

- 21 Jadual 3 menunjukkan dua eksperimen yang dijalankan untuk mengkaji kadar tindak balas antara zink dengan asid hidroklorik yang membebaskan gas hidrogen.

Table 3 shows two experiments carried out to study the rate of reaction between zinc and hydrochloric acid that produces hydrogen gas.

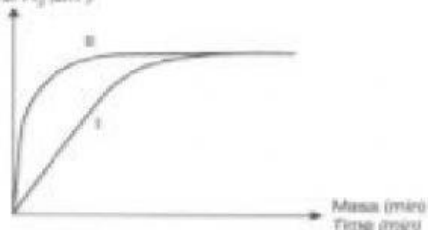
Eksperimen Experiment	Bahan Substances
I	Ketulan zink berlebihan + 100 cm ³ asid hidroklorik 0.5 mol dm ⁻³ <i>Excess zinc granules + 100 cm³ of 0.5 mol dm⁻³ hydrochloric acid</i>
II	Serbuk zink berlebihan + 25 cm ³ asid hidroklorik 1.0 mol dm ⁻³ <i>Excess zinc powder + 25 cm³ of 1.0 mol dm⁻³ hydrochloric acid</i>

Jadual 3 Table 3

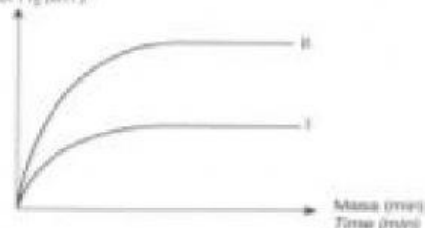
Antara berikut, yang manakah mewakili keputusan kedua-dua eksperimen itu?

Which of the following graphs represents the results for both experiments?

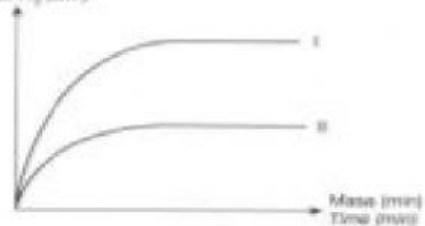
- A Isi padu H₂ (cm³)
Volume of H₂ (cm³)



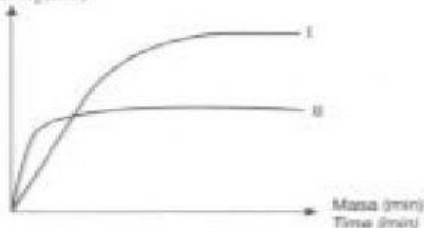
- B Isi padu H₂ (cm³)
Volume of H₂ (cm³)



- C Isi padu H₂ (cm³)
Volume of H₂ (cm³)



- D Isi padu H₂ (cm³)
Volume of H₂ (cm³)



- 22 Antara tindak balas berikut, yang manakah mempunyai kadar tindak balas yang paling rendah?
Which of the following reactions has the lowest rate of reaction?

- A Tindak balas antara asid hidroklorik dengan natrium hidroksida
The reaction between hydrochloric acid and sodium hydroxide
B Tindak balas antara larutan kalium iodida dengan larutan klorin
The reaction between potassium iodide solution and chlorine solution
C Tindak balas antara larutan argentum nitrat dengan larutan natrium klorida
The reaction between silver nitrate solution and sodium chloride solution
D Tindak balas antara larutan natrium tiosulfat dengan asid hidroklorik
The reaction between sodium thiosulphate solution and hydrochloric acid

- 23 Mangan(IV) oksida ditambah dalam tindak balas penguraian hidrogen peroksida sebagai mangkin. Antara berikut, yang manakah **tidak** benar tentang fungsi mangkin?

- Manganese(IV) oxide is added to the decomposition reaction of hydrogen peroxide as the catalyst. Which of the following is **not** true about the function of a catalyst?
A Mangkin adalah khusus dalam tindakannya.
A catalyst is specific in its action.
B Mangkin meningkatkan kuantiti hasil.
A catalyst increases the quantity of products.
C Mangkin tidak berubah selepas tindak balas.
A catalyst does not change after a reaction.
D Mangkin hanya diperlukan dalam kuantiti yang sedikit.
A catalyst is required only in a small amount.

- 24 Apakah kelebihan aloi berbanding dengan logam tulennya?

What are the advantages of an alloy compared to its pure metal?

LATIH TUBI KIMIA

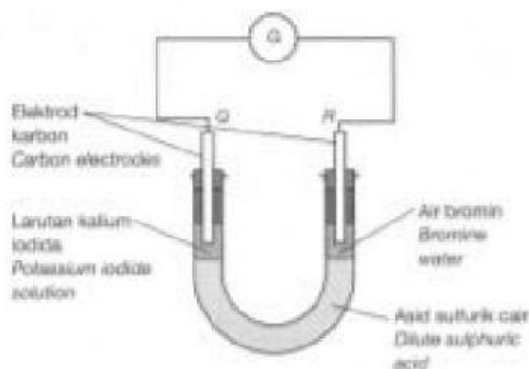
- I Alloi lebih lembut daripada logam tulennya.
An alloy is softer than its pure metal.
- II Alloi lebih ringan daripada logam tulennya.
An alloy is lighter than its pure metal.
- III Alloi lebih kuat daripada logam tulennya.
An alloy is stronger than its pure metal.
- IV Alloi lebih berkilat daripada logam tulennya apabila digosok.
An alloy is shinier than its pure metal when polished.
- A** I dan/and II **C** II dan/and III
B I dan/and IV **D** III dan/and IV

- 25 Bahan manakah yang ditambahkan dalam kaca soda kapur supaya kaca yang terhasil lebih tahan haba?

Which substance is added to soda lime glass so that the glass produced is more resistant to heat?

- A** Kalsium karbonat *Calcium carbonate*
B Natrium karbonat *Sodium carbonate*
C Natrium oksida *Sodium oxide*
D Kalsium oksida *Calcium oxide*

- 26 Rajah 5 menunjukkan susunan radas untuk mengkaji pemindahan elektron pada suatu jarak.
Diagram 5 shows the apparatus set-up to study the transfer of electrons at a distance.



Rajah 5 Diagram 5

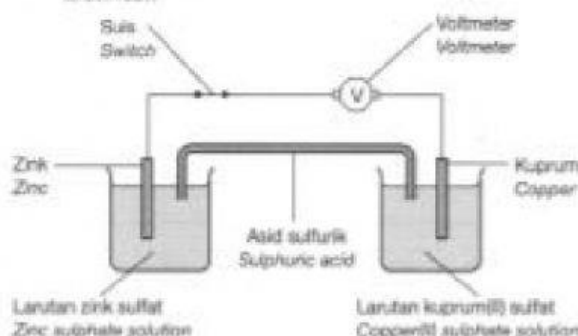
Antara berikut, yang manakah benar tentang tindak balas di atas?

Which of the following is true about the above reaction?

- A** Kalium iodida bertindak sebagai agen pengoksidaan
Potassium iodide acts the oxidising agent
- B** Elektron mengalir dari R ke Q
Electrons flow from R to Q
- C** Air bromin mengalami tindak balas penurunan
Bromine water undergoes a reduction reaction
- D** Nombor pengoksidaan iodin berkurang
The oxidation number of iodine is reduced

- 27 Rajah 6 menunjukkan satu sel Daniell. Antara berikut, yang manakah betul?

Diagram 6 shows a Daniell cell. Which of the following is correct?

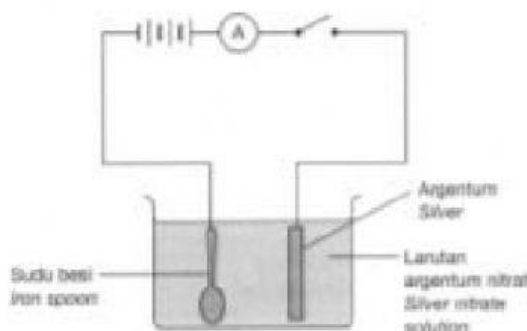


Rajah 6 Diagram 6

- A** Elektrod zink menjadi lebih tebal
The zinc electrode becomes thicker
- B** Elektrod kuprum larut dalam larutan
The copper electrode dissolves in the solution
- C** Elektron mengalir dari zink ke kuprum melalui litar dalam
Electrons flow from zinc to copper through the internal circuit
- D** Elektrod zink ialah terminal negatif manakala elektrod kuprum ialah terminal positif
The zinc electrode is the positive terminal whereas the copper electrode is the negative terminal

- 28 Rajah 7 menunjukkan susunan radas untuk mengkaji penyaduran sudu besi menggunakan kaedah elektrolisis.

Diagram 7 shows the apparatus set-up to study the electroplating of an iron spoon using the electrolysis method.



Rajah 7 Diagram 7

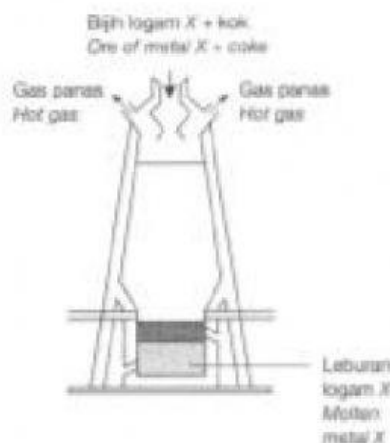
Manakah antara pasangan persamaan setengah berikut mewakili tindak balas yang berlaku di anod dan katod?

Which pair of the following half-equations represents the reactions that occur at the anode and cathode?

	Anod / Anode	Katod / Cathode
A	$\text{Ag} \rightarrow \text{Ag}^+ + \text{e}^-$	$\text{Ag}^+ + \text{e}^- \rightarrow \text{Ag}$
B	$\text{Ag} \rightarrow \text{Ag}^+ + \text{e}^-$	$2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$
C	$4\text{OH}^- \rightarrow 2\text{H}_2\text{O} + \text{O}_2 + 4\text{e}^-$	$2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$
D	$4\text{OH}^- \rightarrow 2\text{H}_2\text{O} + \text{O}_2 + 4\text{e}^-$	$\text{Ag}^+ + \text{e}^- \rightarrow \text{Ag}$

- 29 Rajah 8 menunjukkan relau yang digunakan untuk mengekstrak logam X daripada bijihnya.

Diagram 8 shows a blast furnace used to extract metal X from its ore.



Rajah 8 Diagram 8

Antara berikut, yang manakah logam X?

Which of the following is metal X?

- A Besi / Iron
B Kalsium / Calcium
C Plumbum / Lead

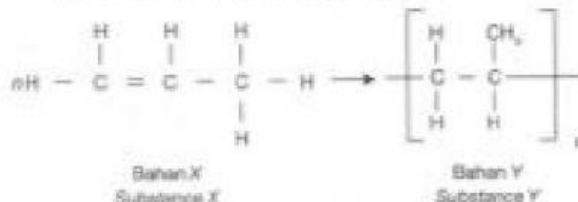
- 30 Pasangan formula am dan siri homolog yang manakah **tidak** betul?

Which of the following pairs of general formulae and homologue series is **not** correct?

	Formula am / General formula	Siri homolog / Homologue series
A	C_nH_n	Alkena / Alkenes
B	$\text{C}_n\text{H}_{2n+2}$	Alkana / Alkanes
C	$\text{C}_n\text{H}_{2n+1}\text{OH}$	Alkohol / Alcohols
D	$\text{C}_n\text{H}_{2n+2}\text{COOH}$	Asid karboksilik / Carboxylic acids

- 31 Rajah 9 menunjukkan persamaan penghasilan bahan Y daripada bahan X melalui proses pempolimeran.

Diagram 9 shows substance Y is obtained from substance X through polymerisation.



Rajah 9 Diagram 9

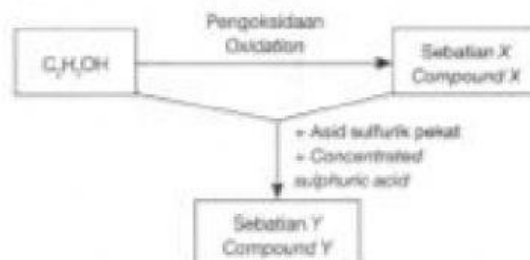
Antara sifat berikut, yang manakah serupa bagi bahan X dan Y?

Which of the following properties is similar for substances X and Y?

- A Ketumpatan / Density
B Takat lebur / Melting point
C Jenis ikatan kimia / Type of chemical bond
D Kekonduksian elektrik / Conductivity of electricity

- 32 Rajah 10 menunjukkan proses penghasilan sebatian Y.

Diagram 10 shows the process of producing compound Y.



Rajah 10 Diagram 10

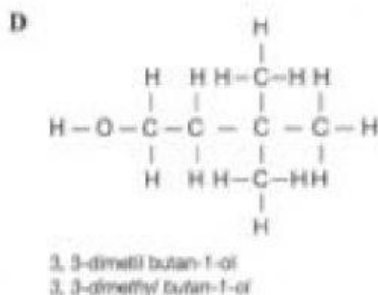
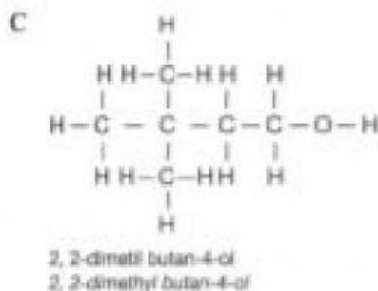
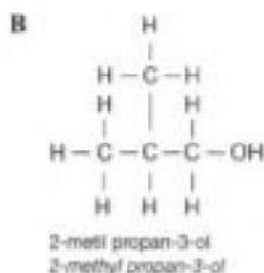
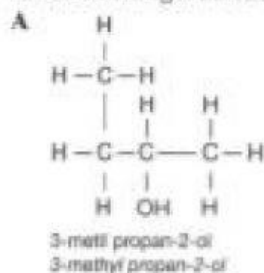
Bahan manakah boleh digunakan untuk membezakan antara sebatian X dan Y?

Which reagent can be used to differentiate between compounds X and Y?

- A Larutan ammonia akueus / Aqueous ammonia solution
B Air bromin / Bromine water
C Serbuk zink / Zinc powder
D Larutan natrium hidroksida / Sodium hydroxide solution

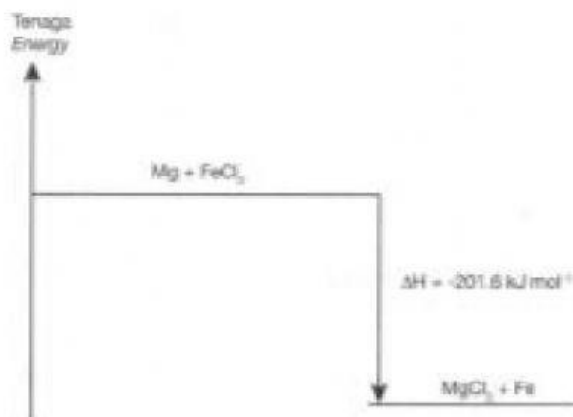
- 33 Formula struktur yang manakah dinamakan dengan betul mengikut sistem IUPAC?

Which of the following formula structures is correctly named according to the IUPAC system?



- 34 Satu eksperimen telah dijalankan dengan menambah serbuk magnesium berlebihan ke dalam larutan 50 cm³ ferum(II) klorida 0.25 mol dm⁻³. Rajah aras tenaga bagi tindak balas ini ditunjukkan dalam Rajah 11.

An experiment was carried out by adding excess magnesium powder into 50 cm³ iron(II) chloride solution 0.25 mol dm⁻³. The energy level diagram for this reaction is shown in Diagram 11.



Rajah 11 Diagram 11

Berapakah perubahan suhu tindak balas tersebut?

What is the change in temperature of the reaction?

[Muatan haba tentu air/Specific heat capacity of water = 4.2 J g⁻¹ °C⁻¹]

- A 1.0°C C 9.6°C
B 1.2°C D 12.0°C

- 35 Apabila sedikit pepejal ammonium klorida ditambah ke dalam 100 cm³ air, suhu campuran tersebut berkurang daripada 29°C kepada 22°C. Berapakah jumlah haba yang diserap dalam tindak balas ini?

When a small amount of solid ammonium chloride is added to 100 cm³ of water, the temperature of the mixture decreases from 29°C to 22°C. What is the total amount of heat absorbed in the reaction?

[Muatan haba tentu air/Specific heat capacity of water = 4.2 J g⁻¹ °C⁻¹]

- A 2940 J C 9240 J
B 5880 J D 12180 J

- 36 Persamaan ionik berikut mewakili tindak balas antara ferum dengan larutan kuprum(II) nitrat.

The following ionic equation represents the reaction between iron and copper(II) nitrate solution.



$$\Delta H = -150 \text{ kJ mol}^{-1}$$

Berapakah kenaikan suhu maksimum campuran jika 50 cm³ larutan kuprum(II) nitrat 0.2 mol dm⁻³ digunakan?

What is the maximum increase in temperature of the mixture if 50 cm³ of 0.2 mol dm⁻³ copper(II) nitrate solution is used?

- A 5.0°C C 14.2°C
B 7.1°C D 20.0°C

37 Bahan manakah polimer semula jadi?

Which substance is a natural polymer?

- A Nilon
Nylon
- B Perspeks
Perspex
- C Polipeptida
Polypeptide
- D Polivinil klorida
Polyvinyl chloride

38 Antara berikut, yang manakah berlaku apabila getah asli divulkan?

Which of the following happens when natural rubber is vulcanised?

- A Getah menjadi lebih lemah
The rubber becomes weaker
- B Takat lebur getah berkurang
The melting point of rubber decreases
- C Molekul-molekul getah menggelongsor lebih mudah di atas satu sama lain
Rubber molecules slide more easily over one another
- D Getah tervulkan lebih kenyal
Vulcanised rubber is more elastic

39 Pasangan ciri-ciri sabun dan detergen yang manakah betul?

Which pair of characteristics about soap and detergent is true?

	Sabun <i>Soap</i>	Detergen <i>Detergent</i>
A	Boleh terbiodegradasikan <i>Biodegradable</i>	Tidak terbiodegradasikan <i>Non-biodegradable</i>
B	Bahan mentah utama adalah petroleum <i>The main raw material is petroleum</i>	Bahan mentah utama adalah minyak sayuran <i>The main raw material is vegetable oil</i>
C	Tidak berkesan dalam air liat <i>Not effective in hard water</i>	Berkesan dalam air liat <i>Effective in hard water</i>
D	Mempunyai $-SO_3^-$ sebagai kumpulan hidrofilik <i>Has $-SO_3^-$ as its hydrophilic group</i>	Mempunyai $-COO^-$ sebagai kumpulan hidrofilik <i>Has $-COO^-$ as its hydrophilic group</i>

40 Air sisa terbahagi kepada air sisa domestik, air sisa daripada perindustrian dan air larian. Antara berikut, yang manakah bukan contoh air sisa?

Wastewater is divided into domestic wastewater, industrial wastewater and stormwater runoff. Which of the following is not an example of wastewater?

- A Minyak
Oil
- B Madu
Honey
- C Air detergen
Detergent water
- D Kulit pisang
Banana peel