoksidaan | Dehydration
Pendehidratan | Substitution
Penkargan |
| D Hydrogenation
Penghidrogenan | Substitution
Penkargan | Oxidation
Pengoksidaan |
- 34 Diagram 15 shows the structure of the anion of a soap.
Rajah 15 menunjukkan struktur anion bagi sabun.

Diagram 15
Rajah 15

Which of the following is true about part S?

Antara yang berikut yang manakah benar tentang bahagian S?

- A S is alkaline
S bersifat alkali
- B Increase the surface tension of water
Meningkatkan ketegangan permukaan air
- C S is hydrophilic
S bersifat hidrofilik
- D Larut dalam gris
Soluble in grease

- 35 Table 3 shows the observations for three sets of test towards solution Y.
Jadual 3 menunjukkan pemerhatian bagi tiga set ujian terhadap larutan Y.

Sol Sol	Test Ujian	Observation Pemerhatian
I	Add sodium hydroxide solution until excess. Tambah larutan natrium hidroksida sehingga berlebihan	White precipitate insoluble in excess. Mendakan putih tidak larut dalam larutan natrium hidroksida berlebihan
II	Add ammonia solution. Tambah larutan ammonia.	No precipitate formed. Tiada mendakan terbentuk.
III	Add 2 cm ³ of dilute nitric acid and a few drops of silver nitrate solution Tambah 2 cm ³ asid nitrik cair dan beberapa titis larutan argentum nitrat	White precipitate formed. Mendakan putih terbentuk

Table 3
Jadual 3What is Y?
Apakah Y?

- A Magnesium chloride
Magnesium klorida
- B Zinc sulphate
Zink sulfat
- C Calcium chloride
Kalsium klorida
- D Zinc sulphate
Zink sulfat

- 36 Table 4 shows the total volume of carbon dioxide gas collected at various time interval in a reaction of calcium carbonate with hydrochloric acid.

Jadual 4 menunjukkan jumlah isipadu gas karbon dioksida yang terkumpul pada
sela masa tertentu dalam suatu tindak balas antara kalsium karbonat dengan
asid hidroklorik.

Time /s Masa/s	0	30	60	90	120	150	180	210
Volume of gas / cm ³ Isipadu gas / cm ³	0	4.20	7.70	10.90	13.70	15.20	16.00	16.00

Table 4
Jadual 4

What is the average rate of reaction in the second minute?
Berapakah kadar tindak balas purata dalam minit kedua?

- A $0.128 \text{ cm}^3 \text{ s}^{-1}$
B $0.114 \text{ cm}^3 \text{ s}^{-1}$
C $0.100 \text{ cm}^3 \text{ s}^{-1}$
D $0.088 \text{ cm}^3 \text{ s}^{-1}$

- 37 When magnesium is immersed in hydrochloric acid, a colourless gas is liberated. What happen to magnesium and hydrogen in the acid?

Apabila magnesium direndam di dalam asid hidroklorik, gas tak bewarna dibebaskan. Apakah yang akan terjadi pada magnesium dan hidrogen di dalam asid?

	Magnesium <i>Magnesium</i>	Hydrogen <i>Hydrogen</i>
A	Oxidised <i>Dioksidakan</i>	Reduced <i>Diturunkan</i>
B	Reduced <i>Diturunkan</i>	Oxidised <i>Dioksidakan</i>
C	Gains an electron <i>Menerima elektron</i>	Loses an electron <i>Kehilangan elektron</i>
D	Loses an electron <i>Kehilangan elektron</i>	Sharing an electron <i>Berkongsi elektron</i>

- 38 Metal X is located between tin and zinc in the reactivity series metals. Which of the following pairs of metals can reduce X oxide?

Logam X berada di antara stanum dan zink dalam siri kereaktifan logam. Antara berikut, pasangan logam yang manakah boleh menurunkan X oksida?

- | | |
|-----|---------------------------------|
| I | Aluminium
<i>Aluminium</i> |
| II | Copper
<i>Kuprum</i> |
| III | Magnesium
<i>Magnesium</i> |
| IV | Lead
<i>Plumbum</i> |
| A | I and II
<i>I dan II</i> |
| B | I and III
<i>I dan III</i> |
| C | II and IV
<i>II dan IV</i> |
| D | III and IV
<i>III dan IV</i> |

- 39 Diagram 16 shows parts of the Periodic Table of Element.
Rajah 16 menunjukkan sebahagian Jadual Berkala Unsur.



Diagram 16
Rajah 16

The arrangement of elements W, X, Y and Z in an increasing order of atomic size is
Susunan saiz atom bagi unsur-unsur W, X, Y dan Z secara menaik ialah

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

- 40 Diagram 14 shows the apparatus set-up to determine the heat of reaction. Rajah 14 menunjukkan susunan radas untuk menentukan haba tindak balas.

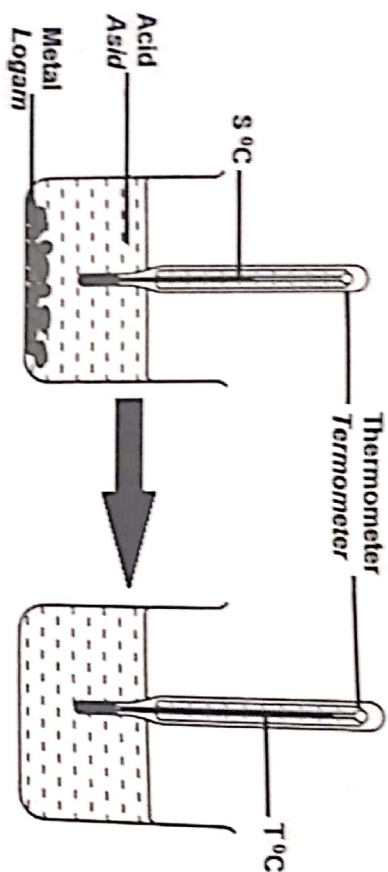


Diagram 14
Rajah 14

Base on the diagram, which statement is true?
Berdasarkan rajah di atas, pernyataan manakah yang benar?

- I The temperature increases
Suhu meningkat
- II Heat is absorb from surrounding
Haba diserap dari persekitaran
- III The value of ΔH in the reaction is negative
Nilai ΔH tindak balas ini adalah negatif
- IV The total energy content of the products higher than the energy content of the reactant.

Jumlah kandungan tenaga hasil tindak balas adalah lebih tinggi berbanding jumlah kandungan tenaga bahan tindak balas

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

- 41 Equation below shows a reaction to produce yellow precipitate of sulphur. Persamaan di bawah menunjukkan tindak balas untuk menghasilkan mendakan kuning sulfur.



Which of the following will increase the rate of sulphur produced.
Antara berikut yang manakah akan meningkatkan kadar penghasilan sulfur?

- I Increase the volume of sodium thiosulphate solution
Menambahkan isi padu larutan natrium tiosulfat
- II Add a few drops of concentrated hydrochloric acid
Menambahkan beberapa titis asid hidroklorik pekat
- III Increase the temperature of reaction
Menambahkan suhu tindak balas
- IV Add Copper (II) sulphate solution
Menambahkan larutan kuprum(II) sulfat

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

- 42 The heat of combustion of propan-1-ol is -2015 kJ mol⁻¹. Calculate the fuel value of propan-1-ol.
[Relatives atomic mass ; H = 1; C = 12; O = 16]

Haba pembakaran propan-1-ol ialah -2015 kJ mol⁻¹.
Hitung nilai bahan api bagi propan-1-ol.
[Jisim atom relatif ; H = 1; C = 12; O = 16]

- A 22.66 kJ g⁻¹
- B 36.16 kJ g⁻¹
- C 29.91 kJ g⁻¹
- D 33.58 kJ g⁻¹

- 43 Which of the following are the products formed at the anodes for the electrolysis of sodium nitrate solution and copper(II) sulphate solution by using carbon as electrode?

Antara berikut yang manakah hasil-hasil yang terbentuk pada anod untuk elektrolisis bagi larutan natrium nitrat dan larutan kuprum(II) sulfat dengan menggunakan karbon sebagai elektrod?

Sodium nitrate solution Larutan natrium nitrat	Copper(II) sulphate solution Larutan kuprum(II) sulfat
A Hydrogen gas Gas hidrogen	Oxygen gas Gas oksigen
B Oxygen gas Gas oksigen	Oxygen gas Gas oksigen
C Oxygen gas Gas oksigen	Hydrogen gas Gas hidrogen
D Hydrogen gas Gas hidrogen	Hydrogen gas Gas hidrogen

- 44 Diagram 17 shows the set-up apparatus for the neutralization reaction between acid and alkali.

Rajah 17 menunjukkan susunan radas tindak balas penutralan antara asid dan alkali.

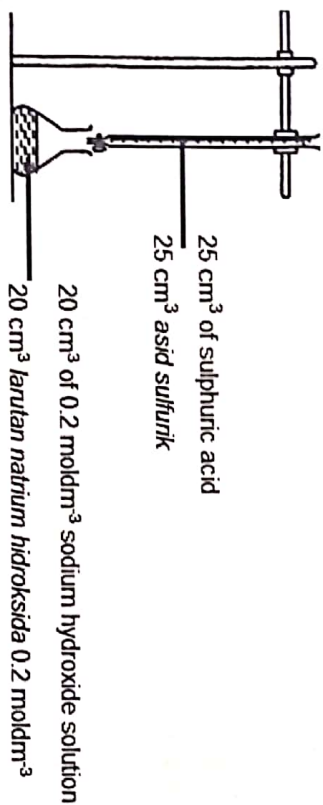


Diagram 17
Rajah 17

What is the concentration of the sulphuric acid used?
Berapakah kepekatan asid sulfurik yang digunakan?

- A 0.08 mol dm⁻³
B 0.16 mol dm⁻³
C 0.25 mol dm⁻³
D 0.32 mol dm⁻³

- 45 Reaction between solution A and potassium sulphate solution will produce barium sulphate precipitate and potassium nitrate solution.

Tindak balas antara larutan A dan larutan kalium sulfat akan menghasilkan mendakan barium sulfat dan larutan kalium nitrat.



Which of the following substances is A?

Antara berikut, yang manakah A?

- A Barium iodide
Barium iodide
B Barium nitrate
Barium nitrat
C Barium carbonate
Barium karbonat
D Barium sulphate
Barium sulfat

- 46 Uncontrolled disposal of synthetic polymers will cause environmental pollution. Which of the following are the characteristics of synthetic polymers that causes environmental pollution?

Pembuangan polimer sintetik secara tidak terkawal menyebabkan pencemaran alam sekitar.

Antara ciri-ciri polimer sintetik berikut, yang manakah merupakan punca pencemaran alam sekitar?

- I Polymers release pollutants when burned.
Polimer membebaskan bahan pencemar apabila dipanaskan.
II Polymers are non-biodegradable
Polimer adalah tidak terbiodegradasi
III Polymers promote excessive growth of algae in water
Polimer menggalakkan pertumbuhan alga secara terlampau di dalam air
IV Polymers increase the pH value of water when dissolved in water
Polimer meningkatkan nilai pH air apabila dilarutkan dalam air

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

47 Three experiments were conducted by a group of students to investigate the reaction between excess zinc and the acids as shown in the Table 5

Tiga eksperimen telah dilakukan oleh sekumpulan pelajar untuk menyiasat tindak balas di antara zink yang berlebihan dengan asid-asid seperti yang ditunjukkan dalam Jadual 5

Experiment Eksperimen	Acid Asid
P	25 cm ³ hydrochloric acid 2.0 mol dm ⁻³ 25 cm ³ asid hidroklorik 2.0 mol dm ⁻³
Q	50 cm ³ hydrochloric acid 1.5 mol dm ⁻³ 50 cm ³ asid hidroklorik 1.5 mol dm ⁻³
R	15 cm ³ sulphuric acid 1.5 mol dm ⁻³ 15 cm ³ asid sulfurik 1.5 mol dm ⁻³

Diagram 5
Jadual 5

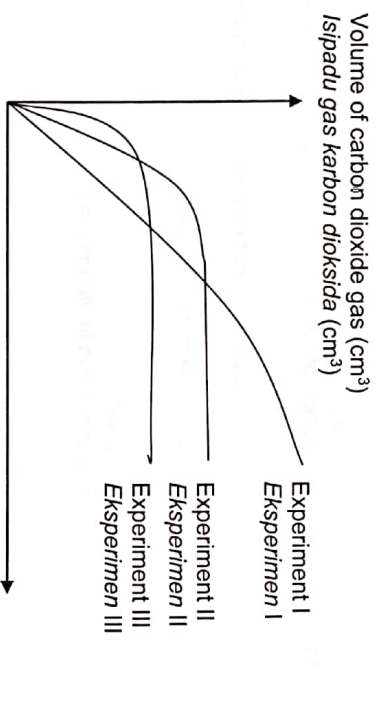


Diagram 18
Rajah 18

Refer to Diagram 18 which of the following represents the results of the experiments correctly?

Merujuk kepada Rajah 18 manakah di antara berikut mewakili keputusan-keputusan eksperimen dengan betul?

P	Q	R
A I	II	III
B II	I	III
C I	III	II
D III	II	I

48 Which of the following can cause the vulcanisation of natural rubber?
Yang manakah antara berikut boleh menyebabkan pemvulkanan getah asli?

- A Methanoic acid
Asid metanoik
- B Sulphur monochloride
Sulfur monoklorida
- C Ammonia solution
Larutan ammonia
- D Sodium chloride
Natrium klorida

49 Diagram 19 shows the apparatus set up to investigate the reaction of potassium iodide solution with iron(III) sulphate solution.

Rajah 19 menunjukkan susunan radas untuk mengkaji tindak balas antara larutan kalium iodida dan larutan ferum(III) sulfat

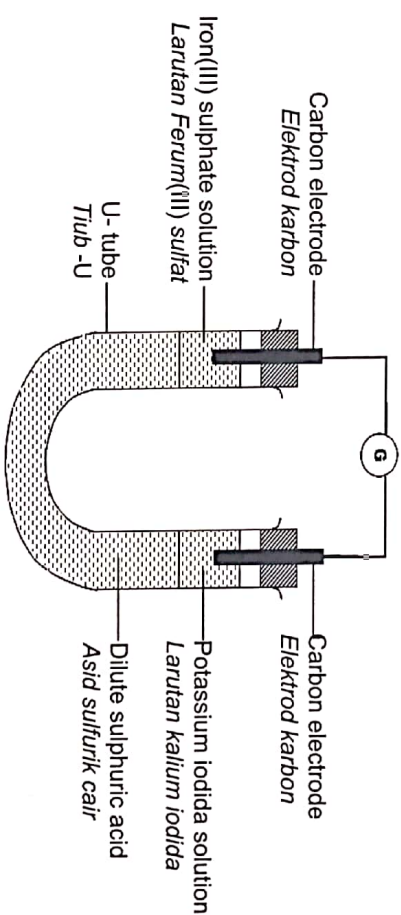


Diagram 19
Rajah 19

Which of the following reaction occurs in the solutions?
Antara berikut, manakah tindak balas yang berlaku dalam larutan tersebut?

- A Iodide ion is oxidize to iodine
Ion iodida dioksidakan kepada iodin
- B Iron(III) is oxidize to iron(II)
Ferum(III) dioksidakan kepada ferum (II)
- C Potassium iodide is oxidizing agent
Kalium iodida adalah agen pengoksidan
- D The colour of potassium iodide change from green to yellow
Warna kalium iodida berubah dari hijau ke kuning

- 50 Diagram 20 shows an energy level for the reaction when excess zinc powder is added into 50 cm³ of 0.25 mol dm⁻³ copper(II) sulphate solution.

Rajah 20 menunjukkan gambar rajah aras tenaga bagi tindak balas apabila serbuk zink berlebihan ditambah ke dalam 50 cm³ larutan kuprum(II) sulfat 0.25 mol dm⁻³.

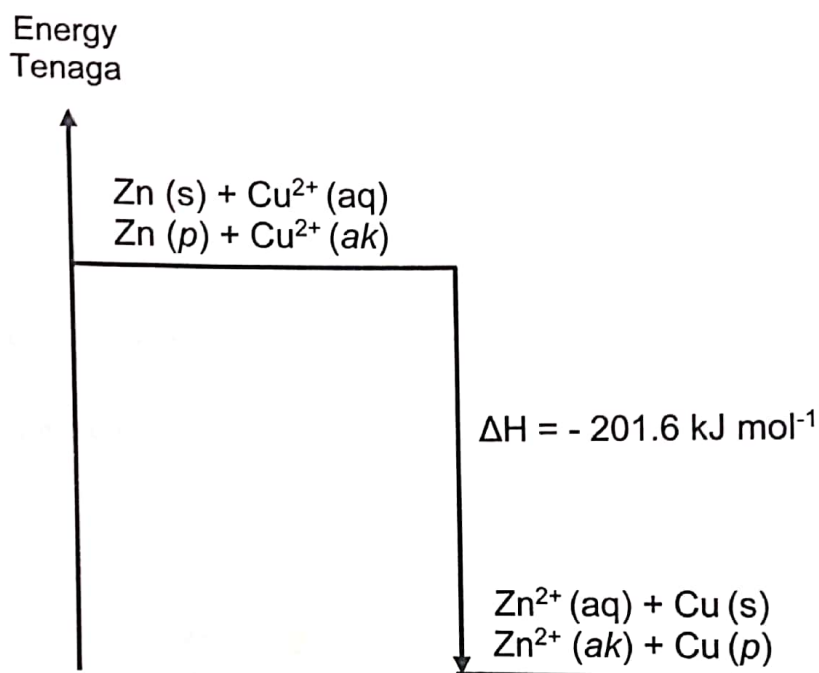


Diagram 20
Rajah 20

What is the change in temperature in this experiment?
[specific heat capacity of solution = 4.2 Jg⁻¹ °C⁻¹]

Apakah perubahan suhu dalam eksperimen ini?
[Muatan haba tentu larutan = 4.2 Jg⁻¹ °C⁻¹]

- A 1.0 °C
- B 1.2 °C
- C 9.6 °C
- D 12.0 °C