

29. Which of the following has the same number of electrons as argon?

Antara berikut yang manakah mempunyai bilangan elektron yang sama dengan argon?

[Proton number : F, 9 ; Cl, 17 ; O, 8 ; Ar, 18; K, 19]

[Nombor proton: F, 9 ; Cl, 17 ; O, 8 ; Ar, 18; K, 19]

- A F
- B K
- C Cl⁻
- D O²⁻

30. Diagram 9 shows the electron arrangement of an ion, Y^-

Rajah 9 menunjukkan susunan elektron bagi ion, Y^- .

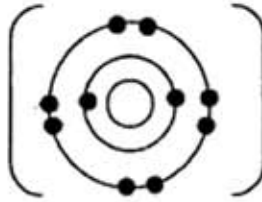


Diagram 9
Rajah 9

Which of the following statement is true about the Y ion, Y^- ?

Antara berikut yang manakah benar tentang ion Y, Y^- ?

- I Y ion is a cation
Ion Y ialah kation
 - II Y atom receives one electron to form Y ion
Atom Y menerima satu elektron untuk membentuk ion Y
 - III Y ion can form an ionic compound with sodium ion
Ion Y boleh membentuk sebatian ionik dengan ion natrium
 - IV Electron arrangement of Y ion is 2.7
Susunan elektron bagi ion Y ialah 2.7
- A I and II only
I dan II sahaja
 - B II and III only
II dan III sahaja
 - C I, II and III only
I, II dan III sahaja
 - D II, III and IV only
II, III dan IV sahaja

31. Diagram 10 shows the set up of apparatus for a displacement reaction.

Rajah 10 menunjukkan susunan radas bagi tindak balas penyesaran.

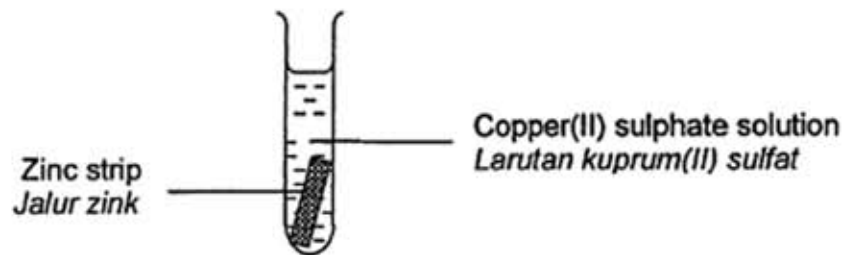


Diagram 10
Rajah 10

What is observed after 30 minutes?

Apakah yang diperhatikan selepas 30 minit?

- A Gas bubbles is released
Gelembung gas terbebas
- B A brown solid is deposited
Pepejal perang terenap
- C The colourless solution becomes blue
Larutan tak berwarna bertukar menjadi biru
- D Zinc strip becomes bigger
Jalur zink menjadi besar

32. Which of the following is a suitable indicator to determine the end point for the neutralisation reaction between 0.1 mol dm^{-3} sulphuric acid and 0.1 mol dm^{-3} sodium hydroxide solution?

Antara berikut yang manakah merupakan petunjuk yang sesuai untuk menentukan takat akhir bagi tindak balas peneutralan di antara asid sulfurik 0.1 mol dm^{-3} dan larutan natrium hidroksida 0.1 mol dm^{-3} ?

- A Red litmus paper
Kertas litmus merah
- B Blue litmus paper
Kertas litmus biru
- C Phenolphthalein
Fenolftalein
- D Tetrachloromethane
Tetraklorometana

33. Diagram 11 shows the steps involved to obtain pure salt crystals.

Rajah 11 menunjukkan langkah-langkah untuk mendapat kristal garam yang tulen.

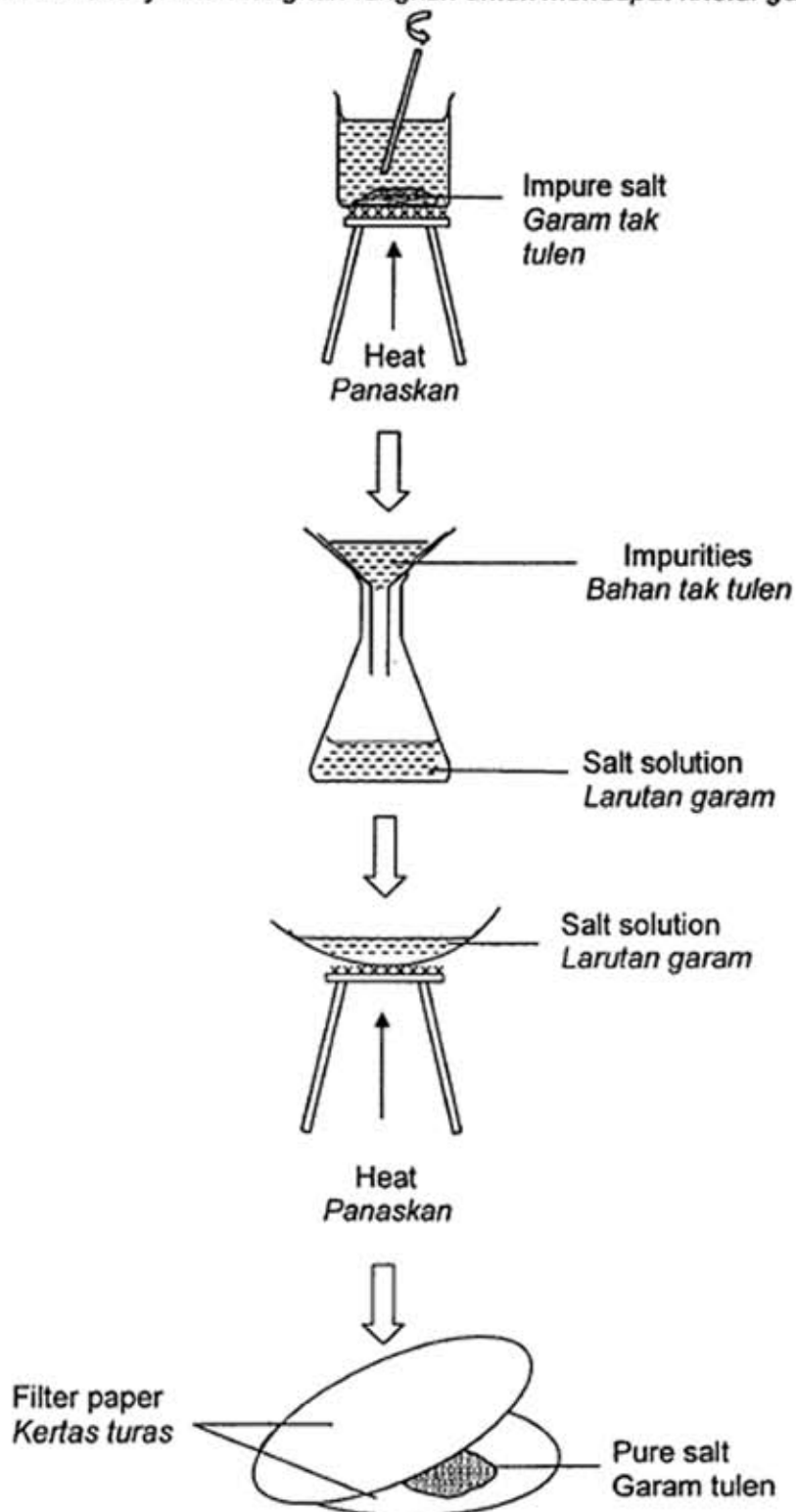


Diagram 11
Rajah 11

What is the name of the above process?

Apakah nama proses di atas?

- A Crystallisation
Penghabluran
- B Recrystallisation
Penghabluran semula
- C Precipitation
Pemendakan
- D Displacement
Penyesaran

34. Diagram 12 shows the arrangement of atom in alloy.

Rajah 12 menunjukkan susunan atom dalam aloi.

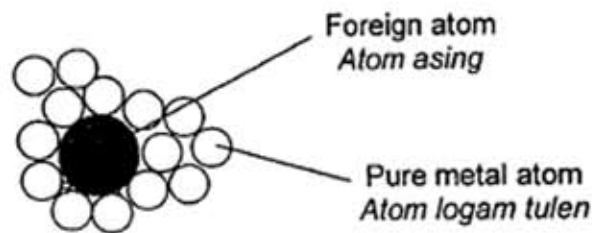


Diagram 12
Rajah 12

Which statement explains diagram 12 correctly?

Antara pernyataan berikut yang manakah menerangkan Rajah 12 dengan betul?

- A Foreign atoms form covalent bond with pure metal atoms
Atom asing membentuk ikatan kovalen dengan atom logam tulen.
- B Foreign atoms will not prevent the pure metal atoms from sliding.
Atom asing tidak dapat menghalang atom logam tulen mengelongsor antara satu sama lain.
- C Foreign atoms fill the empty spaces in pure metal atoms.
Atom asing memenuhi ruang antara atom logam tulen.
- D Foreign atoms will make the metals lighter.
Atom asing akan membuatkan logam itu lebih ringan.

35.

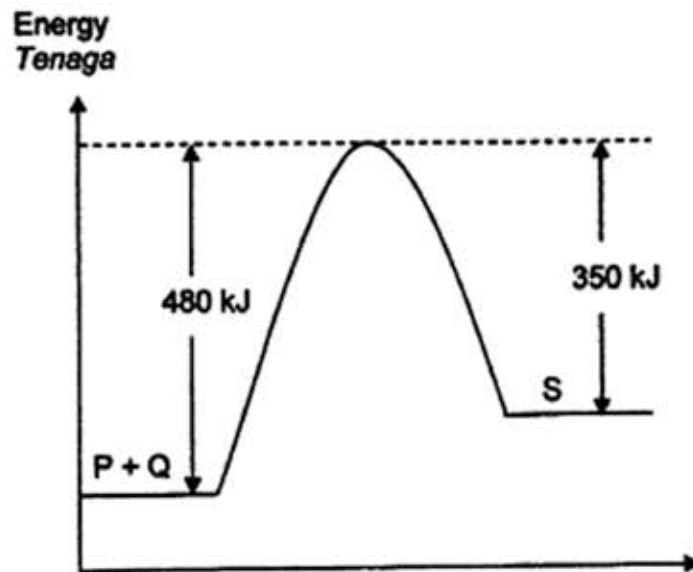


Diagram 13
Rajah 13

Diagram 13 shows an energy level for the reaction $P + Q \rightarrow S$. What is the activation energy for this reaction?

Rajah 13 menunjukkan aras tenaga untuk tindak balas $P + Q \rightarrow S$. Apakah tenaga pengaktifan untuk tindak balas ini?

- A 480 kJ mol^{-1}
 480 kJ mol^{-1}
- B 350 kJ mol^{-1}
 350 kJ mol^{-1}
- C 130 kJ mol^{-1}
 130 kJ mol^{-1}
- D 830 kJ mol^{-1}
 830 kJ mol^{-1}

SULIT

36. Which of the following steps shows how palm oil is extracted from oil palm fruits?

Antara berikut yang manakah menunjukkan langkah bagaimana minyak kelapa sawit diekstrakkan daripada buah kelapa sawit?

- I Sterilising the fruits
Mensterilkan buah
- II Separate oil from water
Mengasingkan minyak dari air
- III Separate the individual fruits from the bunches
Mengasingkan biji dari tandannya
- IV Pressing out the oil from the fruits
Menekan minyak keluar dari buah
- V Purifying the oil
Menuliskan minyak

- A II → IV → V → III → I
- B II → I → IV → IV → V
- C I → III → II → IV → V
- D I → III → V → II → IV

37. What is the oxidation number of sulphur in $S_2O_3^{2-}$?

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

- A +2
- B +3
- C +4
- D +6

38. The heat of combustion of ethanol is 1371 kJ mol^{-1} . The chemical reaction is given in the equation below.

Haba pembakaran etanol adalah 1371 kJ mol^{-1} . Tindak balas kimia ditunjukkan seperti persamaan di bawah.



If 6.9 g of ethanol is burnt in excess oxygen, how much is the heat released?

Jika 6.9 g etanol membakar dalam oksigen berlebihan, berapakah tenaga haba yang dibebaskan?

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

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

- A $9459.9 \text{ kJ mol}^{-1}$
- B $205.65 \text{ kJ mol}^{-1}$
- C $198.69 \text{ kJ mol}^{-1}$
- D 0.15 kJ mol^{-1}

39. Below are types of food additives, examples and their functions. Which of the following pair is **not true**?

Di bawah menunjukkan jenis bahan tambah dalam makanan, contoh dan fungsinya. Antara padanan berikut yang manakah tidak benar?

	Food Additives <i>Bahan Tambah Makanan</i>	Example <i>Contoh</i>	Functions <i>Fungsi</i>
A	Antioxidants <i>Pengantioksida</i>	Ascorbic acid <i>Asid askorbik</i>	To prevent oxidation that causes fruits to become brown. <i>Menghalang proses pengoksidaan yang menyebabkan buah menjadi perang</i>
B	Preservatives <i>Pengawet</i>	Sodium benzoate <i>Natrium benzoate</i>	To slow down or prevent the growth of microorganisms <i>Memperlahankan dan menghalang pembiakan mikroorganisma.</i>
C	Stabilizers <i>Penstabil</i>	Gelatine <i>Gelatin</i>	To prevent an emulsion from separating out. <i>Menghalang proses emulsi daripada berlaku.</i>
D	Dyes <i>Pewarna</i>	Tatrazine <i>Tatrazin</i>	To improve the taste of food and restore taste loss because of processing. <i>Meningkatkan rasa makanan dan menghalang rasa asal makanan hilang semasa proses pemprosesan dilakukan.</i>

40. Which of the following substances match the type of particles listed ?

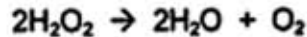
Antara bahan berikut yang manakah sepadan dengan jenis zarah yang disenaraikan ?

	Substances <i>Bahan</i>	Particle <i>Zarah</i>
I	Silver <i>Argentum</i>	Atom <i>Atom</i>
II	Ammonia <i>Ammonia</i>	Molecule <i>Molekul</i>
III	Sulphur trioxide <i>Sulfur trioksida</i>	Ion <i>Ion</i>
IV	Sodium nitrate <i>Natrium nitrat</i>	Ion <i>Ion</i>

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

41. The following equation shows the decomposition of hydrogen peroxide:

Persamaan kimia di bawah menunjukkan penguraian hidrogen peroksida:



Which of the following statement is correct when 1 mol of hydrogen peroxide decomposes at room condition?

Antara pernyataan berikut yang manakah benar apabila 1 mol hidrogen peroksida terurai dalam keadaan bilik?

[Relative atomic mass: O,16; H,1; 1 mol of gas occupies the volume of 24 dm³ at room condition]

[Jisim atom relatif : O,16; H,1; 1; 1 mol gas menempati isipadu 24 dm³ pada keadaan bilik]

- A 2 moles of water produced
2 molekul air terhasil
- B 1 molecule of oxygen gas is released
1 molekul gas oksigen dibebaskan
- C 12cm³ of oxygen gas released
12cm³ gas oksigen dibebaskan
- D 18g of water is produced
18g air terhasil
42. Element W is placed below element V in the same group in the Periodic Table. If the proton number of element V is 9, what is the electron arrangement of atom W?

Unsur W terletak di bawah unsur V dalam kumpulan yang sama dalam Jadual Berkala. Jika nombor proton bagi unsur V ialah 9, apakah susunan elektron bagi atom W?

- A 2.7
- B 2.8.7
- C 2.8.1
- D 2.8.8.1

43 The information below describe the properties of compound W.

Maklumat di bawah menghuraikan sifat-sifat sebatian W.

- Low melting and boiling points
Takat lebur dan takat didih rendah
- Does not conduct electricity
Tidak mengkonduksikan elektrik

Which of the following is compound W?

Antara berikut yang manakah ialah sebatian W?

- A Zinc chloride
Zink klorida
- B Sodium chloride
Natrium klorida
- C Carbon tetrachloride
Karbon tetraklorida
- D Magnesium chloride
Magnesium klorida

44 Diagram 14 shows the set up of apparatus for voltaic cell.

Rajah 14 menunjukkan susunan radas bagi sel voltan.

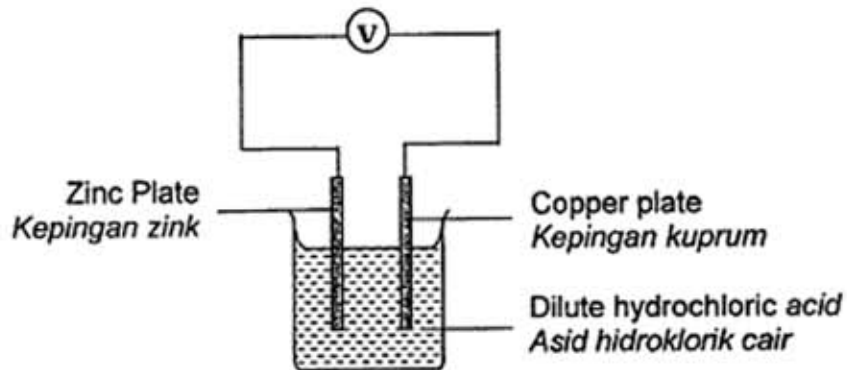


Diagram 14
Rajah 14

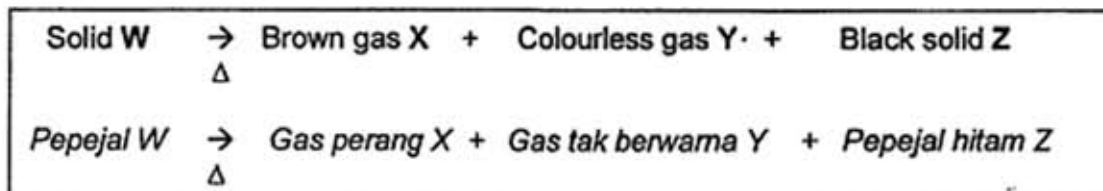
Which of the half equation represents the reactions at the positive and negative terminas?

Antara persamaan setengah berikut yang manakah mewakili tindakbalas di terminal positif dan terminal negatif?

	Positive terminal <i>Terminal positif</i>	Negative terminal <i>Terminal negatif</i>
A	$2\text{H}^+ + 2\text{e} \rightarrow \text{H}_2$	$\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}$
B	$\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}$	$\text{Cu}^{2+} + 2\text{e} \rightarrow \text{Cu}$
C	$\text{Cu} \rightarrow \text{Cu}^{2+} + 2\text{e}$	$\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}$
D	$\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}$	$2\text{H}^+ + 2\text{e} \rightarrow \text{H}_2$

45 Which of the following could be W, X, Y and Z?

Antara berikut yang manakah mungkin W, X, Y dan Z?



	W	X	Y	Z
A	Copper(II) oxide <i>Kuprum(II) oksida</i>	Nitrogen dioxide <i>Nitrogen dioksida</i>	Oxygen <i>Oksigen</i>	Copper <i>Kuprum</i>
B	Copper(II) nitrate <i>Kuprum(II) nitrat</i>	Nitrogen dioxide <i>Nitrogen dioksida</i>	Oxygen <i>Oksigen</i>	Copper(II) oxide <i>Kuprum(II) oksida</i>
C	Sodium nitrate <i>Natrium nitrat</i>	Nitrogen dioxide <i>Nitrogen dioksida</i>	Oxygen <i>Oksigen</i>	Sodium oxide <i>Natrium oksida</i>
D	Potassium nitrate <i>Kalium nitrat</i>	Nitrogen dioxide <i>Nitrogen dioksida</i>	Oxygen <i>Oksigen</i>	Potassium <i>Kalium</i>

46 Excess zinc powder is reacted with 100 cm³ of 0.1 mol dm⁻³ hydrochloric acid. Calculate the volume of gas produced at room condition.

Serbuk zink berlebihan ditindakbalaskan dengan 100 cm³ asid hidroklorik 0.1 mol dm⁻³. Hitung isipadu gas yang terhasil pada keadaan bilik.

[1 mole of gas occupies 24 dm³ at room condition]

[1 mol gas menempati 24 dm³ pada keadaan bilik]

- A 0.03 dm³
- B 0.06 dm³
- C 0.12 dm³
- D 0.24 dm³

47. Which of the following chemical fertilizer is the best fertilizer based on its percentage of nitrogen content?

Antara baja kimia berikut yang manakah paling baik berdasarkan peratus kandungan nitrogen?

[Relative atomic mass: N,14,Ca,40,O,16,H,1,S,32,P,31]
[Jisim atom relatif : N,14,Ca,40,O,16,H,1,S,32,P,31]

- A Calcium nitrate, $\text{Ca}(\text{NO}_3)_2$
Kalsium nitrat, $\text{Ca}(\text{NO}_3)_2$
- B Ammonium nitrate, NH_4NO_3
Ammonium nitrat, NH_4NO_3
- C Ammonium sulphate, $(\text{NH}_4)_2\text{SO}_4$
Ammonium sulfat, $(\text{NH}_4)_2\text{SO}_4$
- D Ammonium dihydrogen phosphate, $(\text{NH}_4)\text{H}_2\text{PO}_4$
Ammonium dihidrogen fosfat, $(\text{NH}_4)\text{H}_2\text{PO}_4$

48. Three experiments were conducted by a group of students to investigate the reaction between excess zinc and the acids as shown in the table below.

Tiga eksperimen telah dilakukan oleh sekumpulan pelajar untuk menyiasat tindakbalas di antara zink yang berlebihan dengan asid-asid seperti yang ditunjukkan dalam jadual.

Experiment <i>Eksperimen</i>	Hydrochloric acid <i>Asid hidroklorik</i>
P	25 cm ³ hydrochloric acid 2.0 mol dm ⁻³ 25 cm ³ asid hidroklorik 2.0 mol dm ⁻³
Q	50 cm ³ hydrochloric acid 1.5 mol dm ⁻³ 50 cm ³ asid hidroklorik 1.5 mol dm ⁻³
R	15 cm ³ sulphuric acid 1.5 mol dm ⁻³ 15 cm ³ asid sulfurik 1.5 mol dm ⁻³

Volume of carbon dioxide gas (cm³)
Isipadu gas karbon dioksida (cm³)

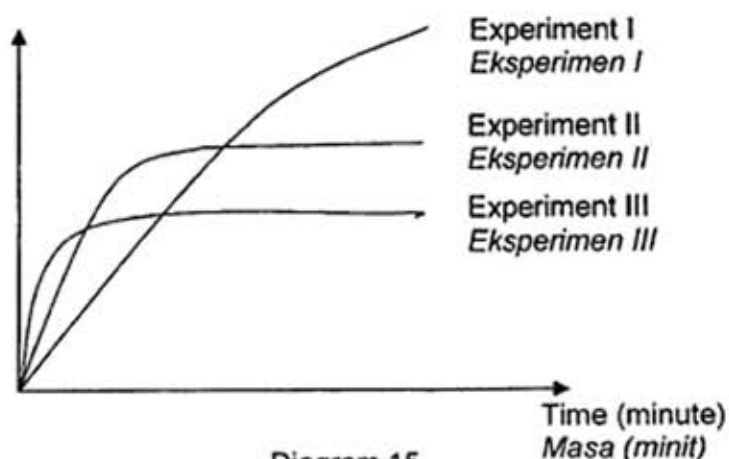


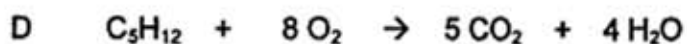
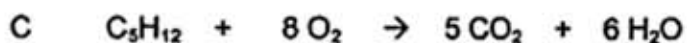
Diagram 15
Rajah 15

Which of the following represents the results of the experiments correctly?
Manakah di antara berikut mewakili keputusan-keputusan eksperimen dengan betul?

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

49. Which of the following chemical equation represent the complete combustion of propane?

Antara persamaan kimia berikut yang manakah mewakili pembakaran lengkap bagi propana?



- 50 Diagram 16 shows a set up of apparatus to investigate a redox reaction involving the transfer of electron at a distance.

Rajah 16 menunjukkan susunan radas untuk mengkaji tindak balas redoks yang melibatkan pemindahan elektron pada satu jarak

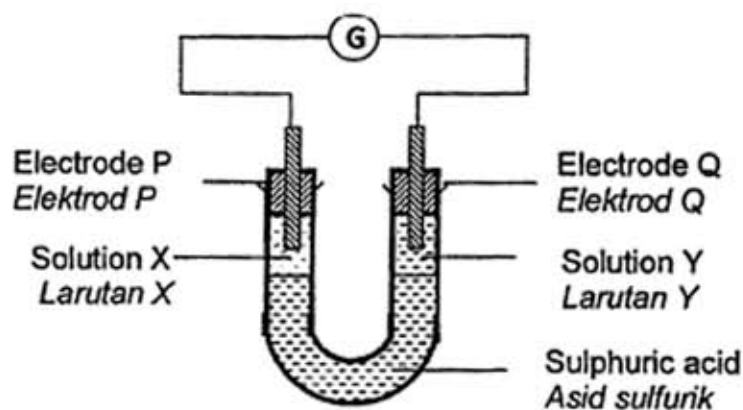


Diagram 16
Rajah 16

In diagram 16, electrons flow from electrode Q to electrode P. Which of the following show the correct solutions for X and Y?

Dalam rajah 16, elektron mengalir dari elektrod Q ke elektrod P. Yang mana antara berikut menunjukkan larutan yang betul untuk X dan Y?

	Solution X Larutan X	Solution Y Larutan Y
A	Acidified potassium manganate (VII) solution <i>Larutan kalium manganat (VII) berasid</i>	Potassium iodide <i>Kalium iodida</i>
B	Potassium bromide solution <i>Larutan kalium bromida</i>	Acidified potassium dichromate (VI) solution <i>Larutan kalium dikromat (VI) berasid</i>
C	Iron (II) sulphate solution <i>Larutan ferum (II) sulfat</i>	Bromine water <i>Air bromin</i>
D	Potassium iodide solution <i>Larutan kalium iodida</i>	Chlorine water <i>Air klorin</i>

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

**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 non-programmable scientific calculator.

Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.

**KERTAS SOALAN TAMAT
END OF QUESTION PAPER**