

**MODUL SOALAN BERFOKUS
SIJIL PELAJARAN MALAYSIA 2018**

**ANJURAN
MPSM CAWANGAN PULAU PINANG DENGAN KERJASAMA
SEKTOR PENGURUSAN AKADEMIK JABATAN PENDIDIKAN
PULAU PINANG**

SIJIL PELAJARAN MALAYSIA 2018

4541/1

KIMIA

Kertas 1

1 ¼ jam

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

Arahan:

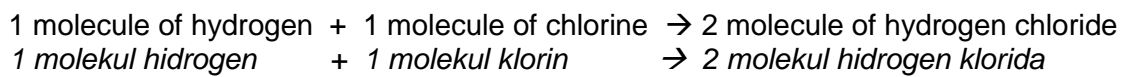
- 1. Kertas soalan ini mengandungi **50** soalan.*
- 2. Jawab **semua** soalan.*
- 3. Tiap-tiap soalan diikuti oleh empat pilihan jawapan iaitu **A, B, C** dan **D**. Bagi tiap-tiap soalan, pilih **satu** jawapan sahaja. **Hitamkan** jawapan anda pada kertas jawapan objektif yang disediakan.*

Kertas soalan ini mengandungi 25 halaman bercetak

- 1 Which substance undergoes sublimation when heated?
Bahan manakah yang mengalami pemejalwapan apabila dipanaskan?

- A Ethanol
Etanol
- B Bromine water
Air bromin
- C Sodium chloride
Natrium klorida
- D Ammonium chloride
Ammonium klorida

- 2 Hydrogen and chlorine react as shown.
Hidrogen dan klorin bertindak balas seperti berikut.



What is the equation for this reaction?
Apakah persamaan kimia bagi tindak balas ini?

- A $2\text{H} + 2\text{Cl} \rightarrow 2\text{HCl}$
- B $2\text{H} + 2\text{Cl} \rightarrow \text{H}_2\text{Cl}_2$
- C $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$
- D $\text{H}_2 + \text{Cl}_2 \rightarrow \text{H}_2\text{Cl}_2$
- 3 Fluorine, chlorine and bromine are in the same group in the Periodic Table of Elements. What is the name of the group?
Fluorin, klorin dan bromin berada dalam kumpulan yang sama dalam Jadual Berkala Unsur. Apakah nama kumpulan itu?
- A Alkali metal
Logam alkali
- B Halogen
Halogen
- C Transition element
Unsur peralihan
- D Noble gas
Gas adi

- 4 Diagram 1 shows a carbon compound.
Rajah 1 menunjukkan satu sebatian karbon.

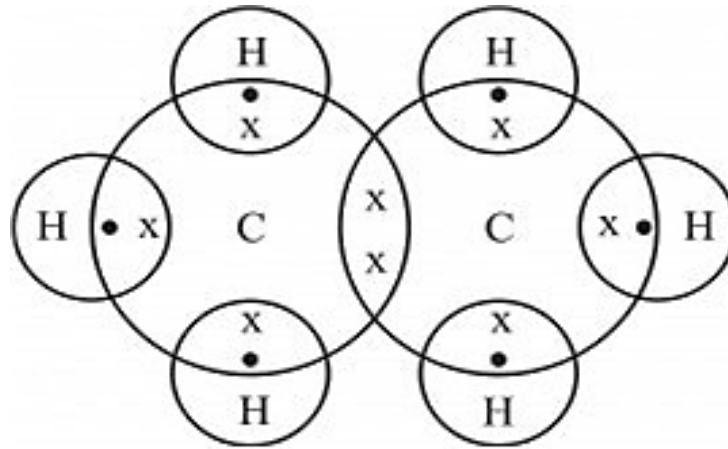


Diagram 1
Rajah 1

How many pairs of electrons are shared by the atoms in this compound?
Berapakah pasangan elektron yang dikongsi oleh atom-atom dalam sebatian ini?

- A 6
B 7
C 12
D 14
- 5 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^-
- 6 Which substance consists of atoms?
Bahan manakah yang terdiri daripada atom?
- A Calcium
Kalsium
B Nitrogen gas
Gas nitrogen
C Lead(II) bromide
Plumbum(II) bromide
D Naphthalene
Naftalena

- 7 Which of the following pH values is for strong acid solution?
Antara berikut, yang manakah nilai pH bagi larutan asid kuat ?
- A pH14
 - B pH11
 - C pH5
 - D pH1
- 8 Photochromic glasses contain a chemical that is photosensitive.
Which of the following is the chemical?
Kaca fotokromik mengandungi bahan kimia yang peka cahaya.
Antara berikut, yang manakah bahan kimia itu?
- A Silver bromide
Argentum bromide
 - B Lead (II) oxide
Plumbum (II) oksida
 - C Lead (II) bromide
Plumbum (II) bromide
 - D Boron oxide
Boron oksida
- 9 Which of the following is the molecular formula for propanol?
Antara berikut, yang manakah merupakan formula molekul bagi propanol?
- A C₃H₆
 - B C₃H₈
 - C C₃H₈O
 - D C₃H₈O₂
- 10 Which salt is insoluble in water?
Garam manakah yang tidak larut dalam air?
- A Silver nitrate
Argentum nitrat
 - B Calcium sulphate
Kalsium sulfat
 - C Silver nitrate
Argentum nitrat
 - D Sodium carbonate
Natrium karbonat

- 11 Diagram 2 shows a cold pack.
Rajah 2 menunjukkan satu pek sejuk.

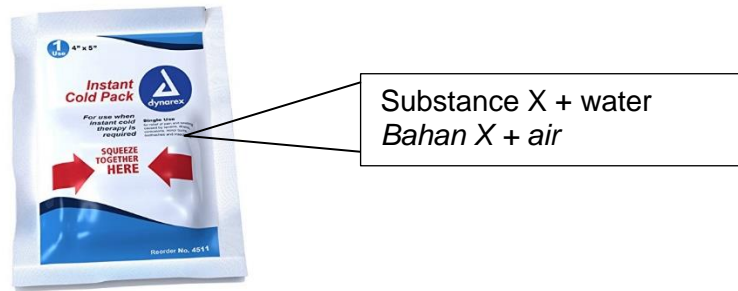


Diagram 2
Rajah 2

When the cold pack is squeezed, a plastic tube containing substance X breaks and mixes with water inside the pack. The pack instantly gets extremely cold.
 What is substance X?

*Apabila pek sejuk ditekan, tiub plastik yang mengandungi bahan X pecah dan bercampur dengan air di dalam pek. Pek tersebut menjadi sangat sejuk dengan segera.
 Apakah bahan X?*

- A Ammonium nitrate
Ammonium nitrat
- B Magnesium sulphate
Magnesium sulfat
- C Copper(II) chloride
Kuprum(II) klorida
- D Sodium carbonate
Natrium karbonat

- 12 Diagram 3 shows some reactions of substance Y.
Rajah 3 menunjukkan beberapa tindak balas bagi bahan Y.

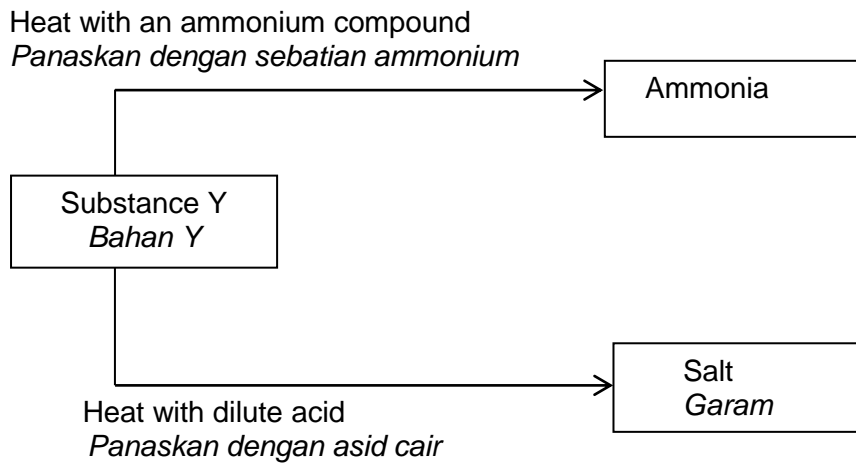


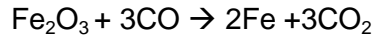
Diagram 3
Rajah 3

What is substance Y?
Apakah bahan Y?

- A Alcohol
Alkohol
- B Base
Bes
- C Catalyst
Mangkin
- D Metal
Logam
- 13 Which of the following is suitable to electroplate an iron spoon with silver?
Antara berikut, yang manakah sesuai untuk menyadurkan sudu besi dengan argentum?

	Anode <i>Anod</i>	Cathode <i>Katod</i>	Electrolyte <i>Elektrolit</i>
A	Silver <i>Argentum</i>	Iron spoon <i>Sudu besi</i>	Silver nitrate solution <i>Larutan argentum nitrat</i>
B	Silver <i>Argentum</i>	Iron spoon <i>Sudu besi</i>	Silver chloride solution <i>Larutan argentum klorida</i>
C	Iron spoon <i>Sudu besi</i>	Silver <i>Argentum</i>	Silver chloride solution <i>Larutan argentum klorida</i>
D	Iron spoon <i>Sudu besi</i>	Silver <i>Argentum</i>	Silver nitrate solution <i>Larutan argentum nitrat</i>

- 14 Based on the following equation, which substance is oxidised?
Berdasarkan persamaan berikut, bahan manakah yang dioksidakan?



- A CO
 B Fe₂O₃
 C Fe
 D CO₂

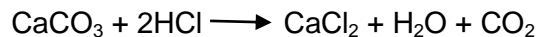
- 15 Material Y has the following properties .
Bahan Y mempunyai sifat-sifat berikut .

- low coefficient of thermal expansion
pekali pengembangan terma yang rendah
- very high resistance to chemical substances
rintangan sangat tinggi terhadap bahan kimia

What is material Y?
Apakah bahan Y?

- A Brass
Loyang
 B Steel
Keluli
 C Borosilicate glass
Kaca borosilikat
 D Photochromic glass
Kaca fotokromik

- 16 The following chemical equation represents the reaction between calcium carbonate, CaCO₃ and hydrochloric acid, HCl.
Persamaan kimia berikut mewakili tindak balas antara kalsium karbonat, CaCO₃ dan asid hidroklorik, HCl.



Which change is the most suitable to be used to determine the rate of reaction?
Perubahan manakah yang paling sesuai digunakan untuk menentukan kadar tindak balas?

- A Volume of carbon dioxide gas released per unit time.
Isi padu gas karbon dioksida yang dibebaskan per unit masa.
 B Concentration of calcium chloride produced per unit time.
Kepekatan kalsium klorida yang terhasil per unit masa.
 C Mass of calcium carbonate per unit time.
Jisim kalsium karbonat per unit masa.
 D Colour of the solution per unit time.
Warna larutan per unit masa.

- 17 Diagram 4 shows two containers filled with 1,1,1,2 – tetrafluoroethane gas .The gas is used as a cooling agent in a car's refrigerant system.

Rajah 4 menunjukkan dua bekas berisi gas 1,1,1,2- tetrafloroetana. Gas tersebut digunakan sebagai agen pendingin dalam sistem penghawa dingin kereta.



Diagram 4
Rajah 4

What is the type of reaction to change ethane gas to 1,1,1,2 – tetrafluoroethane gas?

Apakah jenis tindak balas untuk menukarkan gas etana kepada gas 1,1,1,2- tetrafloroetana?

- A Addition
Penambahan
- B Oxidation
Pengoksidaan
- C Esterification
Pengesteran
- D Substitution
Penukargantian

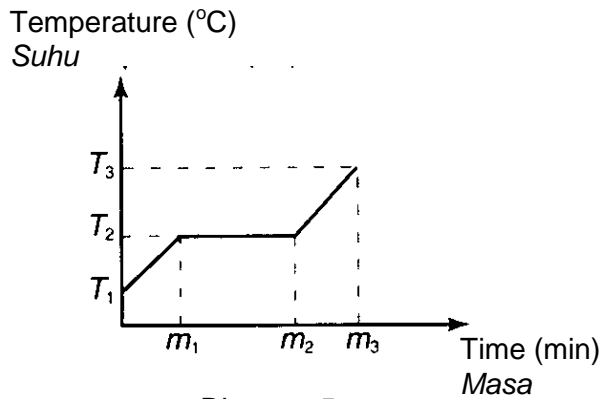
- 18 Which of the following is **true** regarding the use of modern medicine?
*Antara berikut yang manakah **benar** tentang kegunaan ubat moden?*

	Type of modern medicine <i>Jenis ubat moden</i>	Uses <i>Kegunaan</i>
A	Barbiturate <i>Barbiturat</i>	To treat hallucination <i>Untuk merawat halusinasi</i>
B	Codeine <i>Kodeina</i>	To relieve headaches <i>Untuk melegakan kesakitan kepala</i>
C	Paracetamol <i>Parasetamol</i>	To suppress cough <i>Untuk menahan batuk</i>
D	Streptomycin <i>Streptomisin</i>	To kill tuberculosis germs <i>Untuk membunuh bakteria batuk kering</i>

- 19 Which substance is a covalent compound ?
Bahan manakah adalah sebatian kovalen ?

- A SO_2
- B CaO
- C MgO
- D ZnCl_2

- 20 The heat of combustion of ethanol is less than the heat of combustion of butanol because
Haba pembakaran etanol adalah kurang daripada haba pembakaran butanol kerana
- A ethanol has less number of carbon atoms per molecule than butanol
etanol mengandungi bilangan atom karbon per molekul yang lebih rendah daripada butanol
 - B ethanol is more soluble in water compared to butanol
etanol adalah lebih larut dalam air berbanding dengan butanol
 - C Ethanol has lower boiling point
Etanol mempunyai takat lebur yang lebih rendah
 - D Ethanol is miscible in water
Etanol terlarut campur dalam air.
- 21 Diagram 5 shows the graph of temperature against time for the heating of liquid P.
Rajah 5 menunjukkan graf suhu melawan masa bagi pemanasan cecair P.



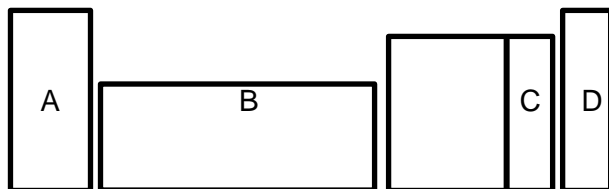
What can be deduced from the graph above?

Apakah yang boleh dideduksi daripada graf di atas?

- A Melting point of substance P is T_2 °C
Takat lebur bahan P ialah T_2 °C
- B Substance exists as solid between 0 min to m_1 min
Bahan P wujud sebagai pepejal dari 0 min hingga m_1 min
- C Heat absorbed from m_2 to m_3 increases the kinetic energy of particles
Haba yang diserap dari m_2 hingga m_3 meningkatkan tenaga kinetik zarah-zarah
- D Forces of attraction between particles at the temperature of T_3 °C is stronger than T_1 °C
Daya tarikan antara zarah pada suhu T_3 °C lebih kuat daripada T_1 °C

- 22 An element does not conduct electricity and exists as diatomic molecule. Which area in the Periodic Table this element can be found?

Suatu unsur tidak dapat menghantarkan arus elektrik dan wujud sebagai molekul dwiatom. Dalam kawasan manakah unsur ini boleh didapati dalam Jadual Berkala?



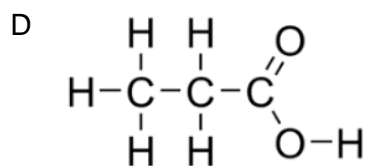
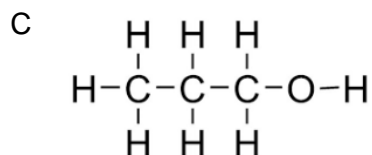
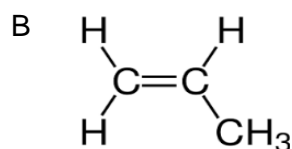
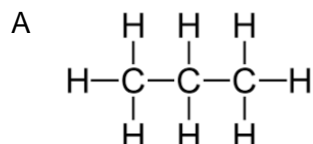
- 23 Which of the following compound does not dissolve in water?

Manakah antara sebatian berikut tidak larut dalam air?

- A Magnesium oxide
Magnesium oksida
- B Hydrogen chloride
Hidrogen klorida
- C Naphthalene
Naftalena
- D Sodium chloride
Natrium klorida

24. An organic compound Q produces hydrogen gas when it reacts with zinc. What is Q?

Suatu sebatian organik Q menghasilkan gas hidrogen apabila bertindak balas dengan zink. Apakah Q?



- 25 Psychiatric patients are always restless and normally experience difficulties in sleeping. Which medicine is suitable to treat these patients?
Pesakit psikiatrik sentiasa resah dan biasanya mengalami masalah sukar untuk tidur. Ubat manakah sesuai digunakan untuk merawat pesakit tersebut?
- A Aspirin
Aspirin
- B Barbiturate
Barbiturat
- C Codeine
Kodeina
- D Penicillin
Penisilin
- 26 Which salt is insoluble in water?
Garam manakah yang tidak larut dalam air?
- A Potassium carbonate
Kalium karbonat
- B Barium sulphate
Barium sulfat
- C Iron(II) chloride
Ferum(II) klorida
- D Copper(II) sulphate
Kuprum(II) sulfat
- 27 Diagram 6 shows the apparatus set-up to study the effect of other metal on rusting.
Rajah 6 menunjukkan susunan radas untuk mengkaji kesan logam lain ke atas pengurangan.

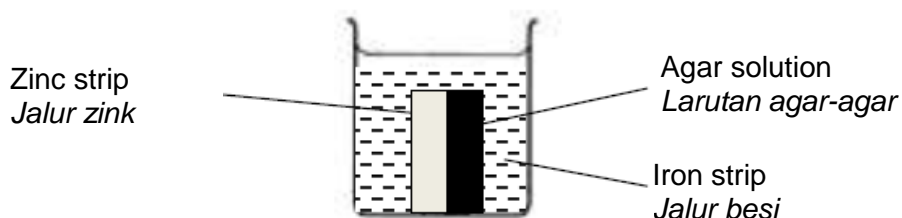


Diagram 6
Rajah 6

Based on Diagram 6, which statement is true?
Berdasarkan Rajah 6, pernyataan manakah adalah benar?

- A Iron atom is reduced
Atom ferum diturunkan
- B Zinc atom releases electron
Atom zink membebaskan elektron
- C Iron is an oxidising agent
Ferum adalah agen pengoksidaan
- D Oxidation number of zinc decreases
Nombor pengoksidaan zink berkurang

- 28 Table 1 shows the heat of combustion of four alcohols.
Jadual 1 menunjukkan haba pembakaran bagi empat alkohol.

Alcohol <i>Alkohol</i>	Heat of combustion (kJ mol⁻¹) <i>Haba pembakaran (kJ mol⁻¹)</i>
Methanol <i>Metanol</i>	-710
Ethanol <i>Etanol</i>	-1370
Propan-1-ol <i>Propan-1-ol</i>	-2021
Butan-1-ol <i>Butan-1-ol</i>	-2670

Table 1
Jadual 1

Which of the following increases the heat of combustion of alcohols?
Antara berikut, yang manakah meningkatkan haba pembakaran alkohol?

- A Number of hydrogen atoms per molecule decreases
Bilangan atom hidrogen per molekul berkurang
- B Number of oxygen atoms per molecule increases
Bilangan atom oksigen per molekul bertambah
- C Number of carbon atoms per molecule increases
Bilangan atom karbon per molekul bertambah
- D Size of molecule decreases
Saiz molekul berkurang

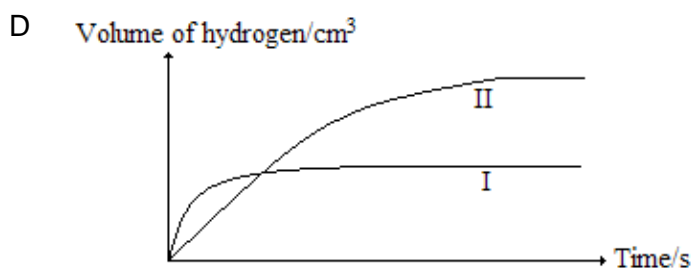
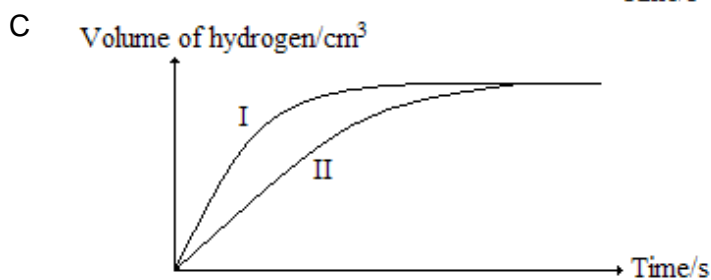
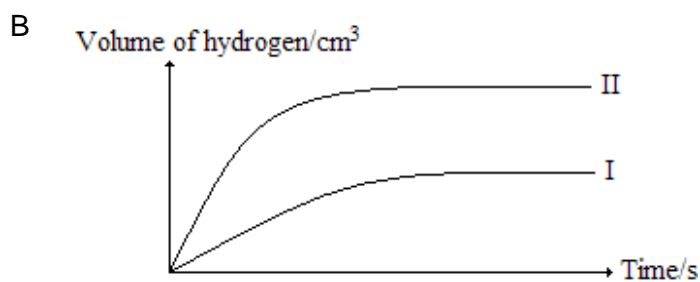
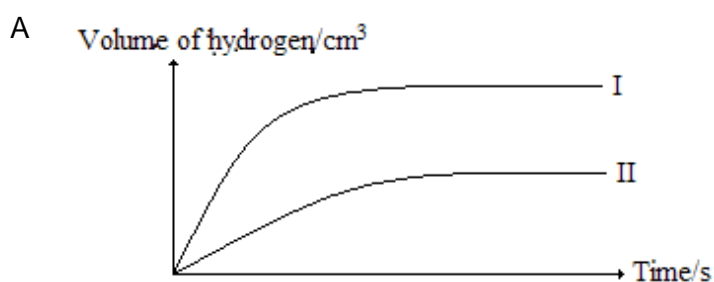
- 29 An experiment is carried out to investigate the rate of reaction for the reaction between zinc granules and nitric acid to produce hydrogen gas.

Satu eksperimen dijalankan untuk menyasat kadar tindak balas bagi tindak balas antara butiran zink dan asid nitrik untuk menghasilkan gas hidrogen

Experiment	Substances
I	Excess zinc granules and 25 cm ³ of 2 mol dm ⁻³ nitric acid <i>Butiran zink yang berlebihan dan 25 cm³ 2 mol dm⁻³ asid hidroklorik</i>
II	Excess zinc granules and 25 cm ³ of 1 mol dm ⁻³ nitric acid <i>Butiran zink yang berlebihan dan 25 cm³ 1 mol dm⁻³ asid nitrik</i>

Which of the following graphs represents the reactions ?

Antara berikut, graf yang manakah mewakili tindak balas itu ?



- 30 Diagram 7 shows the apparatus set up for the electrolysis of 0.1 mol dm^{-3} copper(II) sulphate solution.

Rajah 7 menunjukkan susunan radas bagi elektrolisis larutan kuprum(II) sulfat. 0.1 mol dm^{-3}

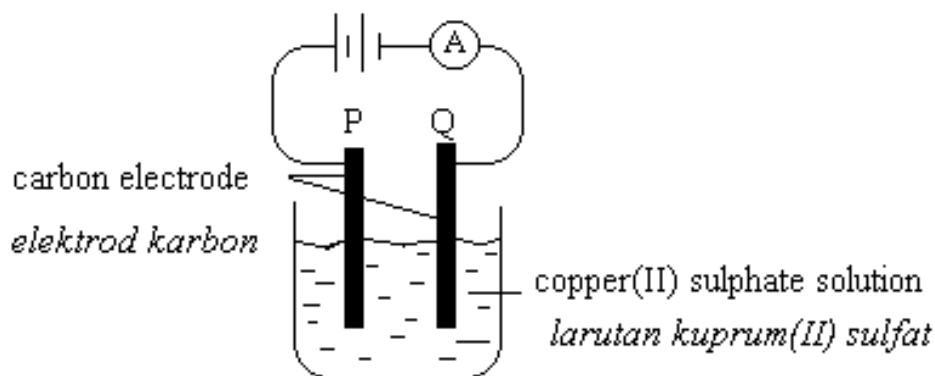


Diagram 7
Rajah 7

What would be observed when the electrical current is allowed to flow for 30 minutes?
Apakah yang diperhatikan apabila arus elektrik dialirkan selama 30 minit?

- A Electrode Q become smaller
Elektrod Q semakin kecil
 - B Brown solid is deposited at electrode P
Pepejal perang terenal pada elektrod P
 - C The intensity of blue colour of the solution decreasing
Keamatan warna biru larutan semakin berkurang
 - D Bubbles of gas are produced at electrode P
Gelembung gas terhasil pada elektrod P
- 31 Diagram 8 shows a zinc strip that is placed in a copper can containing copper(II) sulphate solution.
Rajah 8 menunjukkan satu jalur zink yang diletakkan di dalam sebuah tin kuprum yang berisi larutan kuprum(II) sulfat.

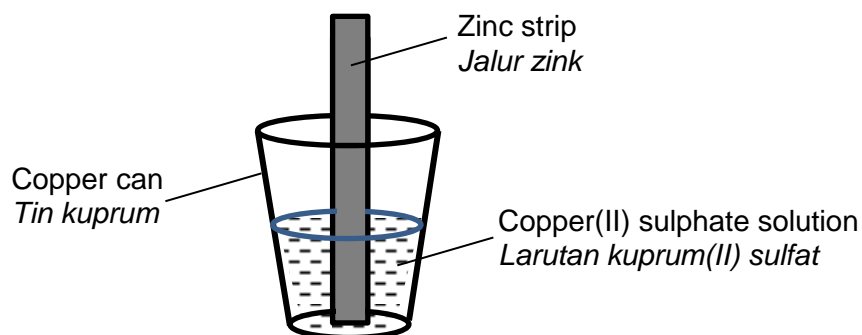


Diagram 8
Rajah 8

Which of the following is **true** if a wire is used to connect the zinc strip with copper can?

Antara berikut, yang manakah benar jika satu wayar digunakan untuk menyambung jalur zink dengan tin kuprum?

- A A layer of brown solid is deposited on the interior wall of copper can
Selapisan pepejal perang terenal pada dinding sebelah dalam tin kuprum
- B Oxidation number of zinc decreases from +2 to 0
Nombor pengoksidaan zink berkurang daripada +2 kepada 0
- C Copper can acts as oxidising agent
Kuprum bertindak sebagai agen pengoksidaan
- D Zinc strip becomes thicker
Jalur zink menjadi semakin tebal

32 A mixture containing two anions was tested and the results are shown below.

Satu campuran mengandungi dua anion telah diuji dan keputusannya ditunjukkan di bawah.

Test <i>Ujian</i>	Results <i>Keputusan</i>
Dilute nitric acid <i>Asid nitrik cair</i>	Gas bubbles which turned limewater milky <i>Gelembung-gelembung gas yang menukarkan air kapur menjadi keruh</i>
Dilute nitric acid added, followed by aqueous silver nitrate <i>Tambah asid nitrik, diikuti oleh larutan Argentum nitrat</i>	White precipitate formed. <i>Mendakan putih terbentuk</i>

Which anions were present?

Anion-anion apakah yang hadir?

- A Carbonate and chloride
Karbonat dan klorida
- B Carbonate and iodide
Karbonat dan iodide
- C Sulphate and chloride
Sulfat dan klorida
- D Sulphate and iodide
Sulfat dan iodide

- 33 Diagram 9 shows two volumetric flasks containing solutions of RCOOH acid and HX acid. Which statement is not true about both of the acids?

Rajah 9 menunjukkan dua kelalang volumetrik mengandungi larutan asid RCOOH dan asid HX. Pernyataan manakah tidak benar tentang kedua-dua asid itu?

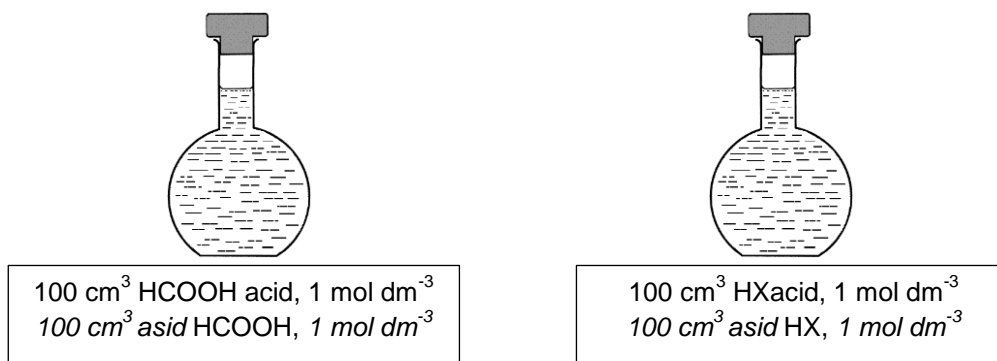


Diagram 9

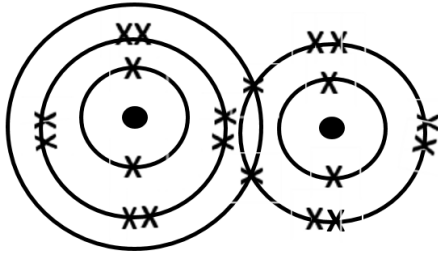
Rajah 9

- A The degree of ionisation of HX acid is higher.
Darjah pengionan asid HX lebih tinggi.
- B Both of the acids are monoprotic acid.
Kedua-dua asid adalah asid monoprotik.
- C Acid RCOOH has higher pH value.
Nilai pH asid RCOOH lebih tinggi.
- D The concentration of hydrogen ion in acid RCOOH is higher.
Kepekatan ion hidrogen dalam asid RCOOH lebih tinggi.

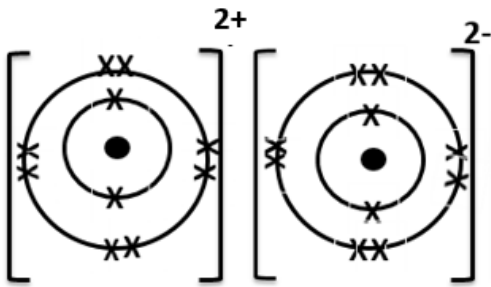
- 34 Which of the following represent structure of the compound formed when sodium react with oxygen?

Antara yang berikut, struktur manakah mewakili sebatian yang terhasil apabila natrium bertindak balas dengan oksigen?

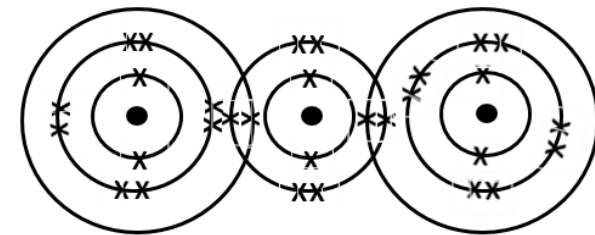
A



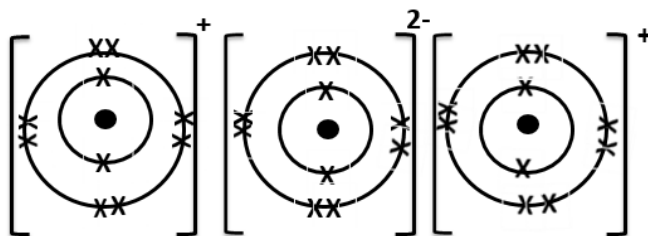
B



C



D



- 35 The chemical formula of X is TCl_2 .

What is the chemical formula of the compound formed when cation of X react with oxygen?

Formula kimia bagi X ialah TCl_2 .

Apakah formula kimia bagi sebatian yang terbentuk apabila kation X bertindak balas dengan oksigen?

- A TO
- B TO_2
- C T_2O_3
- D T_2O

- 36 Diagram 10 shows a part of the Periodic Table of elements.
Rajah 10 menunjukkan sebahagian daripada Jadual Berkala Unsur.

Y														W			
																	X
					Z												

Diagram 10
Rajah 10

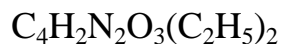
Which of the following elements W, X, Y and Z in the Periodic Table of Elements is suitable to be used in a scuba diving tank?

Antara unsur W, X, Y dan Z dalam Jadual Berkala Unsur, yang manakah digunakan dalam tangki penyelam skuba?

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

- 37 Veronal is a barbiturate used to induce sleep in psychiatric patients. The molecular formula of veronal is shown in the diagram below

Veronal ialah ubat pelali yang digunakan untuk merangsang pesakit mental untuk tidur.
Formula molekul bagi veronal ditunjukkan dalam rajah di bawah



Determine the relative molecular mass of veronal.

Tentukan jisim molekul relatif bagi veronal.

[Relative atomic mass : H=1, C=12, N=14, O=16]

[Jisim atom relatif : H=1, C=12, N=14, O=16]

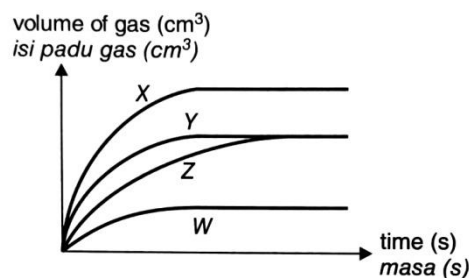
- A 196
- B 186
- C 184
- D 160

- 38 Excess magnesium is added to 25 cm^3 of 0.2 mol dm^{-3} hydrochloric acid at room temperature. The experiment is repeated using hydrochloric acid of the same volume and concentration but heated to a higher temperature.

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

Magnesium yang berlebihan dicampurkan kepada 25 cm^3 asid hidroklorik berkepekatan 0.2 mol dm^{-3} pada suhu bilik. Eksperimen ini diulangi dengan menggunakan asid hidroklorik pada isi padu dan kepekatan yang sama tetapi dipanaskan kepada suhu yang lebih tinggi.

Antara graf berikut, yang 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

- 39 The following statement is about X^{2+} ion.
Pernyataan berikut adalah berkaitan ion X^{2+} .

X^{2+} ion has 12 neutrons and 10 electrons.
Ion X^{2+} mempunyai 12 neutron dan 10 elektron

What are the proton number and nucleon number for atom X?
Apakah nombor proton dan nombor nukleon bagi atom X?

	Proton number <i>Nombor proton</i>	Nucleon number <i>Nombor nukleon</i>
A	10	12
B	10	24
C	12	12
D	12	24

- 40 Diagram 11 shows a factory which produces sulphuric acid. Gas X released from factory causes air pollution.

Rajah 11 menunjukkan sebuah kilang yang menghasilkan asid sulfurik. Gas X yang terbebas daripada kilang ini menyebabkan pencemaran udara.

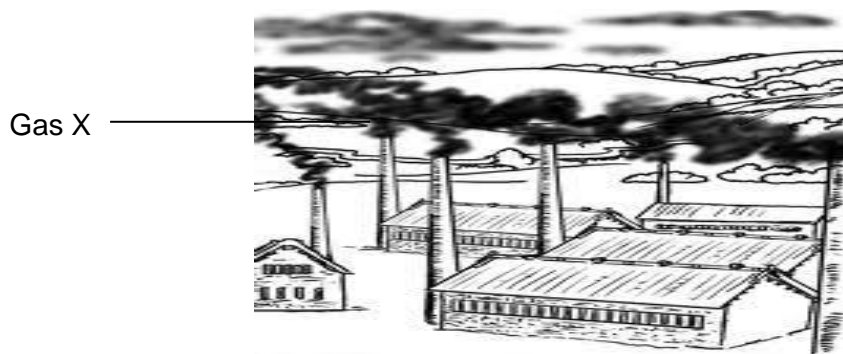


Diagram 11
Rajah 11

Which of the gas following is X?

Antara gas berikut yang manakah X?

- A Carbon dioxide
Karbon dioksida
 - B Carbon monoxide
Karbon monoksida
 - C Nitrogen dioxide
Nitrogen dioksida
 - D Sulphur dioxide
Sulfur dioksida
- 41 12.5 g of hydrated copper(II) sulphate, $\text{CuSO}_4 \cdot x\text{H}_2\text{O}$ has 4.5 g of water of crystallisation. What is the value of x?
12.5 g kuprum(II) sulfat terhidrat, $\text{CuSO}_4 \cdot x\text{H}_2\text{O}$ mempunyai 4.5 g air penghabluran. Apakah nilai x?
- [Relative atomic mass: Cu, 64; S, 32; O, 16; H, 1]
[Jisim atom relatif: Cu, 64; S, 32; O, 16; H, 1]
- A 4
 - B 5
 - C 8
 - D 10

- 42 Different metals were tested using the apparatus shown in Diagram 12. Which pair of metal shows the highest voltage reading?
 Logam yang berbeza diuji menggunakan susunan radas seperti yang ditunjukkan dalam Rajah 12. Pasangan logam yang manakah menunjukkan bacaan voltan yang paling tinggi.

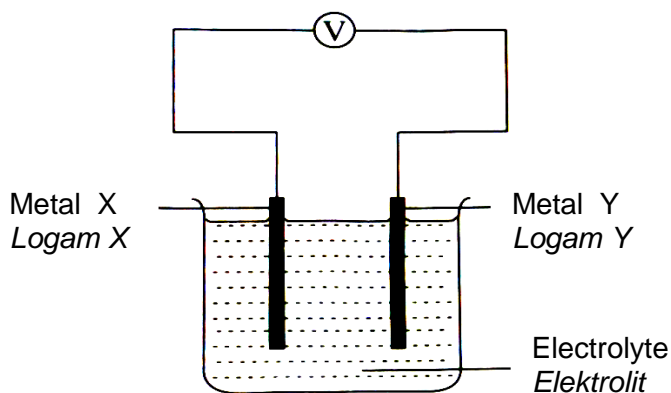


Diagram 12
Rajah 12

- A Copper and silver
Kuprum dan argentum
- B Zinc and copper
Zink and kuprum
- C Magnesium and zinc
Magnesium dan zink
- D Magnesium and silver
Magnesium dan argentum
- 43 A lab assistant need to prepare 100 cm^3 solution of hydrochloric acid 0.1 mol dm^{-3} from a solution of hydrochloric acid 1.0 mol dm^{-3} that has been prepared before using dilution method. What is the volume of hydrochloric acid 1.0 mol dm^{-3} needed to be added to water?
 Seorang pembantu makmal perlu menyediakan 100 cm^3 larutan asid hidroklorik 0.1 mol dm^{-3} daripada larutan asid hidroklorik 1.0 mol dm^{-3} yang sedia ada melalui kaedah pencairan. Berapakah isipadu asid hidroklorik 1.0 mol dm^{-3} yang diperlukan untuk ditambahkan ke dalam air?
- A 1.0 cm^3
- B 5.0 cm^3
- C 10.0 cm^3
- D 15.0 cm^3

- 44 Table 2 shows the volume of gas collected when calcium carbonate reacts with hydrochloric acid.

Jadual 2 menunjukkan isi padu gas yang dikumpulkan apabila kalsium karbonat bertindak balas dengan asid hidroklorik.

Time / min <i>Masa / min</i>	0	0.5	1.0	1.5	2.0	2.5	3.0
Volume of CO ₂ / cm ³ <i>Isi padu CO₂ / cm³</i>	0	90	150	180	200	210	210

Table 2
Jadual 2

Calculate the average rate of reaction.

Kirakan kadar tindak balas purata.

- A 630 cm³ min⁻¹
 B 525 cm³ min⁻¹
 C 84 cm³ min⁻¹
 D 70 cm³ min⁻¹
- 45 When a mixture of butene and hydrogen gas is channeled over heated platinum, gas X is produced.
 What is the characteristic of gas X?
Apabila satu campuran butena dan gas hidrogen dialirkan ke atas kepingan platinum, gas X dihasilkan.
Apakah ciri gas X?
- A decolourises the brown coloured bromine water
melunturkan warna perang air bromin
 B releases hydrogen gas when reacting with potassium
membebaskan gas hydrogen apabila bertindak balas dengan kalium
 C decolourise the purple colour of acidified potassium manganate(VII) solution
melunturkan warna ungu larutan kalium manganat(VII) berasid
 D undergoes a substitution reaction with chlorine gas under sunlight
mengalami tindak balas penukargantian dengan gas klorin di bawah cahaya matahari
- 46 In an experiment, 2 g of magnesium powder is added to 50 cm³ of 0.2 mol dm⁻³ zinc sulphate solution. The temperature of the mixture increases by 12 °C. What is the heat of displacement in the experiment?
 [Specific heat capacity of a solution = 4.2 J g⁻¹ °C⁻¹; Relative atomic mass of Mg = 24]
Dalam satu eksperimen, 2 g serbuk magnesium ditambahkan kepada of 0.2 mol dm⁻³ larutan zink sulfat. Suhu campuran meningkat sebanyak 12 °C. Berapakah haba penyesaran dalam eksperimen ini?
[Muatan haba tentu larutan = 4.2 J g⁻¹ °C⁻¹, Jisim atom relatif Mg = 24]
- A - 5.04 kJ mol⁻¹
 B - 10.08 kJ mol⁻¹
 C - 252 kJ mol⁻¹
 D - 320 kJ mol⁻¹

- 47 Table 3 shows the information of three voltaic cells.
Jadual 3 menunjukkan maklumat bagi tiga sel voltan.

Voltaic cell <i>Sel voltan</i>	Electrodes <i>Elektrod</i>	Potential difference/V <i>Beza keupayaan/V</i>	Negative terminal <i>Terminal negatif</i>
X	Zinc and magnesium <i>Zink dan magnesium</i>	1.6	Magnesium <i>Magnesium</i>
Y	Iron and zinc <i>Besi dan zink</i>	0.2	Zinc <i>Zink</i>
Z	Copper and magnesium <i>Kuprum dan magnesium</i>	2.6	Magnesium <i>Magnesium</i>

Table 3
Jadual 3

What is the potential difference of the voltaic cell consisting of copper and iron electrodes?
Berapakah beza keupayaan sel voltan yang terdiri daripada elektrod kuprum dan besi?

- A 0.8 V
- B 1.0 V
- C 1.8 V
- D 2.4 V

- 48 Diagram 13 shows three balloons with X_2 , Y_2 and Z_2 respectively.
Rajah 13 menunjukkan tiga biji belon dengan gas X_2 , Y_2 and Z_2 masing-masing.

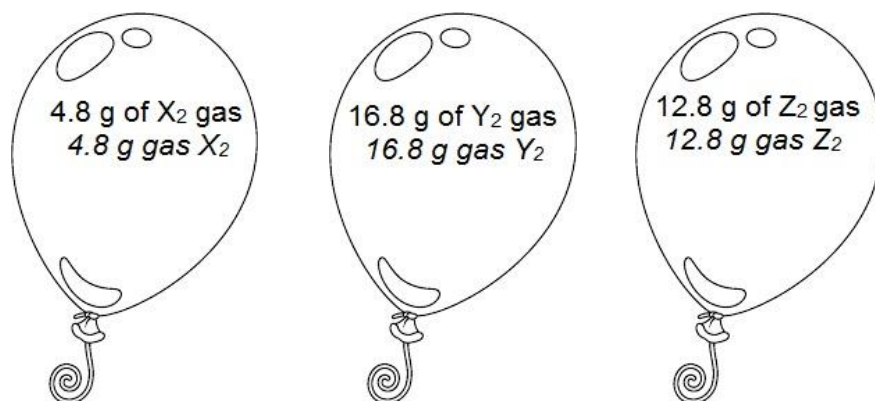


Diagram 13
Rajah 13

Arrange the gases in ascending order of volume.

[Relative atomic mass: $X = 1$, $Y = 14$, $Z = 16$ and 1 mole of gas occupies 24 dm^3 at room conditions]

Susunkan gas-gas itu mengikut tertib menaik isipadunya.

[Jisim atom relatif: $X = 1$, $Y = 14$, $Z = 16$ dan 1 mol gas menempati 24 dm^3 pada keadaan bilik]

- A X_2, Y_2, Z_2
 B X_2, Z_2, Y_2
 C Y_2, Z_2, X_2
 D Z_2, Y_2, X_2
- 49 Table 4 shows the result obtained from the decomposition of hydrogen peroxide.
Jadual 4 menunjukkan keputusan yang diperolehi daripada penguraian hidrogen peroksida.

Time/min <i>Masa/min</i>	0	0.5	1.0	1.5	2.0	2.5	3.0
Volume of O_2 gas / cm^3 <i>Isi padu gas O_2 / cm^3</i>	0	70	160	205	240	250	250

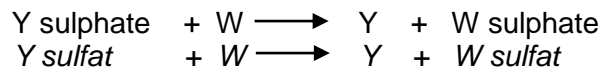
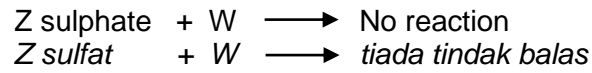
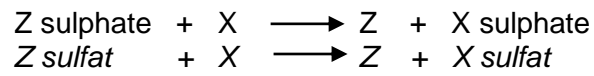
Table 4
Jadual 4

Calculate the average rate of decomposition of hydrogen peroxide in second minute.

Kira kadar tindak balas purata bagi penguraian hidrogen peroksida dalam minit kedua.

- A $40 \text{ cm}^3 \text{ min}^{-1}$
 B $80 \text{ cm}^3 \text{ min}^{-1}$
 C $100 \text{ cm}^3 \text{ min}^{-1}$
 D $120 \text{ cm}^3 \text{ min}^{-1}$

- 50 W, X, Y and Z are four metals. Consider the reactions below involving these metals.
W, X, Y dan Z terdiri dari empat logam. Pertimbangkan tindak balas- tindak balas di bawah yang melibatkan logam-logam tersebut :



Arrange the metals W, X, Y and Z in decending order of the reactivity.
Susun kereaktifan logam-logam W, X, Y dan Z mengikut tertib menurun.

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

END OF QUESTION PAPER
KERTAS SOALAN TAMAT