

SULIT
4541/1
Chemistry
Paper 1
September 2009
1¼ jam

PEPERIKSAAN PERCUBAAN SPM

CHEMISTRY

Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU
DO NOT OPEN THIS PAPER UNTIL YOU ARE TOLD TO DO SO

- 1. Kertas soalan ini adalah dalam dwibahasa.*
- 2. Soalan di bahagian atas adalah dalam Bahasa Inggeris. Soalan di bahagian bawah dalam tulisan condong adalah dalam Bahasa Malaysia yang sepadan.*
- 3. Calon dikehendaki membaca maklumat di halaman 2 atau halaman 3.*

Kertas soalan ini mengandungi 32 halaman bercetak

INFORMATION FOR CANDIDATES

1. This question paper consists of 50 questions.
2. Answer **all** questions.
3. Answer each question by blackening the correct space on the answer sheet.
4. Blacken only **one** space for each question.
5. If you wish to change your answer, erase the blackened mark that you have made. Then blacken the space for the new answer.
6. The diagrams in the questions provided are not drawn to scale unless stated.
7. You may use a non-programmable scientific calculator.

MAKLUMAT UNTUK CALON

1. *Kertas soalan ini mengandungi 50 soalan.*
2. *Jawab **semua** soalan.*
3. *Jawab dengan menghitamkan ruangan yang betul pada kertas jawapan.*
4. *Hitamkan **satu** ruangan sahaja bagi setiap soalan.*
5. *Sekiranya anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.*
6. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
7. *Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.*

Dapatkan skema Jawapan di Laman

www.banksoalanspm.com

- 1 A gas jar that contains air is placed on top of a gas jar of bromine. After a period of time, a uniform colour is observed throughout both gas jars. What process has happened?

Sebuah balang yang berisi udara diletakkan di atas sebuah lagi balang gas yang berisi bromin. Setelah beberapa ketika kedua-dua balang gas itu dipenuhi dengan suatu gas yang berwarna. Apakah proses yang berlaku?

- A Condensation
 Kondensasi
- B Evaporation
 Pemeruapan
- C Diffusion
 Peresapan
- D Sublimation
 Pemejalwapan
- 2 Diagram 2 show the symbol of an atom copper.
Rajah 2 menunjukkan simbol atom kuprum.

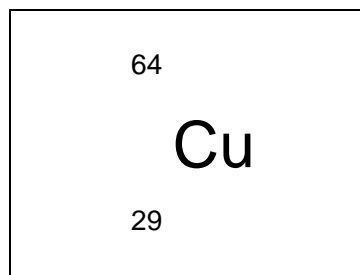


Diagram 2

Which of the following is correct based on the symbol in diagram 2.
Antara berikut yang manakah benar berdasarkan simbol dalam Rajah 2 ?

	Proton number <i>Nombor proton</i>	Nucleon number <i>Nombor nucleon</i>	Number of electron <i>Bilangan elektron</i>
A	29	64	29
B	35	29	64
C	64	35	29
D	29	64	35

Dapatkan skema Jawapan di Laman

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3. Which of the following atomic models was proposed by Ernest Rutherford?
Antara berikut yang manakah model atom yang disyorkan oleh Ernest Rutherford?
- A The atom is the smallest particle.
Atom merupakan zarah terkecil.
- B The atom is a positively charged sphere.
Atom ialah sfera yang bercas positif.
- C The atom contains a nucleus that is surrounded by electrons moving a random.
Atom mengandungi satu nukleus yang dikelilingi oleh elektron yang bergerak secara rawak.
- D The atom contains a nucleus that is surrounded by electrons that move in certain orbitals.
Atom mengandungi satu nukleus yang dikelilingi oleh elektron yang bergerak dalam orbit yang tertentu.
- 3 From the position in the Periodic Table, we can predict many properties of an element and its compound. What property can not be predicted?
Berdasarkan posisi dalam Jadual Berkala, kita boleh meramalkan pelbagai sifat suatu unsur dan sebatianannya. Apakah sifat yang tidak boleh diramalkan?
- A The formula of its oxide.
Formula oksida.
- B The number of isotopes it has.
Bilangan isotop.
- C The melting point.
Takat lebur.
- D The freezing point.
Takat beku.
- 4 Among the following compounds, which one contains particles bonded by strong electrostatic forces?
Di antara sebatian berikut, yang manakah terdiri daripada zarah yang diikat oleh daya elektrostatik yang kuat.
- A Ammonia
Ammonia
- B Naphthalene
Naftalena
- C Carbon monoxide
Karbon monoksida
- D Sodium chloride
Natrium klorida
- 5 Which of the following has the same empirical formula as ethene, C_2H_4 ?
Yang mana antara berikut mempunyai formula empirik yang sama dengan etena, C_2H_4 ?
- A C_3H_7 B C_4H_{11} C C_5H_{11} D H_{12}

Dapatkan skema Jawapan di Laman

- 6 The molar mass of astatine is 210 g mol^{-1} . What is the relative atomic mass for astatine?

Jisim molar astatin ialah g mol^{-1} . Berapakah jisim atom relatif bagi astatin?

- A 100
- B 110
- C 210
- D 120

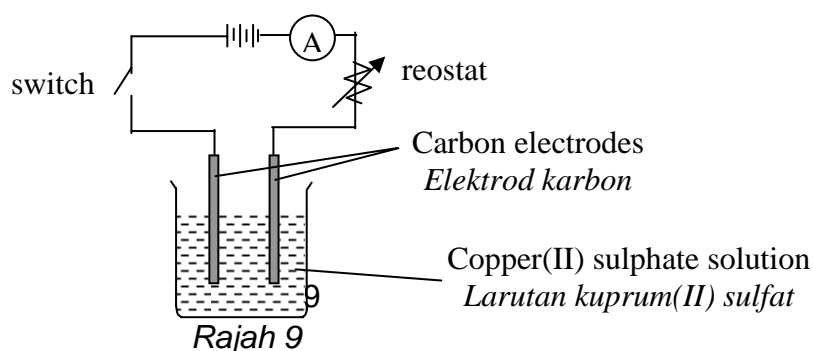
- 7 Which of the following conducts electricity but does not undergo chemical changes?

Yang mana antara berikut boleh mengkonduksi elektrik tetapi tidak mengalami perubahan kimia?

- A Molten lead(II) chloride
Leburan plumbum(II) klorida
- B Molten sulphur
Leburan sulfur
- C Molten magnesium
Leburan magnesium
- D Molten aluminium nitrate
Leburan aluminium nitrat

- 8 Diagram 9 shows the set up of apparatus for the electrolysis of copper(II) sulphate solution. Which of the following solutions can be used to replace copper(II) sulphate solution?

Rajah 9 menunjukkan susunan radas bagi elektrolisis larutan kuprum(II) sulfat. Yang manakah larutan berikut yang boleh digunakan untuk menggantikan larutan kuprum(II) sulfat?



- A Ethyl ethanoate
Etil etanoat
- B Potassium bromide solution
Larutan kalium bromida
- C Hexane
Heksana
- D Hexene
Heksena

Dapatkan skema Jawapan di Laman

- 9 Diagram 10 shows the set-up of apparatus for electrolysis.
Rajah 10 menunjukkan susunan radas untuk elektrolisis.

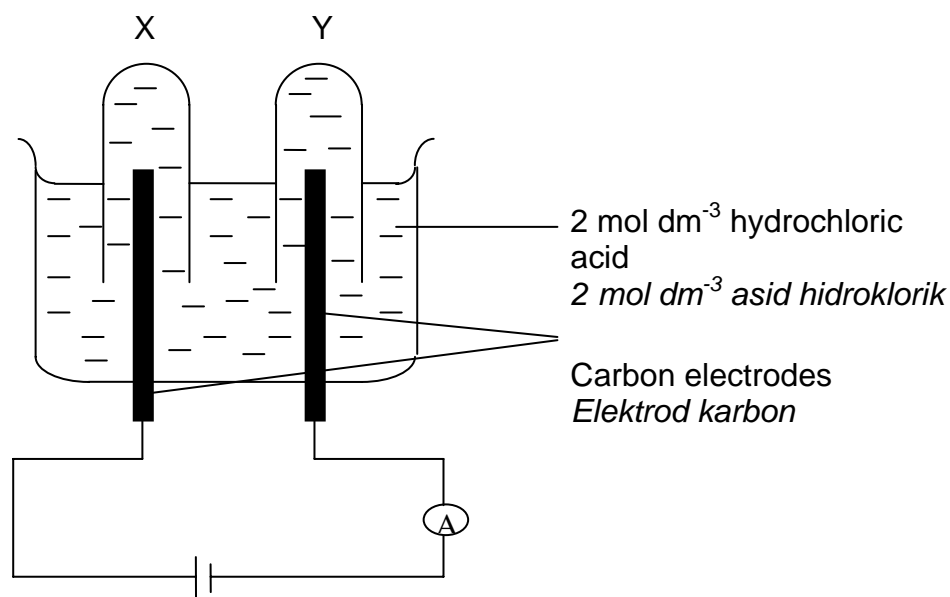


Diagram 10

What is test would you use to confirm the product formed in test tube Y after electrolysis has been carried out for some time?

Ujian apakah yang digunakan untuk mengesahkan hasil yang terbentuk dalam tabung uji Y selepas elektrolisis dijalankan?

- A A lighted wooden splinter
Kayu uji bernyala
- B Lime water
Air kapur
- C A glowing splinter
Kayu uji berbara
- D A moist litmus paper
Kertas litmus lembap
- 10 Which of the following is NOT TRUE about the properties of acid?
Yang mana antara berikut TIDAK BENAR tentang sifat asid?
- A Undergoes neutralisation with alkali.
Mengalami tindak balas peneutralan dengan alkali.
- B Has a pH value lower than 7.
Mempunyai nilai pH kurang daripada 7.
- C Reacts with ammonium salt and heated to produce ammonia gas.
Bertindak balas dengan garam ammonium semasa panas untuk menghasilkan gas ammonia.
- D Reacts with metal carbonates to produce hydrogen.
Bertindak balas dengan logam karbonat untuk menghasilkan hidrogen.

Dapatkan skema Jawapan di Laman

11 Latex can be kept in liquid state so that it can be transported to factories by adding

Lateks boleh dikekalkan dalam keadaan asal untuk diangkut ke kilang dengan menambah

- A ethanoic acid
asid etanoik
- B hydrochloric acid
asid hidroklorik
- C ammonium hydroxide
ammonium hidroksida
- D ammonium sulphate
ammonium sulfat

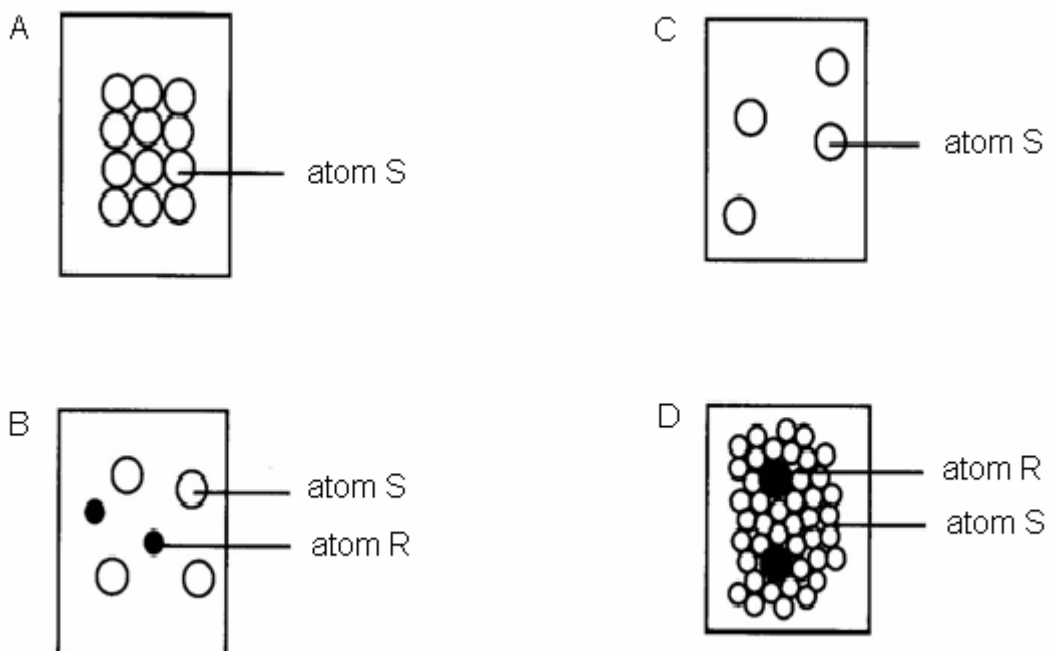
12 Which particle causes an aqueous solution of ammonia to exhibit alkaline properties?

Zarah yang manakah menyebabkan larutan ammonia akues memperlihatkan sifat-sifat alkali?

- A H_3O^+
- B OH^-
- C NH_4^+
- D NH_3

13 Which of the the following shows the arrangement of atoms in an alloy?

Yang mana antara berikut menunjukkan susunan atom dalam satu aloi?



Dapatkan skema Jawapan di Laman

- 14 Diagram 15 shows a graph of a volume of gas against time. The rate of reaction is the highest at ...

Rajah 15 menunjukkan graf isipadu gas melawan masa. Kadar tindak balas yang paling tinggi adalah di ...

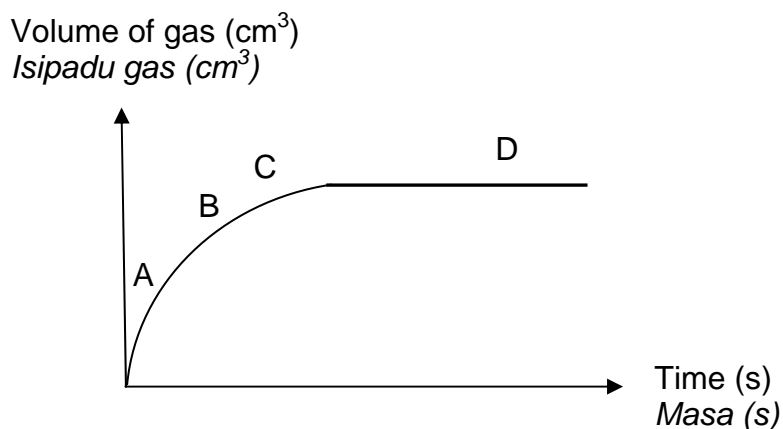
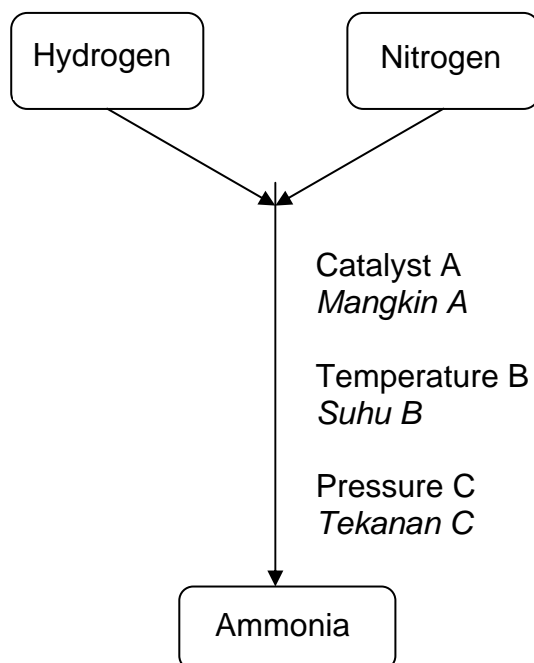


Diagram 15

- 15 The diagram below shows the formation of ammonia through Haber process.
Rajah di bawah menunjukkan penghasilan ammonia melalui proses Haber.



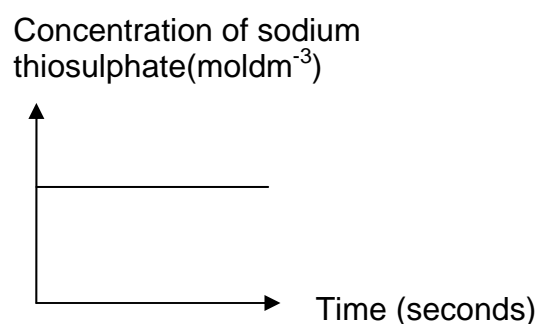
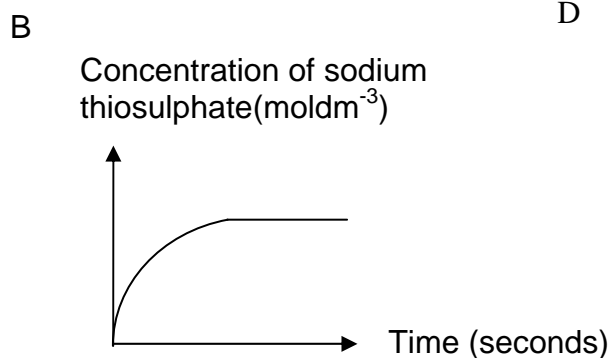
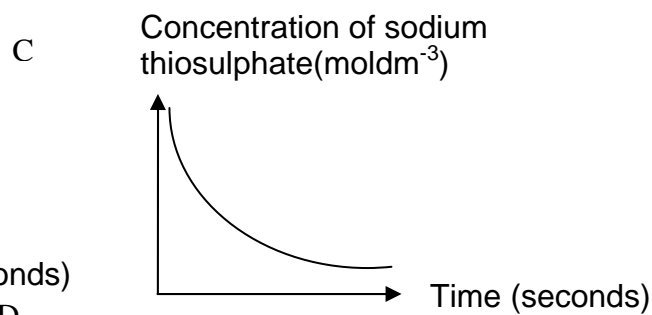
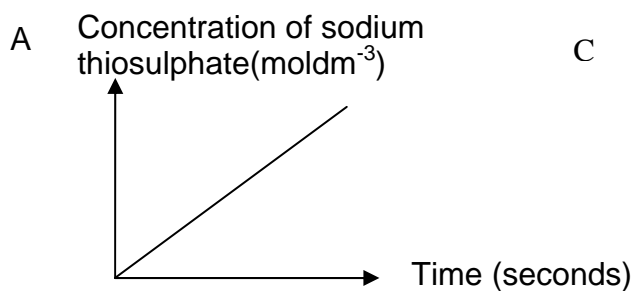
Dapatkan skema Jawapan di Laman

Which of the following represent catalyst A, temperature B and pressure C?
 Yang manakah mewakili mangkin A, suhu B dan tekanan C?

	Catalyst Mangkin	Temperature B, °C Suhu B, °C	Pressure C, atm Tekanan, atm
A	Iron <i>Besi</i>	450	200
B	Platinum <i>Platinum</i>	450	100
C	Iron <i>Besi</i>	200	450
D	Vanadium(V) oxide <i>Vanadium(V) oksida</i>	550	200

16 A reaction between sodium thiosulphate solution and dilute sulphuric acid will produce sulphur. Which of the following graphs shows the relationship between the concentration of sodium thiosulphate solution and the time taken to form sulphur?

Tindak balas di antara larutan natrium tiosulfat dan larutan asid sulfurik akan menghasilkan sulfur. Yang manakah di antara graf berikut menunjukkan perhubungan di antara kepekatan larutan natrium tiosulfat dengan masa yang diambil untuk membentuk sulfur.



Dapatkan skema Jawapan di Laman

- 17 Which of the following is the function of an analgesic?
Yang mana antara berikut adalah fungsi analgesik?
- A To relieve pain
Melegakan kesakitan
- B To treat asthma
Merawat asma
- C To destroy bacteria
Membunuh bakteria
- D To calm down the emotion of the patient
Menenangkan emosi pesakit
- 18 Heat energy is released when a fuel is burned in air. This is because ...
Tenaga haba dibebaskan semasa bahan api dibakar dalam udara. Ini kerana

- A energy is released when mixed with air.
haba dibebaskan semasa bercampur dengan udara.
- B energy is released when chemical bonds are broken.
haba dibebaskan semasa ikatan dipecahkan.
- C energy is released when new chemical bonds are formed.
haba dibebaskan semasa ikatan kimia baru terbentuk.
- D energy is transformed from the chemicals.
haba dipindahkan daripada bahan kimia.
- 19 The heat of precipitation determined in the laboratory is less than theoretical value. Why?
Haba pemendakan yang dihitung di dalam makmal adalah kurang daripada nilai teori. Mengapa?
- A Some heat is absorbed by the thermometer.
Sebahagian haba diserap oleh termometer.
- B Chemicals that are used contain impurities.
Bahan kimia yang digunakan mengandungi bendasing.
- C Chemicals react with oxygen in the surrounding.
Bahan kimia bertindakbalas dengan oksigen di persekitaran.
- D Heat is loss to surrounding.
Haba dibebas ke persekitaran.
- 20 An element M has proton number 12. It has the tendency of forming cation M^{2+} . What is the electron arrangement of M^{2+} ?
Unsur M mempunyai nombor proton 12. Ia cenderung membentuk kation M^{2+} . Apakah susunan elektron bagi M^{2+} ?
- A 2.8.2
- B 2.2
- C 2.8
- D 2.8.8.2

Dapatkan skema Jawapan di Laman

- 21 Which of the following substances has INCORRECT chemical formulae?
Yang manakah di antara sebatian berikut mempunyai formula kimia yang TIDAK BENAR?

	Substance <i>Bahan</i>	Formula <i>Formula</i>
A	Sodium chloride <i>Natrium klorida</i>	NaCl
B	Copper(II) sulphate <i>Kuprum(II) sulfat</i>	CuSO ₄
C	Potassium oxide <i>Kalium oksida</i>	K ₂ O
D	Ammonium nitrate <i>Ammonium nitrat</i>	NH ₄ (NO ₃) ₂

- 22 What is the number of oxygen atom in 0.1 mole of water?
Apakah bilangan atom oksigen dalam 0.1 mol air?
 [Avogadro constant: $6.02 \times 10^{23} \text{ mol}^{-1}$]

- A 6.02×10^{22}
 B 6.02×10^{23}
 C 60.2×10^{23}
 D 3.01×10^{23}

- 23 Going down Group 18 of the Periodic Table of Element,
Apabila menuruni Kumpulan 18 dalam Jadual Berkala Unsur,

- I the boiling point of the elements increases..
takat didih unsur bertambah.
 II the size of the atom increases.
saiz atom bertambah.
 III the forces of attraction between the particles increases.
daya tarikan di antara zarah bertambah.
 IV the solubility of the elements in water increases.
keterlarutan unsur dalam air bertambah.

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

Dapatkan skema Jawapan di Laman

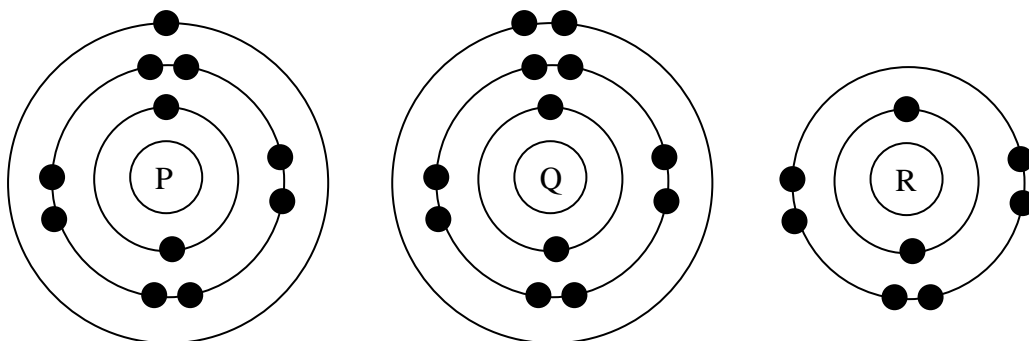
- Aluminium oxide reacts with hydrochloric acid
Aluminium oksida bertindak balas dengan asid hidroklorik
- Aluminium oxide reacts with sodium hydroxide solution
Aluminium oksida bertindak balas dengan larutan natrium hidroksida

24 The table above shows some information on aluminium oxide. From the information above, which of the following is TRUE?

Jadual di atas menunjukkan maklumat tentang aluminium oksida. Berdasarkan maklumat tersebut yang manakah BENAR?

- A Aluminium oxide is a base oxide.
Aluminium oksida ialah oksida bes.
- B Aluminium oxide is an acid oxide.
Aluminium oksida ialah oksida asid.
- C Aluminium oxide is an amphoteric oxide.
Aluminium oksida ialah oksida amfoterik.
- D Aluminium oxide is a metalloid oxide.
Aluminium oksida ialah oksida logam.

25 The diagram below shows the electron arrangement of atoms P, Q and R.
Rajah di bawah menunjukkan susunan electron bagi atom P, Q dan R.



R can react with P and Q to form two different compounds. What are the formulae of the compounds formed?

R boleh bertindak balas dengan P dan Q membentuk dua sebatian berbeza.

Apakah formula sebatian yang terbentuk?

Dapatkan skema Jawapan di Laman

	<u>P and R</u>	<u>Q and R</u>
A	P ₂ R	QR ₂
B	P ₂ R	QR
C	PR	QR ₂
D	PR ₂	QR ₂

26 When an electric current is flowed through molten lead(II) bromide, brown vapour can be seen on the anode of the carbon electrode. What is the reason?
Apabila arus elektrik dialirkan menerusi leburan plumbum(II) bromida, wasap perang boleh diperhatikan di anod elektrod karbon. Apakah sebabnya?

- A Potassium is formed at the anode.
Kalium terbentuk di anod.
- B Potassium reacts with bromine at the carbon anode.
Kalium bertindak balas di anod karbon.
- C Bromide ion loses electron at the carbon anode to produce bromine.
Ion bromida melepaskan elektron di anod karbon untuk menghasilkan bromine.
- D Potassium bromide dissociates into potassium ions and bromide ions.
Kalium bromida bercerai kepada ion kalium dan ion bromida.

27 Both ethanoic acid and nitric acid of concentration 1 mol dm⁻³ have ...
Kedua-dua asid etanoik dan asid nitric berkepekatan 1 mol dm⁻³ mempunyai ..

- I the same concentration of hydrogen ions
kepekatan ion hidrogen yang sama
 - II different degree of ionisation in water
darjah pengionan yang berbeza di dalam air
 - III different pH value
nilai pH yang berbeza
 - IV the same concentration of hydroxide ions
kepekatan ion hidroksida yang sama
- A I and II only
 - B II and III only
 - C III and IV only
 - D I and IV only

Dapatkan skema Jawapan di Laman

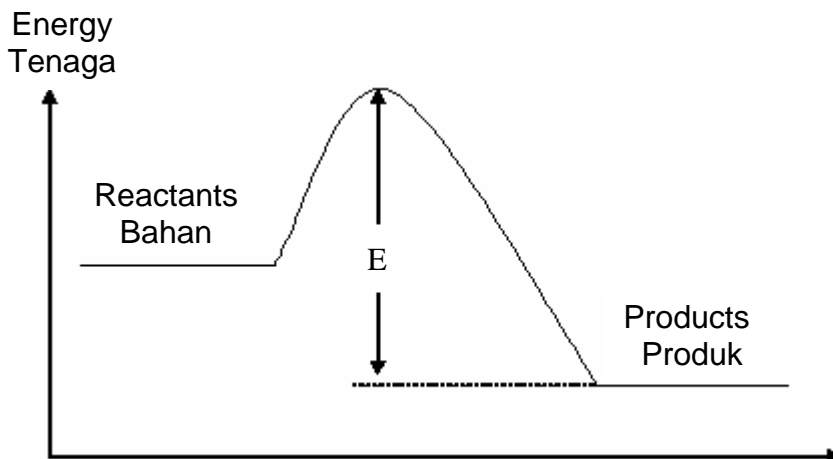
- 28 A student added solution P to solution Q. He then filter the mixture and obtained salt R as residue and solution S as filtrate. Which of the following equations correctly represent the preparation of salt R?

Seorang pelajar mencampur larutan P kepada larutan Q. Setelah itu dia menuras campuran tersebut dan memperoleh garam R sebagai baki turasan dan larutan S sebagai hasil turasan. Yang manakah persamaan yang betul bagi mewakili persediaan garam R?

- A $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
B $\text{CuCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + 2\text{NaCl}$
C $\text{MgCl}_2 + \text{Na}_2\text{CO}_3 \rightarrow \text{MgCO}_3 + 2\text{NaCl}$
D $\text{CuSO}_4 + 2\text{KNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + \text{K}_2\text{SO}_4$

- 29 Below is an Energy Profile Diagram.

Di bawah ialah Rajah Profil Tenaga.



From the diagram above, it can be concluded that ...

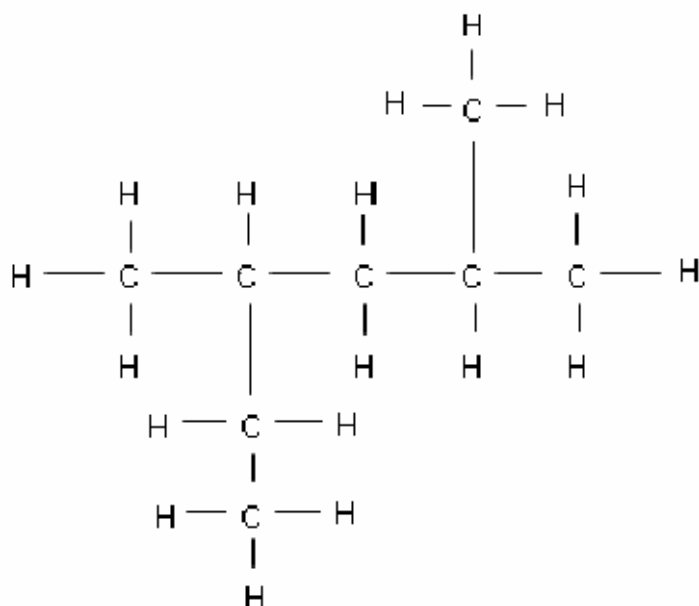
Daripada rajah di atas, boleh disimpulkan bahawa...

- A heat is required to start the reaction.
haba diperlukan untuk memulakan tindak balas
B the activation energy for the reaction is E.
tenaga pengaktifan ialah E.
C the reaction is exothermic.
tindak balas berlaku ialah eksotermik.
D the reactants are higher in concentration than the products.
kepekatan bahan adalah lebih tinggi daripada produk.

Dapatkan skema Jawapan di Laman

30 Study the structural formula below .

Kaji formula struktur di bawah.



Based on the IUPAC system, what is the name of the compound having this structural formula?

Berdasarkan sistem IUPAC, apakah nama sebatian yang mempunyai formula struktur seperti itu?

- A 2,4,4- trimethylpentane
2,4,4-trimetilpentana
- B 2,4,4- trimethyloctane
2,4,4-trimetiloktana
- C 2-ethyl-4-methylpentane
2-etil-4-metilpentana
- D 2,4-dimethylhexane
2,4-dimetilheksana

Dapatkan skema Jawapan di Laman

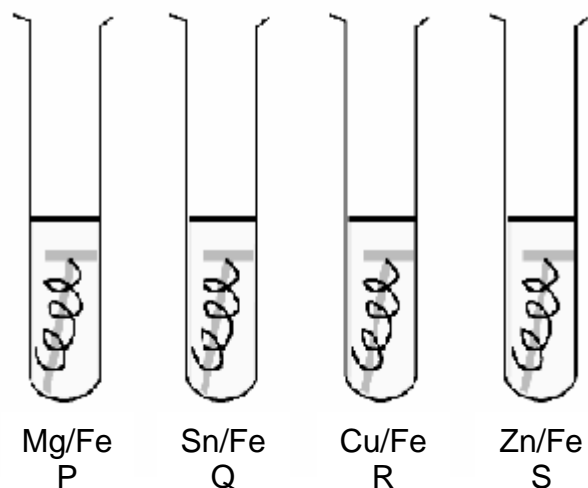


Diagram 32

- 31 Based on diagram 32 above, magnesium ribbon, tin foil, copper foil and zinc foil are coiled around four different iron nails. The metal pairs are then placed in a test tube containing aqueous sodium chloride solution. Which of the test tubes will contain the highest concentration of iron(II) ions after 2 days?

Merujuk kepada gambarajah 32 di atas, pita magnesium, lilitan stanum, lilitan ferum dan lilitan zink diikat pada paku besi. Pasangan logam itu kemudian diletakkan di dalam tabung uji yang mengandungi larutan natrium klorida. Antara tabung uji berikut yang manakah mengandungi kepekatan ion ferum(II) yang paling tinggi selepas 2 hari.

- A P
B Q
C R
D S
- 32 The heat of combustion of 1 mole of hexane can be determined by burning hexane in excess oxygen. Which of the following does **NOT** need to be taken when determining the heat of combustion?
Haba pembakaran bagi 1 mol heksana boleh dihitung dengan pembakaran heksana dalam oksigen berlebihan. Yang manakah antara berikut TIDAK diperlukan semasa menghitung haba pembakaran?
- A The initial and final temperatures of the water that is heated by the burning.
Suhu awal dan suhu akhir air semasa pemanasan.
- B The mass of the hexane used.
Jisim heksana yang digunakan.
- C The quantity of carbon dioxide released.
Kuantiti karbon dioksida yang dibebaskan.
- D The volume of water that is heated by the heat given out, when hexane is burnt. (*Isipadu air yang dipanaskan semasa heksana dibakar.*)

Dapatkan skema Jawapan di Laman

33 During the experiment to determine the heat of precipitation when silver nitrate solution is reacted with zinc chloride solution, the accuracy of the results is increased by ...

Semasa menjalankan eksperimen untuk menghitung haba pemendakan bagi silver nitrat yang bertindak balas dengan larutan zink klorida, ketepatan keputusan boleh dipertingkatkan dengan ...

- A conducting the experiment next to an open window.
menjalankan eksperimen berdekatan dengan tingkap terbuka.
- B using the thermometer to stir the mixture instead of a glass rod.
menggunakan termometer untuk mengacau campuran bagi menggantikan rod kaca.
- C using a ceramic cup instead of a polystyrene cup.
menggunakan cawan seramik bagi menggantikan cawan polisterena.
- D wrapping the polystyrene cup with aluminium foil.
membalut cawan polisterena dengan lingkaran aluminium.

34



Picture 35
Gambar 35

Picture 35 shows some oil palm fruits. Saponification of oil palm produces
Gambar 35 menunjukkan buah kelapa sawit. Saponifikasi minyak kelapa sawit menghasilkan

- A one glycerol molecule and one soap molecule.
satu molekul gliserol dan satu molekul sabun.
- B one glycerol molecule and two soap molecules.
satu molekul gliserol dan dua molekul sabun.
- C one glycerol molecule and three soap molecules.
satu molekul gliserol dan tiga molekul sabun.
- D soap and water molecules.
sabun dan molekul air.

Dapatkan skema Jawapan di Laman

35 The number of valence electrons in an atom of an element will determine ..
Bilangan elektron valens bagi satu atom unsur boleh menentukan ...

- I the stability of the atom.
kestabilan atom.
- II the chemical properties of the element.
sifat kimia unsur.
- III the group number of the element in the Periodic Table.
kumpulan unsur dalam Jadual Berkala.
- IV the melting point and boiling point of the element.
takat lebur dan takat didih unsur.

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

36 The chemical formula for glucose is $C_6H_{12}O_6$. This shows that ...
Formula kimia bagi glukos ialah $C_6H_{12}O_6$. Ini menunjukkan bahawa ...

- I the empirical formula for glucose is CH_2O .
formula empirik bagi glukos ialah CH_2O .
- II each glucose molecule is made up of 6 carbon atoms, 12 hydrogen atoms and 6 oxygen atoms.
setiap molekul glukosa terdiri daripada 6 atom karbon, 12 atom hidrogen dan 6 atom oksigen.
- III 1 mol of glucose contains a total of 144.48×10^{23} atoms.
1 mol glukosa mengandungi 144.48×10^{23} atom.
- IV one glucose molecule has a mass of 180 times higher than the mass of 1 hydrogen atom
satu molekul glukosa mempunyai jisim 180 kali lebih besar daripada jisim 1 atom hidrogen.

(Use the information relative atomic mass for H =1,C =12 and O =16
Avogadro Constant = $6.02 \times 10^{23} \text{ mol}^{-1}$)

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

Dapatkan skema Jawapan di Laman

The relative atomic mass of metal K is 7 and the relative atomic mass of the metal L is 56.

Jisim atom relatif bagi logam K ialah 7 dan jisim atom relatif bagi logam L ialah 56.

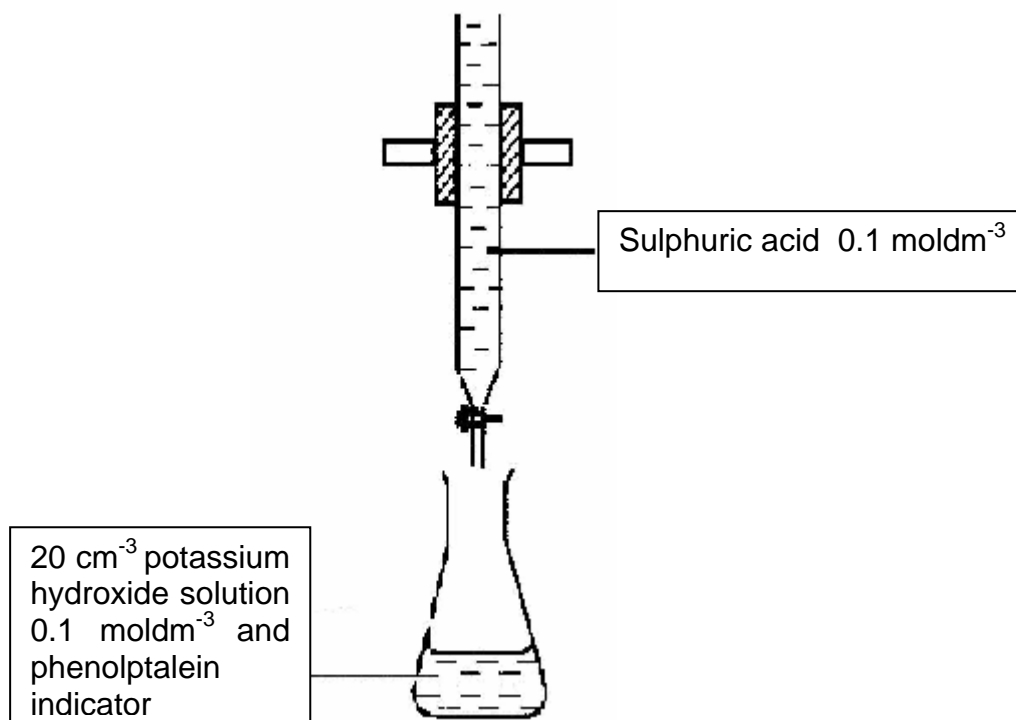
Which of the following conclusions can be drawn from the above statement?
Yang manakah antara kesimpulan berikut menerangkan pernyataan di atas?

- I 1 mol of L has 8 times more atoms than 1 mol of K
1 mol L mempunyai 8 kali bilangan atom berbanding 1 mol K
 - II 1 atom of L is 8 times heavier than 1 atom of K
1 atom L adalah 8 kali lebih berat berbanding 1 atom K
 - III 1 atom of L has the same number of protons with 8 atoms of K
1 atom L mempunyai bilangan proton yang sama dengan 8 atom K
 - IV 56 g of L has the same number of atoms as in 7 g of K
56 g L mempunyai bilangan atom yang sama dengan 7 g K
- A** I and III only
 - B** II and IV only
 - C** I, II and III only
 - D** I, II, III and IV

38 Diagram 39 shows set up apparatus for titration of potassium hydroxide with sulphuric acid.

Rajah 39 menunjukkan susunan radas bagi pentitratan larutan natrium hidroksida dengan asid sulfurik.

Dapatkan skema Jawapan di Laman



What is total volume of the mixed solution in the conical flask at the end point of titration in diagram 39?

Berapakah jumlah isipadu campuran di dalam kelalang kon pada takat akhir pentitratan dalam rajah 39 ?

- A 30 cm³
- B 20 cm³
- C 10 cm³
- D 40 cm³

39 Table 40 shows the total volume of carbon dioxide gas collected at various time interval in a reaction of calcium carbonate with hydrochloric acid.

Jadual 40 menunjukkan jumlah isipadu gas karbon dioksida yang terkumpul pada sela masa tertentu dalam suatu tindak balas antara kalsium karbonat dengan asid hidroklorik.

Time/ s <i>Masa/s</i>	0	30	60	90	120	150	180	210
Volume of gas/ cm ³ <i>Isipadu gas / cm³</i>	0.00	4.20	7.70	10.90	13.70	15.20	16.00	16.00

Table 40

Dapatkan skema Jawapan di Laman

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

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

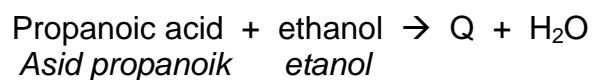
40 When a mixture of carbon and copper(II) oxide is heated strongly ...
Apabila satu campuran karbon dengan kuprum(II) oksida di panaskan dengan kuat ...

- I the oxide ion loses two electrons.
ion oksida melepaskan dua elektron.
- II the oxidation number of carbon increases from 0 to +4.
nombor pengoksidaan karbon bertambah dari 0 kepada +4.
- III the copper(II) oxide acts as the reducing agent.
kuprum(II) oksida bertindak sebagai agen penurunan.
- IV the copper(II) ion accepts two electrons.
ion kuprum(II) menerima dua elektron.

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

41 An esterification reaction is given as follows :

Tindak balas pengesteran adalah seperti berikut :



What is the molecular formula of ester Q?

Apakah formula molekul bagi ester Q?

- A $\text{C}_3\text{H}_7\text{COOC}_2\text{H}_5$
- B $\text{C}_2\text{H}_5\text{COOC}_3\text{H}_7$
- C $\text{C}_2\text{H}_5\text{COOC}_2\text{H}_5$
- D $\text{C}_5\text{H}_{11}\text{COOH}$

Dapatkan skema Jawapan di Laman

Positive terminal <i>Terminal positif</i>	Negative terminal <i>Terminal negatif</i>	Reading of the voltmeter/V <i>Bacaan voltmeter/V</i>
Lead <i>Plumbum</i>	Magnesium <i>Magnesium</i>	1.05
Zinc <i>Zink</i>	Magnesium <i>Magnesium</i>	0.42
Tin <i>Stanum</i>	Zinc <i>Zink</i>	0.51

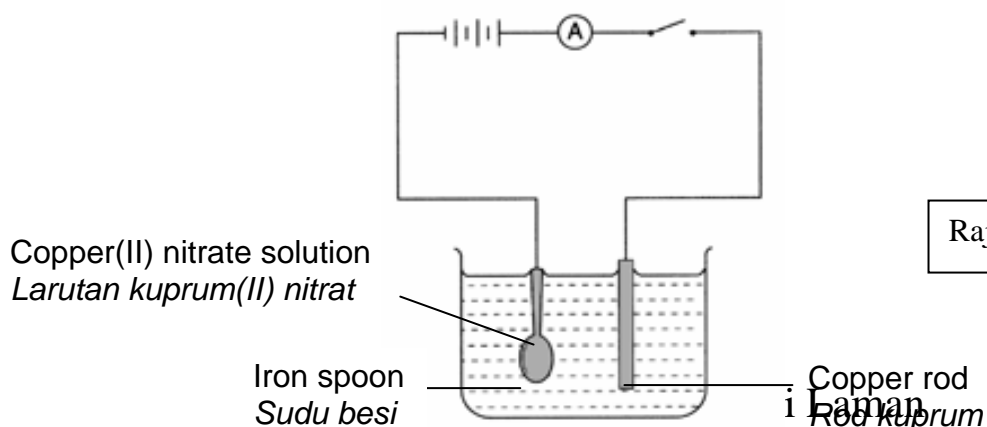
Table 43

Table 43 shows the reading of a voltmeter for each pair of metals which are immersed in a electrolyte that are connected with one salt bridge to form a simple voltaic cell. From the results, what is the reading of the voltmeter of a voltaic cell that consists of a pair of lead and tin metals?

Jadual 43 menunjukkan bacaan voltmeter bagi setiap pasangan logam yang direndam dalam elektrolit yang dihubungkan dengan satu titian garam untuk membina satu sel voltan ringkas. Daripada jadual tersebut, apakah bacaan voltmeter bagi pasangan logam plumbum dan stanum?

- A 0.12 V
- B 0.63 V
- C 0.93 V
- D 1.98 V

- 43 An iron spoon is electroplated. The apparatus used is shown in diagram 44.
Satu sudu besi disadur. Radas digunakan ditunjuk dalam rajah 44.

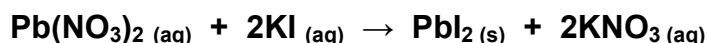


At the end of the electrolysis, it is observed that...
Setelah elektrolisis selesai, diperhatikan bahawa..

	Anode <i>Anod</i>	Cathode <i>Katod</i>
A	Brown deposits form <i>Enapan perang terbentuk</i>	Gas bubbles are released <i>Gelembung gas dibebaskan</i>
B	Copper rod becomes thinner <i>Rod kuprum menipis</i>	Brown deposits form <i>Enapan perang terbentuk</i>
C	Brown deposits form <i>Enapan perang terbentuk</i>	Copper rod becomes thicker <i>Rod kuprum menebal</i>
D	Gas bubbles are released <i>Gelembung gas dibebaskan</i>	Copper rod becomes thinner <i>Rod kuprum menipis</i>

- 44 The reaction between lead(II) nitrate and potassium iodide solution is represented by the equation below :

Tindak balas di antara larutan plumbum(II) nitrat dan larutan kalium iodida diwakili dengan persamaan di bawah :



25.0 cm³ of 1.0 mol dm⁻³ potassium iodide solution is mixed with 25.0 cm³ of 1.0 mol dm⁻³ lead(II) nitrate solution. What is the maximum mass of lead(II) iodide produced in this reaction?

25.0 cm³ larutan kalium iodida 1.0 mol dm⁻³ dicampur dengan 25.0 cm³ larutan plumbum(II) nitrat 1.0 mol dm⁻³. Apakah jisim maksimum bagi plumbum(II) iodida yang terhasil dalam tindak balas tersebut.

(Use the information relative atomic mass for I = 127 and Pb = 207)

- A 4.175 g
- B 5.76 g
- C 8.35 g
- D 11.52 g

Dapatkan skema Jawapan di Laman

45

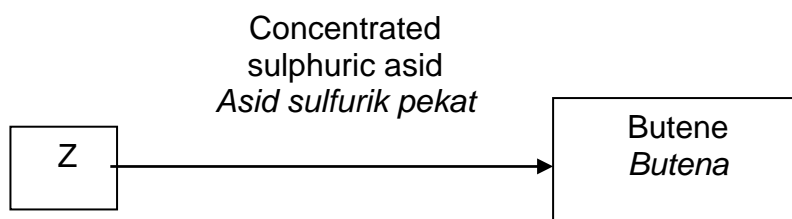


Diagram 46
Rajah 46

Consider the conversion in Diagram 46 and identify the substance Z.
Pertimbangkan pertukaran dalam Rajah 46 dan kenal pasti bahan Z

- A 1-butanol
1-butanol
- B 2-methylpropanol
2-metilpropanol
- C Butanoic acid
Asid butanoik
- D 2-methyl-2-butanol
2-metil-2-butanol

- 46 When 25 cm^3 of 0.25 mol dm^{-3} silver nitrate solution is added into 25 cm^3 of 0.25 mol dm^{-3} sodium chloride solution, the temperature of the mixture rises by 3°C . What is the quantity of heat released in this experiment?

Apabila 25 cm^3 of 0.25 mol dm^{-3} larutan argentum nitrat ditambah ke 25 cm^3 of 0.25 mol dm^{-3} larutan natrium klorida, suhu campuran tersebut meningkat sebanyak 3°C . Apakah kuantiti haba yang dibebaskan di dalam eksperimen ini.

(Specific heat capacity of water = $4.2 \text{ J g}^{-1} \text{ }^\circ\text{C}^{-1}$)

(*Muatan haba tentu air = $4.2 \text{ J g}^{-1} \text{ }^\circ\text{C}^{-1}$*)

- A 315 J
- B 78.75 J
- C 630 J
- D 157.5 J

Dapatkan skema Jawapan di Laman

47 The following statements are about atom U and T.

Pernyataan berikut adalah mengenai atom U dan T.

- Electron arrangement of atom U is 1
Susunan elektron atom U ialah 1
- Proton number of atom T is 6
Nombor proton atom T ialah 6

What is the formula of the compound formed between U and T?

Apakah formula bagi sebatian yang terbentuk antara U dan T?

- A TU
- B TU₂
- C TU₃
- D TU₄

48 Diagram 49 shows the electron arrangement of a compound formed between element T and element Q.

Rajah 49 menunjukkan susunan elektron bagi sebatian yang terbentuk daripada unsur T dan unsur Q.

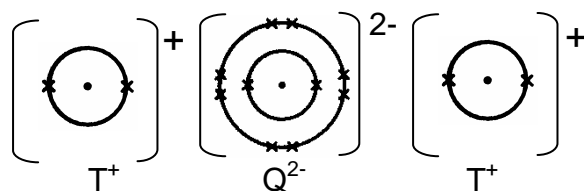


Diagram 49
Rajah 49

What group in the Periodic Table of Elements is element Q located?
Apakah kumpulan bagi unsur Q dalam Jadual Berkala Unsur?

- A 2
- B 8
- C 16
- D 18

Dapatkan skema Jawapan di Laman

- 49 Assuming that a new element called “Sharine” (symbol Sh) was discovered and it is above fluorine in Group 17 of the Periodic Table of Element, which are the CORRECT statements about “Sharine”?

Andaikan satu unsur baru ditemui dan dinamakan “Sharin” (simbol Sh) dan terletak di atas Florin dan Kumpulan 17 dalam Jadual Berkala Unsur, yang manakah BENAR tentang pernyataan “Sharin”?

- I It is a non-metal.
ia adalah bukan logam.
- II It is the most reactive element in Group 17.
ia adalah unsur paling reaktif dalam Kumpulan 17.
- III It is the most electronegative element in the Group 17.
ia adalah unsur yang paling elektronegatif dalam Kumpulan 17.
- IV It is the most probably in gaseous form at room conditions.
ia adalah berbentuk gas pada suhu bilik.
- A I and II only
- B II and III only
- C I, II and III only
- D I, II, III and IV

END OF QUESTION PAPER

Dapatkan skema Jawapan di Laman

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