



**MODUL PENINGKATAN PRESTASI TINGKATAN 5
TAHUN 2017
MAJLIS PENGETUA SEKOLAH MALAYSIA (KEDAH)**
<https://cikguadura.wordpress.com/>

**MODUL A 2017
CHEMISTRY**

4541/1

**Kertas 1
Ogos
1 1/4 jam**

JANGAN BUKA MODUL INI SEHINGGA DIBERITAHU

- 1. Kertas soalan ini adalah dalam dwibahasa.*
- 2. Soalan dalam Bahasa Inggeris mendahului soalan yang sepadan dalam Bahasa Melayu.*
- 3. Pilih jawapan yang terbaik dan hitamkan jawapan anda di atas kertas jawapan objektif yang disertakan.*

Kertas modul ini mengandungi 26 halaman bercetak

1 Which of these substances is a molecule?
Bahan manakah berikut yang merupakan suatu molekul?

- A Steam
Stim
- B Carbon
Karbon
- C Magnesium
Magnesium
- D Sodium chloride
Natrium klorida

2 **One mole** is defined as the amount of substance containing as many elementary entities (atoms, molecules, ions, electrons, radicals and etc.)

Satu mol didefinisikan sebagai sejumlah bahan yang mengandungi sebanyak entiti jirim asas (atom, molekul, ion, electron, radikal dan lain-lain).

Which of the following statements is true for one mol of substance?

Antara pernyataan berikut, yang manakah benar bagi satu mol bahan?

- A 1 mol of copper contains 6.02×10^{23} molecules
1 mol kuprum mengandungi 6.02×10^{23} molekul
- B 1 mol of oxygen gas contains 6.02×10^{23} atoms
1 mol gas oksigen mengandungi 6.02×10^{23} atom
- C 1 mol of water contains number of atoms equals to number of atoms in 12 g carbon-12
1 mol air mengandungi bilangan atom yang sama dengan bilangan atom dalam 12 g karbon-12
- D 1 mol of carbon dioxide contains number of molecules equals to number of atoms in 12 g carbon-12
1 mol karbon dioksida mengandungi bilangan molekul yang sama dengan bilangan atom dalam 12 g karbon-12

3 Which electron arrangement represents an alkaline earth metal?
Susunan elektron manakah mewakili suatu logam alkali bumi?

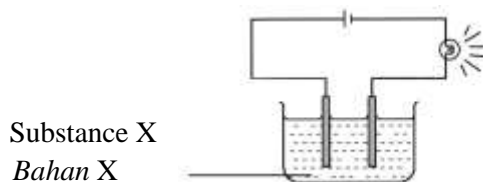
- A 2.8.1
- B 2.8.2
- C 2.8.3
- D 2.8.4

- 4 Element M and N are located in Group 2 and Group 16 in the Periodic Table respectively. Elements M reacts with element N to form a compound.
Unsur M dan unsur N masing-masing terletak dalam Kumpulan 2 dan Kumpulan 16 dalam Jadual Berkala. Unsur M bertindak balas dengan unsur N untuk membentuk suatu sebatian.

What is the chemical formula of the compound?
Apakah formula kimia bagi sebatian itu?

- A MN
- B MN_2
- C M_2N
- D M_2N_2

- 5 Diagram shows the set up of the apparatus for the electrolysis of substance X.
Rajah menunjukkan susunan radas bagi elektrolisis bahan X



Which of the following is true about substance X?
Yang manakah antara berikut benar tentang bahan X?

- A It conducts electricity in the solid state only.
Mengkonduksikan elektrik dalam keadaan pepejal sahaja
 - B It conducts electricity in the molten state only.
Mengkonduksikan elektrik dalam keadaan leburan sahaja
 - C It conducts electricity in the solid and molten state only.
Mengkonduksikan elektrik dalam keadaan pepejal dan leburan
 - D It conducts electricity in the molten state or in an aqueous solution
Mengkonduksikan elektrik dalam keadaan leburan atau larutan akueus
- 6 Which of the following substances has acidic properties?
Antara bahan berikut yang manakah bersifat asid?
- A Ammonia
Ammonia
 - B Potassium oxide
Kalium oksida
 - C Carbon dioxide
Karbon dioksida
 - D Sodium hydroxide
Natrium hidroksida

- 7 The main element exist in brass and bronze is
Unsur utama wujud dalam loyang dan gangsa ialah
- A copper
kuprum
 - B lead
plumbum
 - C zinc
zink
 - D tin
stanum
- 8 Which of the following reactions are fast reactions?
Antara tindakbalas berikut, yang manakah adalah tindakbalas cepat?
- I Respiration process
Proses respirasi
 - II Rusting of iron gates
Pengaratan pagar besi
 - III The burning of butane in air
Pembakaran butana dalam udara
 - IV A small piece of potassium is placed into water
Cebisan kecil kalium dimasukkan kedalam air
- 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
- 9 Latex can be maintained in liquid state by adding
Lateks dapat dikekalkan dalam keadaan cecair dengan menambah
- A acid
asid
 - B alkali
alkali
 - C alcohol
alkohol
 - D ester
ester

10 Which of the following process is a redox reaction?

Antara proses berikut yang manakah merupakan tindak balas redoks?

- A Precipitation
Pemendakan
- B Neutralisation
Peneutralan
- C Displacement
Penyesaran
- D Halogenation
Penghalogenan

11 Which of the following is an endothermic reaction?

Antara yang berikut yang manakah tindak balas endotermik?

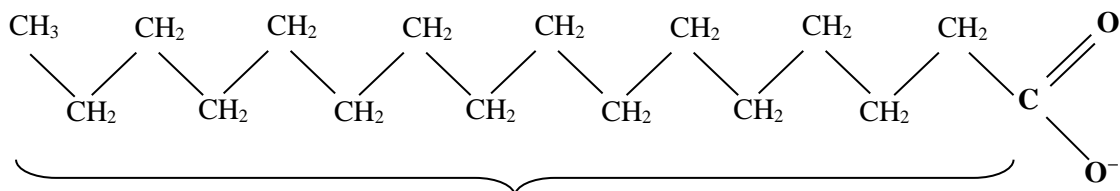
- A $\text{HNO}_3 + \text{NaOH} \rightarrow \text{NaNO}_3 + \text{H}_2\text{O}$
- B $\text{HCl} + \text{NaHCO}_3 \rightarrow \text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$
- C $\text{KCl} + \text{AgNO}_3 \rightarrow \text{AgCl} + \text{KNO}_3$
- D $\text{Mg} + \text{CuSO}_4 \rightarrow \text{MgSO}_4 + \text{Cu}$

12 The diagram shows the structural formula of a soap anion.

Which of the following statements is true about part A of the soap anion?

Rajah menunjukkan formula struktur bagi anion sabun.

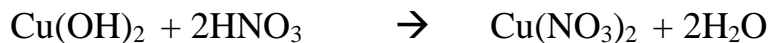
Antara pernyataan berikut yang manakah benar tentang bahagian A bagi anion sabun tersebut?



Part A
Bahagian A

- A Soluble in grease
Larut dalam gris
- B Hydrophilic part
Bahagian hidrofilik
- C This part is ion
Bahagian ini adalah ion
- D The part that react with calcium ions and magnesium ions to form scum
Bahagian yang bertindak dengan ion kalsium dan ion magnesium untuk membentuk kekat

- 13 The following equation represents a reaction.
Persamaan berikut mewakili satu tindak balas.

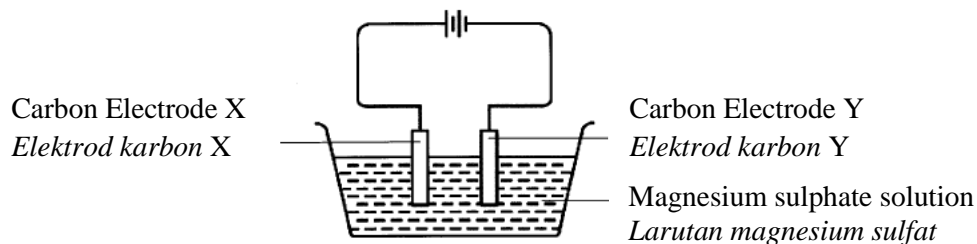


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What are the reactants in this equations?

Nyatakan bahan tindak balas dalam persamaan ini?

- A Copper(II) nitrate and water
Kuprum(II) nitrat dan air
- B Copper(II) nitrate and nitric acid
Kuprum(II) nitrat dan asid nitrik
- C Copper(II) hydroxide and nitric acid
Kuprum(II) hidroksida dan asid nitrik
- D Copper(II) hydroxide and copper(II) nitrate
Kuprum(II) hidroksida dan kuprum(II) nitrat
- 14 Diagram shows the apparatus set-up for the electrolysis of magnesium sulphate solution, MgSO_4
Rajah menunjukkan susunan alat radas bagi elektrolisis larutan magnesium sulfat, MgSO_4



What is formed at carbon electrode X?

Apakah yang terbentuk pada elektrod karbon X?

- A Hydrogen gas
Gas hidrogen
- B Oxygen
Oksigen
- C Sulphur dioxide
Sulfur dioksida
- D Magnesium
Magnesium

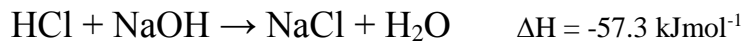
- 15 Which substance forms yellow precipitate when added to lead(II) nitrate solution?

Bahan manakah yang membentuk mendakan kuning apabila ditambah kepada larutan plumbum(II) nitrat?

- A Sodium chloride
Natrium klorida
- B Sodium carbonate
Natrium karbonat
- C Potassium iodide
Kalium iodida
- D Potassium sulphate
Kalium sulfat

- 16 The following equation represents the neutralization reaction.

Persamaan di bawah mewakili tindak balas peneutralan.



Which statement is correct about the reaction?

Pernyataan manakah yang betul mengenai tindak balas tersebut?

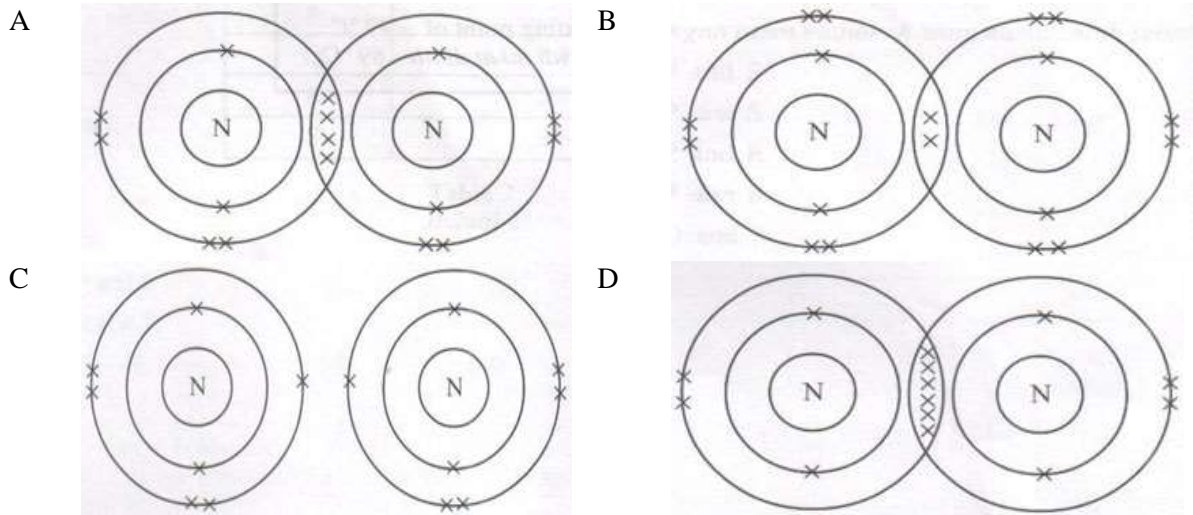
- A No heat is absorbed or released during bond breaking and bond formation
Tiada haba diserap atau dibebaskan semasa pemecahan ikatan dan pembentukan ikatan
- B The heat absorbed during bond breaking is more than the heat released during bond formation
Haba yang diserap semasa pemecahan ikatan adalah lebih daripada haba yang dibebaskan semasa pembentukan ikatan
- C The heat absorbed during bond breaking is equal to the heat released during bond formation
Haba yang diserap semasa pemecahan ikatan adalah sama dengan haba yang dibebaskan semasa pembentukan ikatan
- D The heat absorbed during bond breaking is less than the heat released during bond formation
Haba yang diserap semasa pemecahan ikatan adalah kurang daripada haba yang dibebaskan semasa pembentukan ikatan

17 Which diagram shows the electron arrangement for the nitrogen molecule, N_2 ?

[Proton number: $N=7$]

Rajah manakah menunjukkan susunan elektron bagi molekul nitrogen, N_2 ?

[Nombor proton: $N = 7$]



18 Which of the following actions will increase the initial rate of reaction between 3 g of small crushed marble chips and 25 cm³ of 1.0 mol dm⁻³ nitric acid?

Antara tindakan yang berikut, yang manakah akan menambah kadar tindak balas awal antara 3 g serpihan marmar yang kecil dan 25 cm³ asid nitrik 1.0 mol dm⁻³?

- A Add distilled water to the acid
Menambahkan air suling kepada asid.
- B Increase the volume of nitric acid
Meningkatkan isipadu asid nitrik
- C Add concentrated nitric acid to the reaction mixture
Menambahkan asid nitrik pekat kepada campuran tindak balas
- D Use 3 g of large pieces of marble chips to replace 3 g of small crushed marble chips
Menggunakan 3 g serpihan marmar yang besar untuk menggantikan 3 g serpihan marmar yang kecil

- 19 Which of the following reagents can change iodide ion to iodine?
Yang manakah antara reagen berikut dapat menukarkan ion iodida kepada iodin?

- I Bromine water
Air bromin
- II Iron(II) sulphate solution
Larutan ferum(II) sulfat
- III Lead(II) nitrate solution
Larutan plumbum(II) nitrat
- IV Acidified potassium dichromate(VI) solution
Larutan kalium dikromat(VI) berasid

- A I and II
I dan II
- B II and IV
II dan IV
- C I and IV
I dan IV
- D II and III
II dan III

- 20 Among these following diseases, which can be treated with streptomycin
Antara penyakit berikut, yang manakah boleh dirawat dengan streptomisin

- A Fever
Demam
- B Mental disorder
Gangguan mental
- C Feelings of anxiety
Perasaan kebimbangan
- D Bacterial infections
Jangkitan bakteria

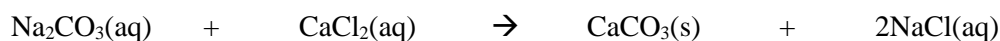
- 21 Table shows the boiling point and melting point of substances W, X, Y and Z.
Jadual menunjukkan takat didih dan takat lebur bagi bahan-bahan W, X, Y and Z.

Substance <i>Bahan</i>	Boiling point ($^{\circ}\text{C}$) <i>Takat didih ($^{\circ}\text{C}$)</i>	Melting point ($^{\circ}\text{C}$) <i>Takat lebur ($^{\circ}\text{C}$)</i>
W	258	187
X	160	140
Y	120	70
Z	17	8

Which substance is a liquid at 100°C ?
Bahan manakah adalah cecair pada suhu 100°C ?

- A W
 B X
 C Y
 D Z

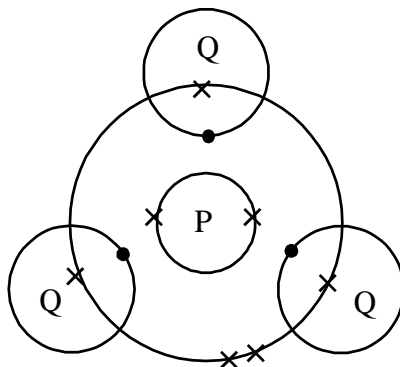
- 22 The following equation represents a chemical reaction.
Persamaan berikut mewakili satu tindak balas kimia.



Which statement is correct?
Penyataan manakah yang betul?

- A Two moles of sodium carbonate react with one mole of calcium chloride
Dua mol natrium karbonat bertindak balas dengan satu mol kalsium klorida
 B The products are calcium carbonate precipitate and sodium chloride solution
Hasil tindak balas ialah mendakan kalsium karbonat dan larutan natrium klorida
 C The reactants are solid sodium carbonate and calcium chloride solution
Bahan tindak balas ialah pepejal natrium karbonat dan larutan kalsium klorida
 D Two moles of calcium carbonate and one mole of sodium chloride are formed
Dua mol kalsium karbonat dan satu mol natrium klorida terbentuk.

- 23 Diagram shows the electrons arrangement in compound PQ_3 ?
Rajah menunjukkan susunan elektron dalam sebatian PQ_3 ?



Which elements are represented by P and Q?

[Proton number: H = 1, C = 6, N = 7, O = 8]

Unsur manakah yang diwakili oleh P dan Q?

[Nombor proton : H = 1, C = 6, N = 7, O = 8]

	P	Q
A	Carbon <i>Karbon</i>	Hydrogen <i>Hidrogen</i>
B	Carbon <i>Karbon</i>	Oxygen <i>Oksigen</i>
C	Nitrogen <i>Nitrogen</i>	Oxygen <i>Oksigen</i>
D	Nitrogen <i>Nitrogen</i>	Hydrogen <i>Hidrogen</i>

- 24 Alkali Y of concentration 1 mol dm^{-3} has a pH of 13. Which statement is true about alkali Y?
Alkali Y dengan kepekatan 1 mol dm^{-3} mempunyai pH 13. Pernyataan yang manakah benar tentang alkali Y?

- A Slightly soluble in water
Larut sedikit dalam air
- B Reacts only with a weak acid
Hanya bertindak balas dengan asid lemah.
- C Has a low concentration of hydroxide
Mempunyai kepekatan ion hidroksida yang rendah
- D The degree of ionisation in water is high
Darjah pengionan dalam air adalah tinggi

- 25 Table shows the observation in three tests on solution X
Jadual menunjukkan pemerhatian bagi tiga ujian ke atas larutan X

	Test <i>Ujian</i>	Observation <i>Pemerhatian</i>
I	Add sodium hydroxide solution until excess <i>Tambah larutan natrium hidroksida sehingga berlebihan</i>	White precipitate which dissolved in excess sodium hydroxide solution <i>Mendakan putih larut dalam larutan natrium hidroksida berlebihan</i>
II	Add ammonia solution until it excess <i>Tambah larutan amonia sehingga berlebihan</i>	White precipitate which insoluble in excess ammonia solution <i>Mendakan putih tak larut dalam larutan amonia berlebihan</i>
III	Add 2 cm ³ of dilute nitric acid and a few drops of silver nitrate solution. <i>Tambah 2 cm³ asid nitrik cair dan beberapa titik larutan argentum nitrat</i>	White precipitate formed <i>Mendakan putih terbentuk</i>

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What is X?

Apakah X?

- A Zink chloride
Zink klorida
- B Zink sulphate
Zink sulfat
- C Aluminium chloride
Aluminium klorida
- D Aluminium sulphate
Aluminium sulfat

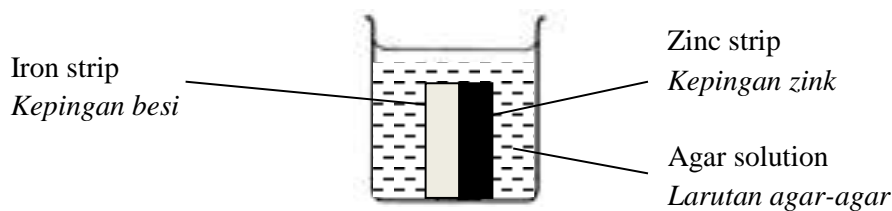
- 26 Diagram shows a product of polymer used during rain.
Rajah menunjukkan suatu barangan daripada polimer yang digunakan semasa hujan.



The monomer of the polymer is
Monomer bagi polimer itu adalah

- A** $\begin{array}{c} \text{H} \quad \text{H} \\ | \quad | \\ \text{C} = \text{C} \\ | \quad | \\ \text{H} \quad \text{H} \end{array}$
- B** $\begin{array}{c} \text{H} \quad \text{Cl} \\ | \quad | \\ \text{C} = \text{C} \\ | \quad | \\ \text{H} \quad \text{H} \end{array}$
- C** $\begin{array}{c} \text{H} \quad \text{H} \\ | \quad | \\ \text{C} = \text{C} \\ | \quad | \\ \text{H} \quad \text{CH}_3 \end{array}$
- D** $\begin{array}{c} \text{H} \quad \text{CH}_3 \\ | \quad | \\ \text{C} = \text{C} \\ | \quad | \\ \text{H} \quad \text{CH}_3 \end{array}$

- 27 Diagram below shows the set up of apparatus for an effect of metal on rusting
Rajah dibawah menunjukkan susunan radas untuk kesan pengaratan ke atas logam



Which of the following statements is true for the reaction?

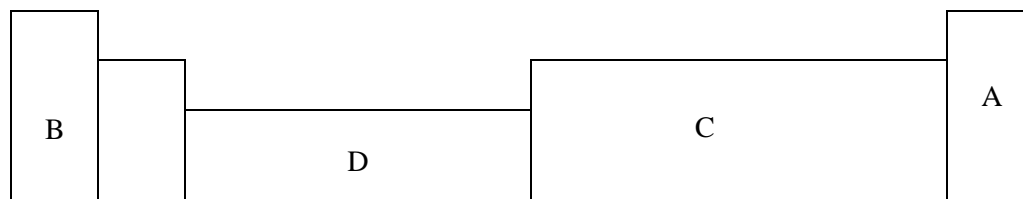
Antara pernyataan berikut, yang manakah benar mengenai tindak balas itu?

- A Iron is reduced
Ferum diturunkan
- B Iron is an oxidising agent
Ferum adalah agen pengoksidaan
- C Zinc releases electron
Zink membebaskan elektron
- D Oxidation number of zinc decreases
Nombor pengoksidaan zink berkurang
- 28 Diagram shows a ring.
Rajah menunjukkan sebarang cincin.

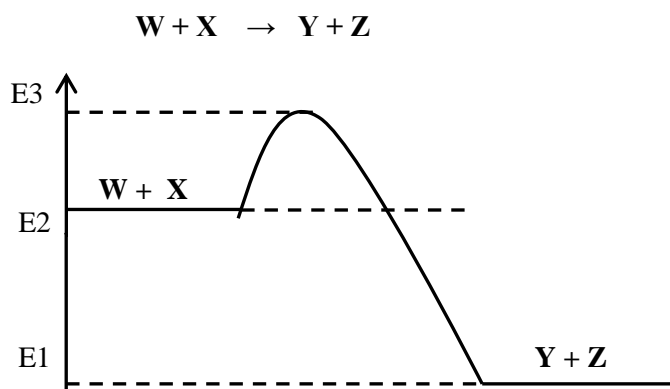


Which position of the Periodic Table shows the element that causes the colour of the stone?

Kedudukan manakah dalam Jadual Berkala menunjukkan unsur yang menyebabkan batu tersebut berwarna?

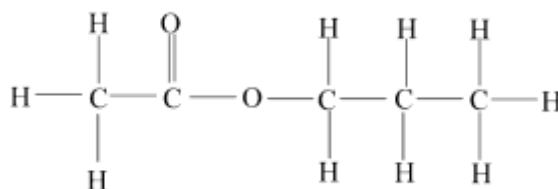


29. Diagram shows the energy profile for the following reaction:
Rajah menunjukkan profil tenaga bagi tindakbalas yang berikut:



E1, E2 and E3 represent different levels of energy respectively. If catalyst is used in the reaction, the rate of reaction will increase because the catalyst
E1, E2 dan E3, masing-masing mewakili aras-aras tenaga yang berbeza. Jika mungkin digunakan dalam tindakbalas ini, kadar tindakbalas akan bertambah kerana mungkin

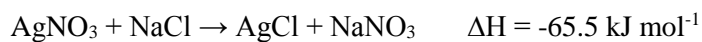
- A Increases E₁
Meningkatkan E₁
- B Decreases E₂
Mengurangkan E₂
- C Increases E₂
Meningkatkan E₂
- D Decreases E₃
Mengurangkan E₃
- 30 Diagram shows an ester.
Rajah menunjukkan suatu ester.



The reactants of the ester are
Bahan tindak balas bagi ester tersebut adalah

- I C₂H₅OH
 II C₃H₇OH
 III CH₃COOH
 IV C₂H₅COOH
- A I and III
 B I and IV
 C II and III
 D II and IV

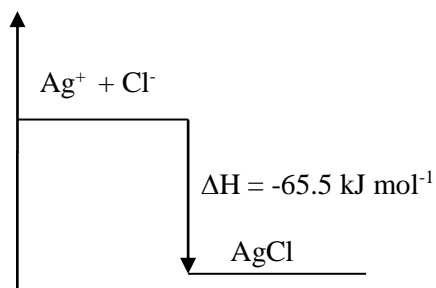
- 31 The following thermochemical equation represents a precipitation of silver chloride.
Persamaan termokimia di bawah mewakili tindakbalas pemendakan argentum klorida.



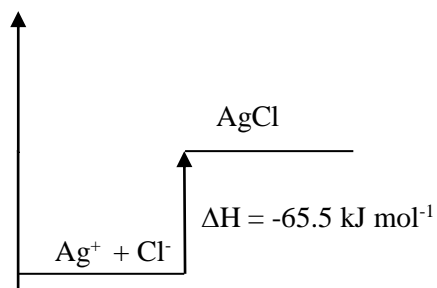
Which of the energy level diagram represents the reaction?

Antara gambar rajah aras tenaga berikut, yang manakah mewakili tindakbalas itu?

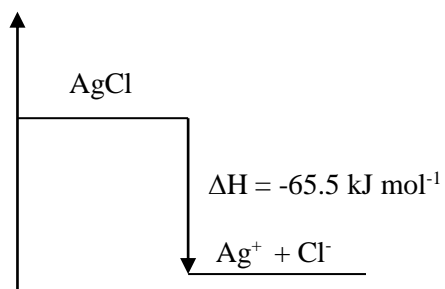
A Energy
Tenaga



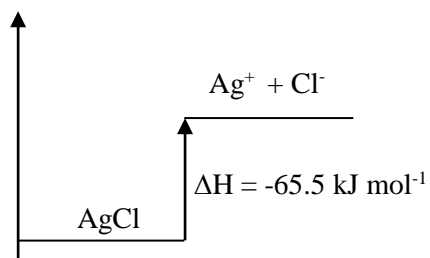
B Energy
Tenaga



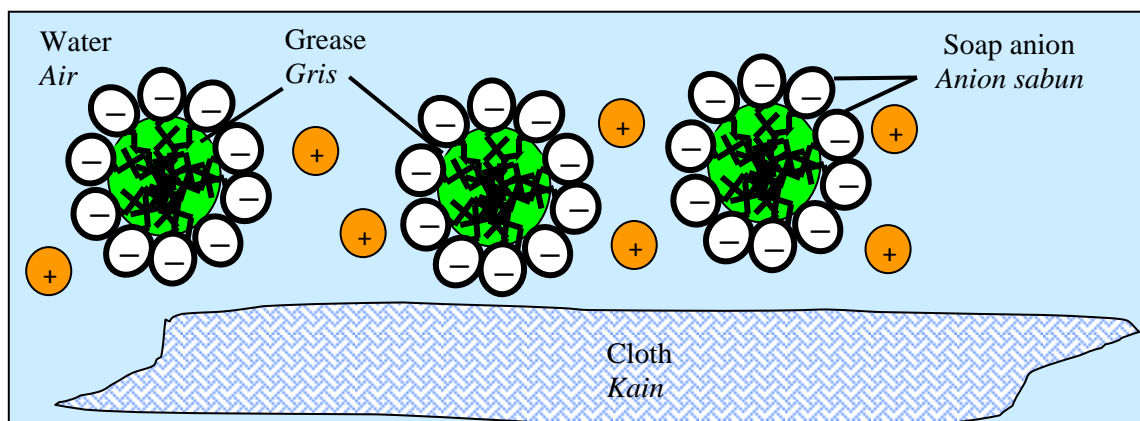
C Energy
Tenaga



D Energy
Tenaga



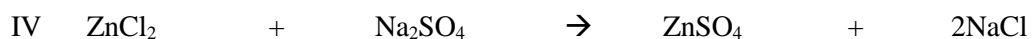
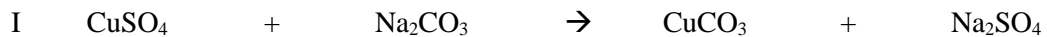
- 32 Diagram shows the cleansing action of soap.
Rajah menunjukkan tindakan pencucian sabun.



Based on the diagram, which explanation is true?

Berdasarkan rajah, pernyataan yang manakah benar?

- A Soap helps to pull the grease free
Sabun membantu menanggalkan gris
- B Soap reduces the surface tension of water
Sabun mengurangkan ketegangan permukaan air
- C Soap increases the wetting ability of water
Sabun meningkatkan keupayaan membasahi
- D Soap helps to hold the grease droplets in suspension
Sabun membantu mengapungkan titisan-titisan gris
- 33 Which equations represent double decomposition reactions?
Persamaan manakah yang mewakili tindakbalas penguraian ganda dua?



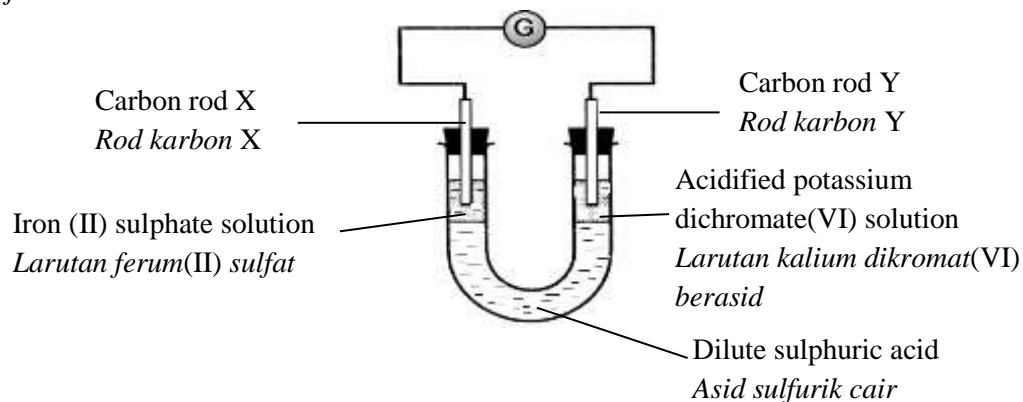
- A I and II
I dan II
- B I and III
I dan III
- C II and IV
II dan IV
- D III and IV
III dan IV

- 34 The table shows information about three simple cells.
Jadual menunjukkan maklumat tiga sel ringkas.

Pair of metals <i>Pasangan logam</i>	Potential difference/ V <i>Beza keupayaan / V</i>	Metal at negative terminal <i>Logam di terminal negatif</i>
P and Q <i>P dan Q</i>	0.45	P
R and Q <i>R dan Q</i>	1.30	R
S and Q <i>S dan Q</i>	0.56	Q

What is the potential difference of the pair of metals R and S?
Apakah beza keupayaan bagi pasangan logam R dan S?

- A 0.85 V
 B 1.86 V
 C 1.01 V
 D 2.31 V
- 35 Diagram shows the apparatus arrangement that is used to study the transfer of electrons at a distance.
Rajah menunjukkan susunan radas yang digunakan untuk mengkaji pemindahan elektron pada satu jarak.



What colours changes can be observed at the ends of carbon rod X and carbon rod Y at the end of the experiment?

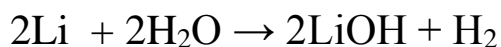
Apakah perubahan warna yang dapat diperhatikan di hujung rod karbon X dan rod karbon Y pada akhir eksperimen itu.

	Rod X	Rod Y
A	Green to Yellow <i>Hijau ke Kuning</i>	Purple to Colourless <i>Ungu ke Tidak berwarna</i>
B	Green to Yellow <i>Hijau ke Kuning</i>	Orange to Green <i>Perang ke Hijau</i>
C	Yellow to Green <i>Kuning ke Hijau</i>	Orange to Green <i>Perang ke Hijau</i>
D	Yellow to Green <i>Kuning ke Hijau</i>	Purple to Colourless <i>Ungu ke tidak berwarna</i>

- 36 What is the oxidation number of the chromium element in potassium dichromate(VI), $K_2Cr_2O_7$?
Berapakah nombor pengoksidaan bagi unsur kromium dalam kalium dikromat(VI), $K_2Cr_2O_7$?

A +2
B +3
C +5
D +6

- 37 The equation shows the reaction between lithium and water.
Persamaan menunjukkan tindak balas antara litium dan air.



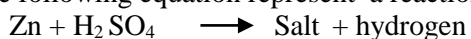
How many moles of hydrogen gas produced if 0.25 mol of lithium is used?
Berapakah bilangan mol gas hidrogen terhasil jika 0.25 mol litium telah digunakan?

A 0.125
B 0.250
C 0.500
D 1.000

- 38 The molarity of a solution of nitric acid is 2.0 mol dm^{-3} .
What is the concentration of the acid in g dm^{-3} ?
[Relative atomic mass : H=1, N = 14, O = 16]
*Kemolaran suatu larutan asid nitrik, ialah 2.0 mol dm^{-3} .
Berapakah kepekatan asid itu dalam g dm^{-3} ?
[Jisim atom relatif : H=1, N = 14, O = 16]*

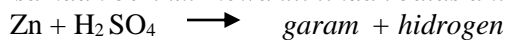
A 63
B 64
C 124
D 126

- 39 The following equation represent a reaction between zinc metal and sulphuric acid.



What is the name of salt and its solubility in water?

Persamaan berikut mewakili tindak balas antara asid hidroklorik dan larutan kalsium hidroksida.

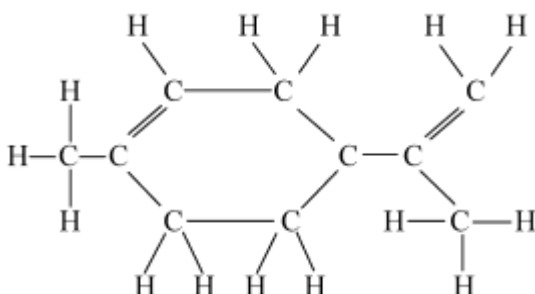


Apakah nama garam dan keterlarutannya dalam air?

	Name of salt <i>Nama garam</i>	Solubility in water <i>Keterlarutan dalam air</i>
A	Zink sulphate <i>Zink sulfat</i>	Soluble <i>Larut</i>
B	Zink oxide <i>Zink oksida</i>	Insoluble <i>Tidak larut</i>
C	Zink oxide <i>Zink oksida</i>	Soluble <i>Larut</i>
D	Zink sulphate <i>Zink sulfat</i>	Insoluble <i>Tidak larut</i>

- 40 The molecular structure of limonene which is extracted from oranges is shown below:

Struktur molekul limonena yang diekstrak daripada buah limau ditunjukkan di bawah:



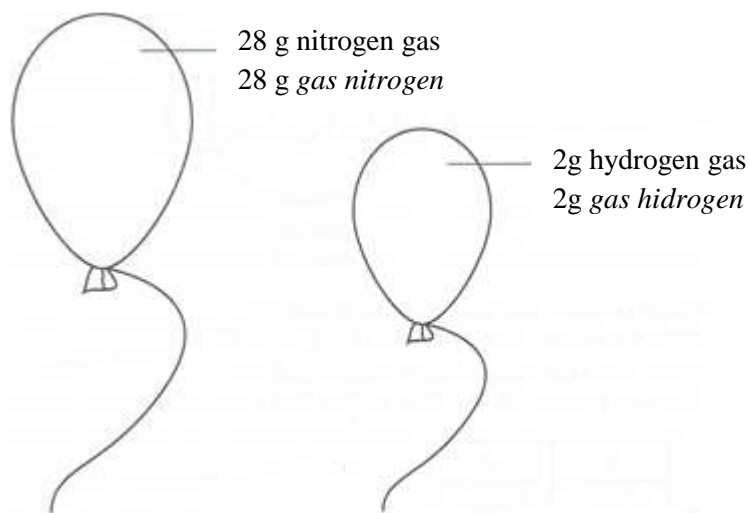
How many mol of bromine molecule react completely with 1 mol of limonene during addition reaction?

Berapakah bilangan mol molekul bromin yang bertindak balas lengkap dengan 1 mol limonene semasa tindak balas penambahan?

- A 1
B 2
C 3
D 4
- 41 What is the oxidation number of chlorine in sodium chlorate, NaClO_3 ?
Apakah nombor pengoksidaan klorin dalam natrium klorat, NaClO_3 ?

- A +3
B +4
C +5
D +6

- 42 Diagram shows two types of gases filled in two balloons.
Rajah menunjukkan dua jenis gas yang diisi ke dalam dua biji belon.



Which statement is correct about the number of particles in nitrogen gas?

[Relative atomic mass : H = 1, N = 14]

Pernyataan manakah yang betul tentang bilangan zarah dalam gas nitrogen?

[*Jisim atom relatif: H = 1, N = 14*]

- A Same as in hydrogen gas
Sama seperti dalam gas hidrogen
- B More than in hydrogen gas
Lebih banyak daripada dalam gas hidrogen
- C Two times more than in hydrogen gas
Dua kali lebih banyak daripada dalam gas hidrogen
- D 14 times more than in hydrogen gas
14 kali lebih banyak daripada dalam gas hidrogen

- 43 Diagram shows the symbols for four different elements. The letters M, N, P, and Q are not the actual symbols of the elements.

Rajah menunjukkan symbol bagi empat unsur yang berlainan. Huruf-huruf M, N, P, dan Q bukan simbol sebenar bagi unsur-unsur itu.

23 11	M	16 8	N	24 12	P	35 17	Q
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Which is the correct formula and type of bond when two elements react?

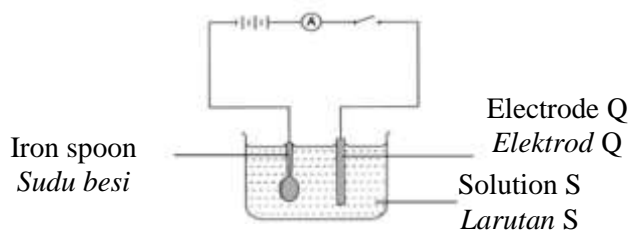
Formula dan jenis ikatan manakah yang betul apabila dua daripada unsur-unsur itu bertindakbalas?

	Formula <i>Formula</i>	Type of bond <i>Jenis Ikatan</i>
A	M ₂ N	Ionic <i>Ion</i>
B	MN ₂	Covalent <i>Kovalen</i>
C	P ₂ Q	Ionic <i>Ion</i>
D	PQ ₂	Covalent <i>Kovalen</i>

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- 44 The diagram shows the set-up of the apparatus for an experiment to electroplate an iron spoon with electrode X.

Rajah menunjukkan susunan radas bagi satu eksperimen untuk menyadur sudu besi dengan elektrod X.



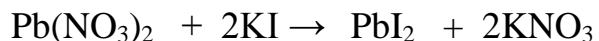
Which pair is suitable for electrode Q and solution S?

Pasangan yang manakah sesuai bagi elektrod Q dan larutan S?

	Electrode Q <i>Elektrod Q</i>	Solution S <i>Larutan S</i>
A	Silver plate <i>Kepingan argentum</i>	Silver nitrate <i>Argentum nitrat</i>
B	Silver plate <i>Kepingan argentum</i>	Copper(II) nitrate <i>Kuprum(II) nitrat</i>
C	Pure Copper <i>Kuprum tulen</i>	Silver nitrate <i>Argentum nitrat</i>
D	Pure Copper <i>Kuprum tulen</i>	Nickel(II) nitrate <i>Nikel(II) nitrat</i>

- 45 The following chemical equation shows the reaction between potassium iodide solution and lead(II) nitrate solution:

Persamaan kimia berikut menunjukkan tindak balas antara larutan kalium iodida dan larutan plumbum(II) nitrat:



Calculate the maximum mass of precipitate formed when excess potassium iodide solution is added to 50 cm³ of 0.2 mol dm⁻³ lead(II) nitrate solution.

[Relative atomic mass: Pb = 207, I = 127, K = 39, N = 14, O = 16]

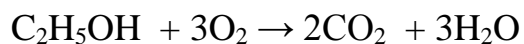
Hitungkan jisim maksimum mendakan yang terbentuk apabila larutan kalium iodida berlebihan ditambah ke dalam 50 cm³ larutan plumbum(II) nitrat 0.2 mol dm⁻³.

[Jisim atom relatif: Pb = 207, I = 127, K = 39, N = 14, O = 16]

- A 1.01 g
- B 3.03 g
- C 4.61 g
- D 9.22 g

- 46 The equation below shows combustion of ethanol.

Persamaan di bawah menunjukkan pembakaran etanol.



Calculate the volume of carbon dioxide gas produced if 0.1 mol of ethanol is burnt completely.

[1 mol of gas occupied 24 dm³ at room temperature]

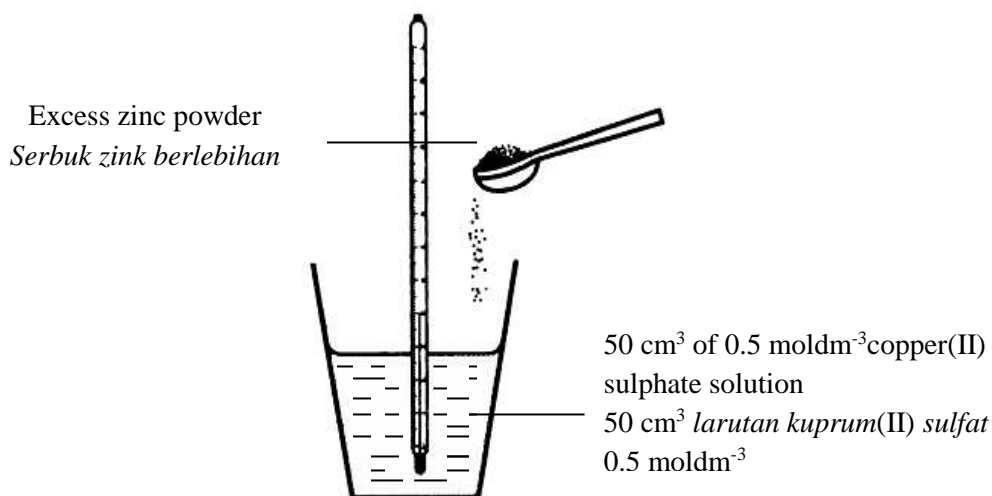
Hitungkan isipadu gas karbon dioksida yang terhasil jika 0.1 mol etanol dibakar lengkap.

[1 mol gas menempati 24 dm³ pada suhu bilik]

- A 2.4 dm³
- B 4.8 dm³
- C 24 dm³
- D 48 dm³

- 47 Diagram shows the set-up of apparatus of an experiment to determine the heat of displacement for the reaction between copper(II) sulphate solution and excess zinc powder.

Rajah menunjukkan susunan radas bagi suatu eksperimen untuk menentukan haba penyesaran bagi tindakbalas di antara larutan kuprum(II) sulfat dan serbuk zink berlebihan.



The results are as follows:

Keputusan adalah seperti berikut

Initial temperature of copper (II) sulphate solution = 28.5 °C

Suhu awal bagi larutan kuprum(II) sulfat

Highest temperature of the mixture = 33.5 °C

Suhu tertinggi bagi campuran

[Heat capacity of water : 4.2 Jg⁻¹°C⁻¹. Relative atomic mass: O=16, S=32, Cu=64, Zn=65]

[*Muatan haba tentu air : 4.2 Jg⁻¹°C⁻¹ . Jisim atom relatif: O=16, S=32, Cu=64, Zn=65*]

What is the heat of displacement in this experiment?

Berapakah haba penyesaran dalam eksperimen ini?

- A - 10.5 kJ mol⁻¹
- B - 42.0 kJ mol⁻¹
- C + 10.5 kJ mol⁻¹
- D + 42.0 kJ mol⁻¹

48



A student discovered that a green apple that was cut into two pieces turned brown after 15 minutes.

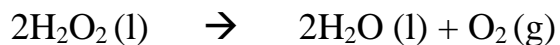
Which of the following substances should be added to prevent the browning of apple?

Seorang pelajar mendapati bahawa sebiji epal hijau yang telah dipotong dua bertukar perang selepas 15 minit.

Manakah antara bahan berikut yang harus diletakkan untuk menghalang epal yang dipotong menjadi perang?

- A Salt
Garam
- B Ascorbic acid
Asid askorbik
- C Gelatine
Gelatin
- D Azo compound
Sebatian Azo

- 49 The following equation shows the decomposition of hydrogen peroxide, H_2O_2 .
Persamaan berikut menunjukkan penguraian bagi hidrogen peroksida, H_2O_2 .



What is the volume of oxygen gas, O_2 produced from the decomposition of 250 cm^3 of 4 mol dm^{-3} hydrogen peroxide at standard temperature and pressure (STP)?

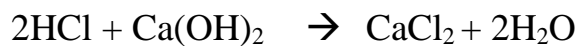
Berapakah isipadu gas oksigen, O_2 terhasil daripada penguraian 250 cm^3 hidrogen peroksida 4 mol dm^{-3} pada suhu dan tekanan piawai (STP)?

[Isipadu molar gas pada STP = $22.4 \text{ dm}^3 \text{ mol}^{-1}$]

- A 11.2 dm^3
- B 22.4 dm^3
- C 33.6 dm^3
- D 44.8 dm^3

- 50 The following equation represent the reaction between hydrochloric acid and calcium hydroxide solution.

Persamaan berikut mewakili tindak balas antara asid hidroklorik dan larutan kalsium hidroksida.



20.0 cm³ of 0.1 mol dm⁻³ hydrochloric acid is neutralised by 50.0 cm³ of calcium hydroxide solution?

What is the molarity of the calcium hydroxide solution?

20.0 cm³ asid hidroklorik 0.1 mol dm⁻³ dineutralkan oleh 50.0 cm³ larutan kalsium hidroksida.

Berapakah kemolaran larutan kalsium hidroksida?

- A 0.020 mol dm⁻³
- B 0.040 mol dm⁻³
- C 0.125 mol dm⁻³
- D 0.250 mol dm⁻³

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END OF QUESTION PAPER
KERTAS SOALAN TAMAT