

4541/1
SULIT
CHEMISTRY
Kertas 1
Ogos 2012
1 ¼ jam



**BAHAGIAN PENGURUSAN SEKOLAH BERASRAMA PENUH
DAN SEKOLAH KECEMERLANGAN
KEMENTERIAN PELAJARAN MALAYSIA**

**PENTAKSIRAN DIAGNOSTIK AKADEMIK SBP 2012
SIJIL PELAJARAN MALAYSIA**

CHEMISTRY

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

Arahan:

- 1. Kertas soalan 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 soalan ini.*

Kertas ini mengandungi 31 halaman bercetak

- 1 Which substance consists of atoms?
Bahan manakah terdiri daripada atom?
- A Neon
Neon
- B Water
Air
- C Hydrogen
Hidrogen
- D Ammonia
Ammonia
- 2 One mole of nitrogen, N_2 and one mole of sulphur trioxide, SO_3 have
Satu mol nitrogen, N_2 dan 1 mol sulfur trioksida, SO_3 mempunyai
- A the same number of molecules
bilangan molekul yang sama
- B the same number of atoms
bilangan atom yang sama
- C the same proton number
nombor proton yang sama
- D the same mass
jisim yang sama
- 3 The following information is about element X.
Maklumat berikut adalah mengenai unsur X.
- Can be used as catalyst in industry
Boleh digunakan sebagai mangkin dalam industri
 - Forms complex ions
Membentuk ion kompleks

Which of the following is correct about element X?
Antara berikut yang manakah benar mengenai unsur X?

- A It is a soft solid
Ia adalah satu pepejal lembut
- B It has a low melting point
Ia mempunyai takat lebur yang rendah
- C It forms coloured compounds
Ia membentuk sebatian berwarna
- D It cannot conduct electricity in solid state
Ia tidak boleh mengalirkan elektrik dalam keadaan pepejal

- 4 Methane is a covalent compound.
Which of following is correct about methane?
*Metana adalah satu sebatian kovalen.
Antara berikut yang manakah betul tentang metana?*
- A** Cannot conduct electricity
Tidak boleh mengalirkan arus elektrik
- B** Has high boiling point
Mempunyai takat didih yang tinggi
- C** Dissolves in water
Larut dalam air
- D** Has low volatility
Mempunyai kemuahuan yang rendah
- 5 Diagram 1 shows an electrolytic cell.
Rajah 1 menunjukkan satu sel elektrolitik

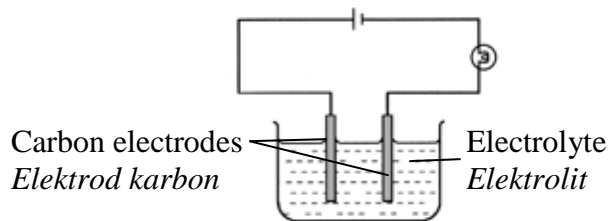


Diagram 1

Rajah 1

Which substance is suitable to be used as an electrolyte?
Bahan manakah sesuai digunakan sebagai satu elektrolit?

- A** Sodium hydroxide solution
Larutan natrium hidroksida
- B** Glucose solution
Larutan glukosa
- C** Ethyl ethanoate
Etil etanoat
- D** Ethanol
Etanol

6 Which of the following is correct about acid?

Antara berikut yang manakah betul tentang asid?

- A The taste is bitter
Rasanya pahit
- B The pH value is more than 7
Nilai pH lebih daripada 7
- C Change red litmus paper to blue
Menukarkan kertas litmus merah ke biru
- D Ionised in water to produced hydrogen ion
Mengion dalam air menghasilkan ion hidrogen

7 Diagram 2 shows the stages involved in the Contact Process to produce sulphuric acid.

Rajah 2 menunjukkan peringkat-peringkat yang terlibat dalam Proses Sentuh untuk menghasilkan asid sulfurik.

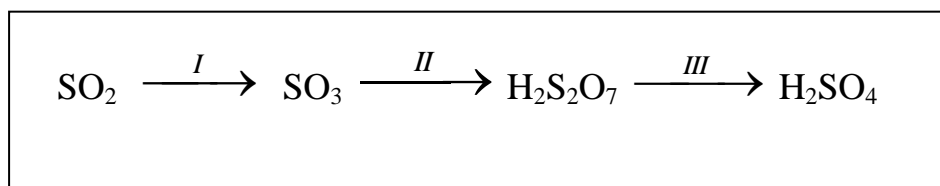


Diagram 2
Rajah 2

What is the optimum temperature and the catalyst used in stage I?

Apakah suhu optimum dan mangkin yang digunakan dalam peringkat I?

	Temperature (°C) <i>Suhu (°C)</i>	Catalyst <i>Mangkin</i>
A	200	Manganese(IV) oxide <i>Mangan(IV) oksida</i>
B	450	Vanadium(V) oxide <i>Vanadium(V) oksida</i>
C	450	Iron <i>Besi</i>
D	200	Nickel <i>Nikel</i>

- 8 Which reagent is used to identify the present of chloride ion, Cl^- in a solution?
Reagen manakah digunakan untuk mengenal pasti kehadiran ion klorida, Cl^- dalam satu larutan?
- A Silver nitrate
Argentum nitrat
- B Barium sulphate
Barium sulfat
- C Sodium hydroxide
Natrium hidroksida
- D Potassium thiocyanate
Kalium tiosianat
- 9 Diagram 3 shows the decomposition of hydrogen peroxide at room temperature.
Rajah 3 menunjukkan penguraian hidrogen peroksida pada suhu bilik.



Hydrogen peroxide
Hidrogen peroksida

Diagram 3
Rajah 3

What should be done to increase the rate of decomposition of hydrogen peroxide?
Apakah yang perlu dilakukan untuk meningkatkan kadar penguraian hidrogen peroksida?

- A Add water
Tambah air
- B Add catalyst
Tambah mangkin
- C Use small beaker
Gunakan bikar lebih kecil
- D Cool the hydrogen peroxide
Sejukkan hidrogen peroksida

- 12 Which chemical reaction releases heat to the surrounding?
Tindak balas kimia manakah yang membebaskan haba ke persekitaran?
- A Dissolving sodium hydroxide in water
Melarutkan kalsium karbonat ke dalam air
- B Dissolving ammonium nitrate in water
Melarutkan ammonium nitrat dalam air
- C Dissolving potassium carbonate in water
Melarutkan kalium karbonat dalam air
- D Dissolving potassium hydrogen carbonate in water
Melarutkan kalium hidrogen karbonat ke dalam air
- 13 Diagram 5 shows the electron arrangement of oxygen atom.
Rajah 5 menunjukkan susunan elektron bagi atom oksigen.



Diagram 5
Rajah 5

Which of the following is correct about this atom?
Antara berikut, yang manakah betul tentang atom ini?

- A The proton number is 6
Nombor proton ialah 6
- B The nucleon number is 8
Nombor nukleon ialah 8
- C The number of neutrons is 6
Bilangan neutron ialah 6
- D The number of electrons is 8
Bilangan elektron ialah 8

- 14 Which food additive can prevent the activity of microorganism in food?
Bahan tambah makanan manakah boleh menghalang aktiviti mikroorganisma dalam makanan?

- A Pectin
Pektin
- B Lecithin
Lecitin
- C Benzoic acid
Asid benzoik
- D Ascorbic acid
Asid askorbik

- 15 Diagram 6 shows the set-up of apparatus to determine the empirical formula of P oxide.

What is P oxide?

Rajah 6 menunjukkan susunan radas untuk menentukan formula empirik bagi oksida P.

Apakah oksida P?

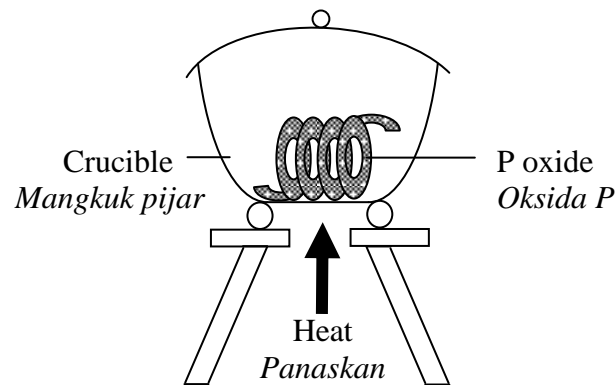


Diagram 6
Rajah 6

- A Silver oxide
Argentum oksida
- B Lead (II)oxide
Plumbum (II) oksida
- C Copper (II) oxide
Kuprum(II) oksida
- D Magnesium oxide
Magnesium oksida

- 16 Diagram 7 shows the set-up of apparatus for a simple voltaic cell.
Rajah 7 menunjukkan susunan radas bagi satu sel voltan ringkas.

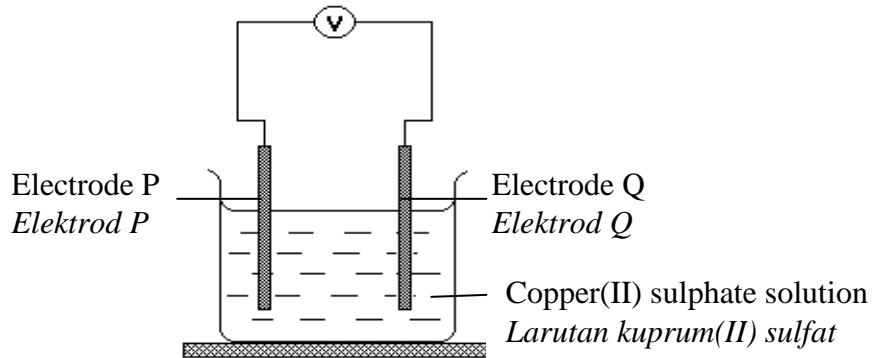


Diagram 7

Rajah 7

Which pair of metal will produced the highest voltmeter reading when it is used as electrode P and electrode Q?

Pasangan logam manakah akan menghasilkan bacaan voltmer paling tinggi apabila ia digunakan sebagai elektrod P dan elektrod Q?

	P	Q
A	Magnesium <i>Magnesium</i>	Silver <i>Argentum</i>
B	Zinc <i>Zink</i>	Iron <i>Ferum</i>
C	Tin <i>Stanium</i>	Lead <i>Plumbum</i>
D	Aluminium <i>Aluminium</i>	Copper <i>Kuprum</i>

- 17 Metal X is soft and shiny. It reacts with cold water to produce an alkaline solution. What is metal X?

Logam X adalah lembut dan berkilat. Ia bertindak balas dengan air untuk menghasilkan larutan yang bersifat alkali.

Apakah logam X?

- A Magnesium
Magnesium
- B Sodium
Natrium
- C Copper
Kuprum
- D Zinc
Zink

- 18 Which acid ionises completely in water?

Asid manakah mengion dengan lengkap dalam air?

- A CH_3COOH
- B H_3PO_4
- C H_2CO_3
- D H_2SO_4

- 19 Which pair of solutions produces an insoluble salt?

Pasangan larutan manakah menghasilkan satu garam tak terlarutkan?

- A Nitric acid and silver nitrate solution
Asid nitrik dan larutan argentum nitrat
- B Potassium sulphate solution and zinc chloride solution
Larutan kalium sulfat dan larutan zink klorida
- C Copper(II) sulphate solution and lead(II) nitrate solution
Larutan kuprum(II) sulfat dan larutan plumbum(II) nitrat
- D Magnesium nitrate solution and copper(II) chloride solution
Larutan magnesium nitrat dan larutan kuprum(II) klorida

- 20** Diagram 8 shows part of a Periodic Table of Elements.
 Element F reacts with element G to form a compound.
Rajah 8 menunjukkan sebahagian daripada Jadual Berkala Unsur.
Unsur F bertindak balas dengan unsur G membentuk satu sebatian.

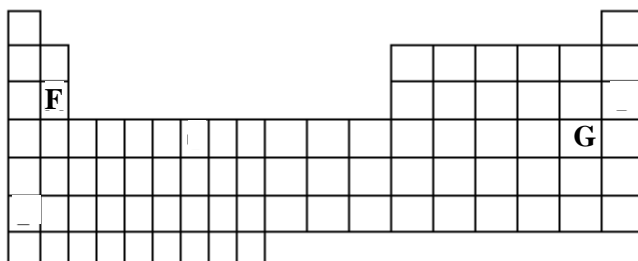


Diagram 8
Rajah 8

Which properties are correct for the compound formed between element F and element G?

Sifat manakah adalah betul bagi sebatian yang terbentuk antara unsur F dan unsur G?

	Boiling point ($^{\circ}\text{C}$) <i>Takat didih ($^{\circ}\text{C}$)</i>	Solubility in water <i>Keterlarutan dalam air</i>
A	Low <i>Rendah</i>	Does not dissolve <i>Tidak larut</i>
B	High <i>Tinggi</i>	Dissolves <i>Larut</i>
C	High <i>Tinggi</i>	Does not dissolve <i>Tidak larut</i>
D	Low <i>Rendah</i>	Dissolves <i>Larut</i>

- 21** Which statements are true about the effect of concentration of reactants on the rate of reaction based on the collision theory?

Pernyataan manakah betul tentang kesan kepekatan bahan tindak balas ke atas kadar tindak balas berdasarkan teori perlanggaran?

- I** The kinetic energy of the reactant particles increases.
Tenaga kinetik zarah-zarah bahan tindak balas bertambah.
- II** The frequency of collision between reactant particles increases.
Frekuensi perlanggaran antara zarah-zarah bahan tindak balas bertambah.
- III** The number of reactant particles per unit volume increases
Bilangan zarah-zarah bahan tindak balas per unit isi padu bertambah.
- IV** The activation energy of the reactant particles increases.
Tenaga pengaktifan zarah-zarah bahan tindak balas bertambah.

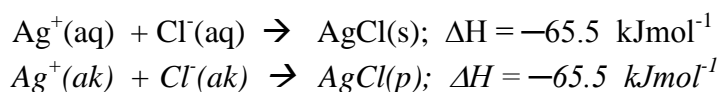
- A** I and III only
I dan III sahaja
- B** I and IV only
I dan IV sahaja
- C** II and III only
II dan III sahaja
- D** II and IV only
II dan IV sahaja

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

- 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

- 23 Which statement best explains why vulcanised rubber is more elastic than unvulcanised rubber?
Pernyataan manakah paling baik menerangkan mengapa getah tervulkan lebih elastik daripada getah tak tervulkan?
- A Size of molecule of vulcanised rubber is bigger.
Saiz molekul getah tervulkan lebih besar.
- B The melting point of vulcanised rubber is higher.
Takat lebur getah tervulkan lebih tinggi.
- C Vulcanised rubber has less double bond between carbon atoms.
Getah tervulkan mempunyai kurang ikatan ganda dua antara atom-atom karbon.
- D Presence of sulphur cross-linkage pulls the vulcanised rubber molecule back to their original position.
Kehadiran rantai silang sulfur menarik molekul getah tervulkan kembali kepada kedudukan asal.
- 24 Fe^{3+} ion solution can be converted to Fe^{2+} ions by adding zinc powder. Which substance can be used to replace zinc powder in this reaction?
Larutan ion Fe^{3+} boleh ditukarkan kepada ion Fe^{2+} dengan menambah serbuk zink. Bahan manakah boleh digunakan untuk menggantikan serbuk zink dalam tindak balas ini?
- A Chlorine water
Air klorin
- B Potassium iodide solution
Larutan kalium iodida
- C Potassium hexacyanoferrate(II) solution
Larutan kalium heksasianoferat(II)
- D Acidified potassium manganate(VII) solution
Larutan kalium manganat(VII) berasid

- 25 The thermochemical equation represents a reaction between Ag^+ and Cl^- .
Persamaan termokimia mewakili tindak balas antara Ag^+ dan Cl^- .



Which of the following is correct about the equation?
Antara berikut yang manakah betul tentang persamaan itu?

- A** Heat is released to the surroundings
Haba dibebaskan ke persekitaran
- B** The temperature of the mixture falls
Suhu campuran menurun
- C** 65.5 kJ of heat energy is absorbed to form 1 mol of silver chloride
65.5 kJ tenaga haba diserap membentuk 1 mol argentum klorida
- D** The total energy of reactants is lower than the total energy of products
Kandungan tenaga bahan tindak balas lebih rendah daripada kandungan tenaga hasil tindak balas
- 26 Diagram 9 shows the structure of ions of cleaning agents P and Q.
Rajah 9 menunjukkan struktur bagi ion agen pencuci P dan Q.



Diagram 9
Rajah 9

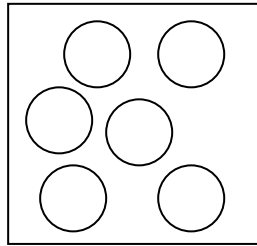
Which statement is true about cleaning agents P and Q?
Pernyataan manakah benar tentang agen pencuci P dan Q?

- A** Cleaning agent P dissolves in soft water but cleaning agent Q forms a precipitate in soft water.
Agen pencuci P larut dalam air lembut tetapi agen pencuci Q membentuk mendakan dalam air lembut.
- B** Cleaning agents P and Q have the hydrophobic part that are dissolve in water.
Agen pencuci P dan Q mempunyai bahagian hidrofobik yang larut dalam air.
- C** Cleaning agent P is less effective than cleaning agent Q in hard water.
Agen pencuci P lebih berkesan daripada agen pencuci Q dalam air liat.
- D** Cleaning agents P and Q form precipitate in acidic water.
Agen pencuci P dan Q membentuk mendakan dalam air berasid.

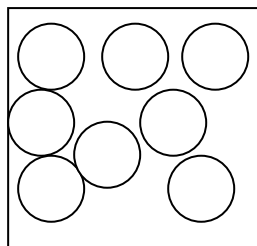
27 Which diagram shows the arrangement of particles that has the strongest attraction force between the particles?

Rajah manakah menunjukkan susunan zarah yang mempunyai daya tarikan antara zarah yang paling kuat?

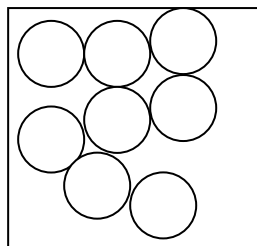
A



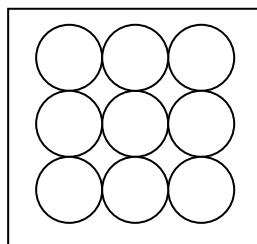
B



C



D



- 28 Diagram 10 shows the arrangement of atoms in bronze.
Rajah 10 menunjukkan susunan atom dalam gangsa.

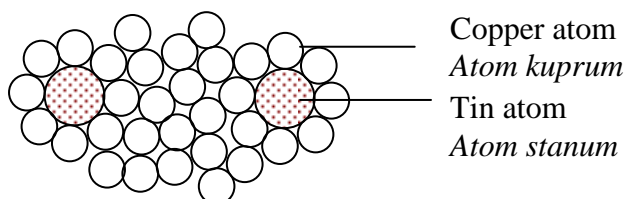


Diagram 10
Rajah 10

Which statement explains why bronze is harder than pure copper?
Pernyataan manakah menerangkan mengapa gangsa lebih kuat daripada kuprum tulen?

- A** The arrangement of atoms is more compact in bronze.
Susunan atom lebih padat dalam gangsa.
- B** There are no empty spaces between atoms in bronze.
Tiada ruang kosong dalam gangsa.
- C** Layers of atoms are not easily to slide in bronze.
Lapisan atom sukar menggelongsor dalam gangsa.
- D** Strong bonds are formed between copper atoms and tin atoms in bronze.
Ikatan yang kuat terbentuk antara atom kuprum dan atom stanum dalam gangsa.
- 29 Table 1 shows the proton number for element X and element Y.
Jadual 1 menunjukkan nombor proton bagi unsur X dan unsur Y.

Element <i>Unsur</i>	Proton number <i>Nombor proton</i>
X	13
Y	8

Table 1
Jadual 1

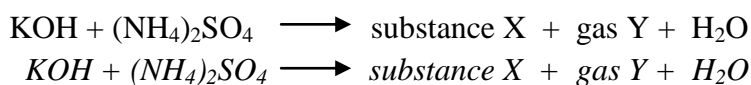
What is the formula of the compound formed when element X reacts with element Y?
Apakah formula bagi sebatian yang terbentuk apabila unsur X bertindak balas dengan unsur Y?

- A** X_2Y
- B** XY_2
- C** X_3Y_2
- D** X_2Y_3

- 30** Which statements are true about elements when going across Period 3?
Pernyataan manakah betul mengenai unsur-unsur apabila merentasi Kala 3?
- I** The atomic size of elements increase.
Saiz atom bagi unsur-unsur semakin bertambah.
- II** The electronegativity of atoms of the elements increase.
Keelektronegatifan atom bagi unsur-unsur semakin bertambah.
- III** The properties of the oxide of the elements change from basic oxide to amphoteric oxide and acidic oxide.
Sifat oksida berubah daripada oksida bes kepada oksida amfoterik dan oksida asid.
- IV** The nuclei force of attraction of atoms towards electron to achieve stable electron arrangement becomes weaker.
Daya tarikan nukleus atom terhadap elektron untuk mencapai susunan elektron yang stabil semakin lemah.
- 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
- 31** Electrolysis of 1.0 mol dm^{-3} of solution X is carried out using carbon electrodes. A yellow gas is released at the anode.
What is *solution X*?
Elektrolisis larutan X 1.0 mol dm^{-3} dijalankan menggunakan elektrod karbon. Satu gas kuning terbebas di anod. Apakah larutan X?
- A** Sodium bromide
Natrium bromida
- B** Sodium chloride
Natrium klorida
- C** Potassium iodide
Kalium iodida
- D** Potassium hydroxide
Kalium hidroksida

- 32 The equation represents a reaction between potassium hydroxide solution and ammonium sulphate.

Persamaan mewakili tindak balas antara larutan kalium hidroksida dan ammonium sulfat.



What is substance X and gas Y?

Apakah bahan X dan gas Y?

	Substance X <i>Bahan X</i>	Gas Y <i>Gas Y</i>
A	Ammonium hydroxide <i>Ammonium hidroksida</i>	Ammonia <i>Ammonia</i>
B	Ammonium hydroxide <i>Ammonium hidroksida</i>	Nitrogen dioxide <i>Nitrogen dioksida</i>
C	Potassium sulphate <i>Kalium sulfat</i>	Ammonia <i>Ammonia</i>
D	Potassium nitrate <i>Kalium nitrat</i>	Nitrogen dioxide <i>Nitrogen dioksida</i>

- 33 Diagram 11 shows the energy profile for a reaction.

Rajah 11 menunjukkan profil tenaga bagi satu tindak balas.

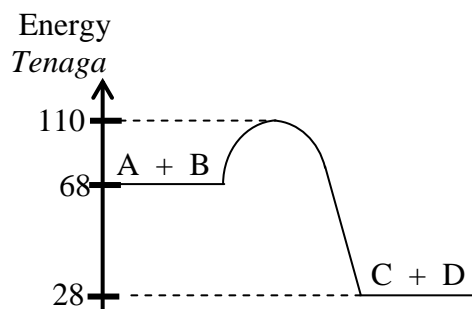


Diagram 11
Rajah 11

What is the heat of reaction for this reaction?

Apakah haba tindak balas bagi tindak balas ini?

- A -40 kJ mol^{-1}
- B -42 kJ mol^{-1}
- C -68 kJ mol^{-1}
- D -110 kJ mol^{-1}

- 34 Diagram 12 shows the activation energy, E_a in an energy profile diagram of the reaction between zinc granules and hydrochloric acid.

Rajah 12 menunjukkan tenaga pengaktifan, E_a dalam gambar rajah profil tenaga bagi tindak balas antara ketulan zink dan asid hidroklorik.

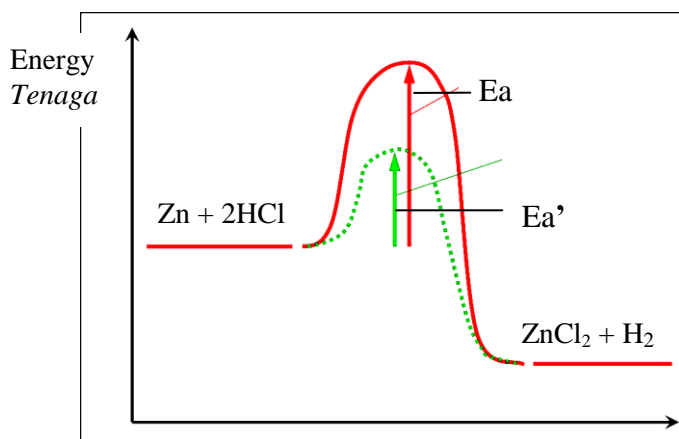


Diagram 12

Rajah 12

Which method is suitable to get lower activation energy, E_a' in the reaction?

Kaedah manakah sesuai digunakan untuk mendapatkan tenaga pengaktifan, yang lebih rendah, E_a' dalam tindak balas itu?

- A Use zinc powder
Gunakan serbuk zink
- B Cool the hydrochloric acid
Sejukkan asid hidroklorik
- C Add copper(II) sulphate solution
Tambahkan larutan kuprum(II) sulfat
- D Increase the concentration of hydrochloric acid
Tinggikan kepekatan asid hidroklorik

- 35 Table 2 shows the observations for two chemical tests to identify a type of cation in a solution.

Jadual 2 menunjukkan pemerhatian bagi dua ujian kimia untuk mengenal pasti satu jenis kation dalam satu larutan.

Test <i>Ujian</i>	Step <i>Langkah</i>	Observation <i>Pemerhatian</i>
I	Add excess sodium hydroxide solution into the solution <i>Tambah larutan natrium hidroksida berlebihan ke dalam larutan</i>	Blue precipitate <i>Mendakan biru</i>
II	Add excess ammonia solution into the solution <i>Tambah larutan ammonia berlebihan ke dalam larutan</i>	

Table 2
Jadual 2

What is observed in test II?

Apakah yang diperhatikan dalam ujian II?

- A** A brown ring is formed
Cincin perang terbentuk
- B** A green precipitate is formed
Mendakan hijau terbentuk
- C** A dark blue solution is formed
Larutan biru tua terbentuk
- D** A colourless solution is formed
Larutan tidak berwarna terbentuk

- 36** Diagram 13 shows a racing car. The body of the car is made of substance X.
Rajah 13 menunjukkan sebuah kereta lumba. Badan kereta tersebut diperbuat daripada bahan X.



Diagram 13
Rajah 13

Substance X has the following properties:
Bahan X mempunyai ciri-ciri berikut:

- strong
kuat
- light
ringan
- withstand high temperature
tahan suhu yang tinggi
- durable
tahan lasak

Which of the following is substance X?
Antara berikut manakah bahan X?

- A Steel
Keluli
- B Perspex
Perspek
- C Ceramic
Seramik
- D Fibre glass
Gentian kaca

- 37 Diagram 14 shows the label on a bottle of an orange juice.
Rajah 14 menunjukkan label pada sebotol jus oren.

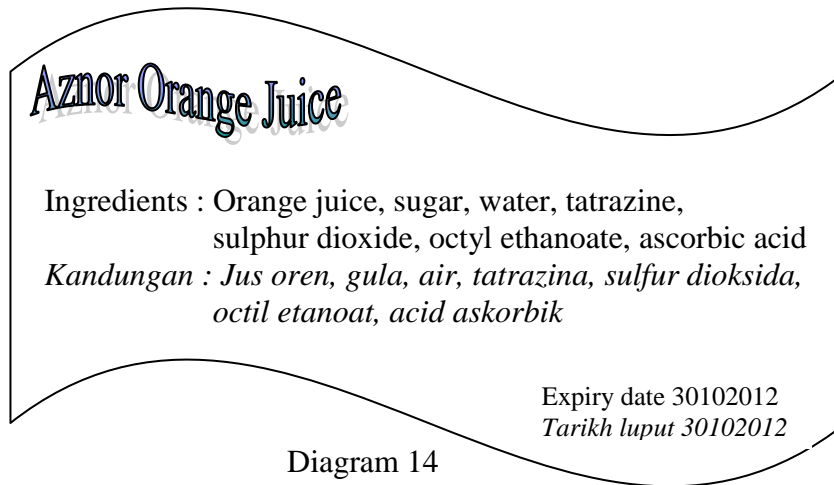


Diagram 14
Rajah 14

Which substance will enhanced the flavour and smell of the orange juice?
Bahan tambah makanan manakah akan meningkatkan rasa dan bau pada jus oren itu?

- A Octyl ethanoate
Oktil etanoat
- B Sulphur dioxide
Sulphur dioksida
- C Ascorbic acid
Asid askorbik
- D Tatrazine
Tatrazina

- 38 Diagram 15 shows the apparatus set-up for the reaction between carbon and metal T oxide.

Rajah 15 menunjukkan susunan radas bagi tindakbalas antara karbon dan oksida logam T.

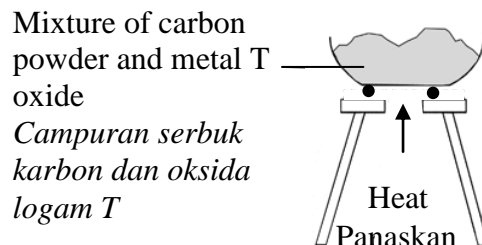


Diagram 15

Rajah 15

When the mixture is heated strongly, a flame spreads to the whole mixture.

What is metal T?

Apabila campuran itu dipanaskan dengan kuat, nyalaan tersebar ke seluruh campuran.

Apakah logam T?

- A Zinc
Zink
- B Copper
Kuprum
- C Magnesium
Magnesium
- D Aluminium
Aluminium
- 39 A patient is experiencing depression and difficulty in sleeping.
Which medicine is suitable for treating the patient?
Seorang pesakit mengalami tekanan dan kesukaran untuk tidur.
Ubat manakah sesuai untuk merawat pesakit itu?
- A Codeine
Kodeina
- B Barbiturate
Barbiturat
- C Paracetamol
Parasetamol
- D Streptomycin
Streptomisin

- 40 Which substance is a liquid at room temperature?
Bahan manakah adalah cecair pada suhu bilik?

Substance <i>Bahan</i>	Melting point ($^{\circ}\text{C}$) <i>Takat lebur ($^{\circ}\text{C}$)</i>	Boiling point ($^{\circ}\text{C}$) <i>Takat didih ($^{\circ}\text{C}$)</i>
A	-35	10
B	45	240
C	-255	-170
D	15	130

- 41 Table 3 shows the observation when metals L, M and P in Group 1 of the Periodic Table are burnt in the separate gas jar containing chlorine gas.

Metal <i>Logam</i>	Observation <i>Pemerhatian</i>
L	Burns slowly <i>Terbakar dengan perlahan</i>
M	Burns very vigorously <i>Terbakar dengan sangat cergas</i>
P	Burns vigorously <i>Terbakar dengan cergas</i>

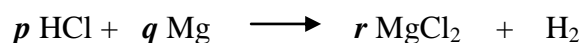
Table 3
Jadual 3

What is the correct arrangement in decreasing proton number of the elements in the Periodic Table?

Apakah susunan yang betul mengikut pengurangan nombor proton unsur-unsur itu dalam Jadual Berkala?

- A L, P, M
B M, L, P
C P, M, L
D M, P, L

- 42 The equation represents a reaction between dilute hydrochloric acid and magnesium.
Persamaan mewakili tindak balas antara asid hidroklorik cair dengan magnesium.



What are the values of **p**, **q** and **r** in the balanced chemical equation?

*Apakah nilai bagi **p**, **q** dan **r** dalam persamaan kimia yang seimbang?*

- A** $p = 1, q = 1, r = 1$
B $p = 1, q = 1, r = 2$
C $p = 2, q = 1, r = 2$
D $p = 2, q = 1, r = 1$
- 43 50.0 cm³ of 0.4 mol dm⁻³ sodium hydroxide solution, NaOH, is titrated with 1.0 mol dm⁻³ sulphuric acid, H₂SO₄.
What is the volume of sulphuric acid needed to neutralize the sodium hydroxide solution?
*50.0 cm³ larutan natrium hidroksida, NaOH 0.4 mol dm⁻³ telah dititratkan dengan asid sulfurik, H₂SO₄ 1.0 mol dm⁻³.
Berapakah isipadu asid sulfurik yang diperlukan untuk meneutralkan larutan natrium hidroksida itu?*
- A** 10.0 cm³
B 20.0 cm³
C 40.0 cm³
D 50.0 cm³

- 44 Table 4 shows the proton number of elements magnesium and oxygen
Jadual 4 menunjukkan nombor proton bagi unsur-unsur magnesium dan oksigen.

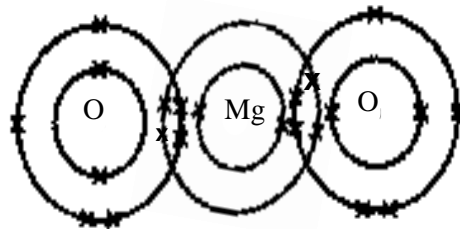
Element <i>Unsur</i>	Proton number <i>Nombor proton</i>
Magnesium	12
Oxygen	8

Table 4
Jadual 4

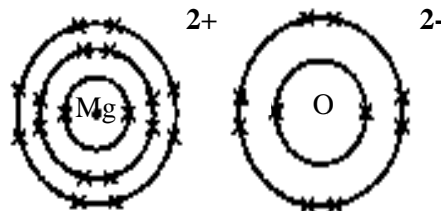
Which of the following represents the electron arrangement of the compound formed when magnesium reacts with oxygen?

Antara berikut yang manakah mewakili susunan elektron bagi sebatian yang terbentuk apabila unsur magnesium bertindak balas dengan oksigen?

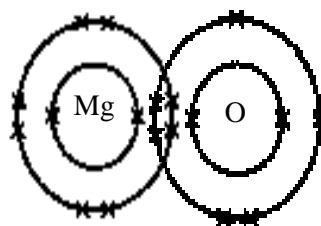
A



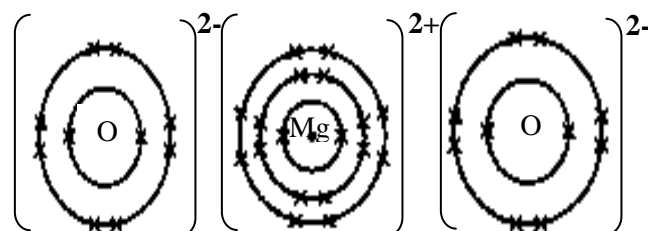
B



C



D



- 45 Table 5 shows the results of displacement reaction of metals to construct the electrochemical series.

Jadual 5 menunjukkan keputusan bagi tindak balas penyesaran logam untuk membina siri eletrokimia.

Metal \ Solution	W nitrate	X nitrate	Y nitrate	Z nitrate
W		X is displaced	Y is displaced	No change
X	No change		Y is displaced	No change
Y	No change	No change		No change
Z	W is displaced	X is displaced	Y is displaced	

Table 5
Jadual5

Which of the following is the correct ascending order of these metals in the electrochemical series?

Antara berikut yang manakah kedudukan susunan secara menaik bagi logam-logam ini dalam siri elektrokimia?

- A** X, W, Y, Z
B W, Y, X, Z
C Y, X, W, Z
D Z, W, X, Y
- 46 Calcium carbonate reacts with acid to produce a salt, carbon dioxide and water. Which acid will produce the highest rate of reaction?
Kalsium karbonat bertindak balas dengan asid untuk menghasilkan satu garam, karbon dioksida dan air.
Asid manakah akan menghasilkan kadar tindak balas paling tinggi?
- A** 20 cm³ of 0.1 mol dm⁻³ hydrochloric acid
 20 cm³ asid hidroklorik 0.1 mol dm⁻³
B 20 cm³ 0.1 mol dm⁻³ sulphuric acid acid
 20 cm³ asid sulfurik 0.1 mol dm⁻³
C 50 cm³ 0.1 mol dm⁻³ ethanoic acid acid
 50 cm³ asid etanoik 0.1 mol dm⁻³
D 50 cm³ of 0.1 mol dm⁻³ nitric acid
 50 cm³ asid nitrik 0.1 mol dm⁻³

- 47 Diagram 16 shows the set-up of apparatus to investigate the effect of heating on a salt.
Rajah 16 menunjukkan susunan radas untuk mengkaji kesan haba ke atas satu garam.

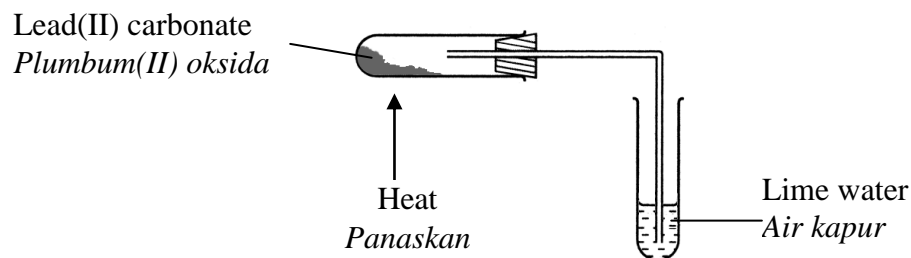


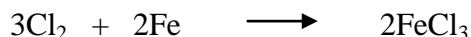
Diagram 16
Rajah 16

Which of the following is true about the salt?
Antara berikut yang manakah benar tentang garam itu?

- I Nitrogen dioxide gas is liberated
Gas nitrogen dioksida terbebas
 - II Carbon dioxide gas is liberated
Gas karbon dioksida terbebas
 - III Lead(II) oxide is formed
Plumbum(II) oksida terhasil
 - IV The black residue is formed
Baki berwarna hitam terbentuk
- A** I and III only
I dan III sahaja
- B** I and IV only
I dan IV sahaja
- C** II and III only
II dan III sahaja
- D** II and IV only
II dan IV sahaja

- 48 The chemical equation represents a reaction between chlorine gas and heated iron wool

Persamaan mewakili satu tindak balas antara gas klorin dengan wul besi panas.



What is the mass of iron(III) chloride formed when 120 cm³ chlorine gas reacted with heated iron wool?

[Relative atomic mass: Cl = 35.5, Fe = 56,

Molar volume of gas at room temperature = 24 dm³ mol⁻¹]

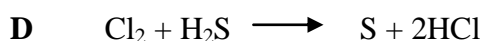
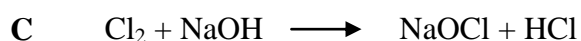
Berapakah jisim ferum(III) klorida yang terbentuk apabila 120 cm³ gas klorin bertindakbalas dengan wul besi panas?

[Jisim atom relatif: Cl = 35.5, Fe = 56,

Isipadu molar gas pada suhu bilik = 24 dm³ mol⁻¹]

- A 0.305g
B 0.542g
C 0.580g
D 0.813g
- 49 Which chemical equation represents a redox reaction?

Persamaan kimia manakah mewakili satu tindak balas redoks?



- 50 Diagram 17 shows a process of producing a compound Z.
Rajah 17 menunjukkan satu proses untuk menghasilkan satu sebatian Z.

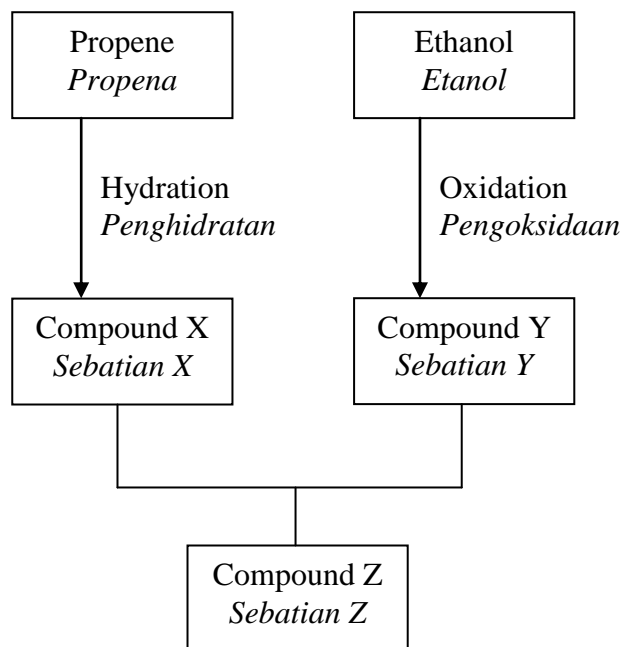


Diagram 17
Rajah 17

What is the name of compound Z?
Apakah nama sebatian Z?

- A Ethyl ethanoate
Etil etanoat
- B Ethyl propanoate
Etil propanoat
- C Propyl ethanoate
Propil etanoat
- D Propyl propanoate
Propil propanoat

END OF QUESTION PAPER

INFORMATION FOR CANDIDATES
MATLUMAT UNTUK CALON

1. This question paper consists of **50** questions.

Kertas soalan ini mengandungi 50 soalan.

2. Answer **all** questions.

Jawab semua soalan.

3. Each question is followed by four alternative answers, **A, B, C** and **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 the blackened mark that you have made. Then blacken the space for the new answer.

Jika anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.

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.