

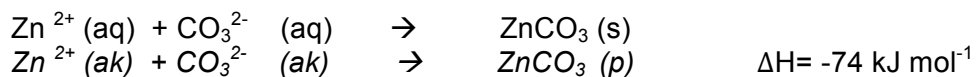
- 1 Diagram 1 shows the symbol of an element.  
*Rajah 1 menunjukkan simbol bagi suatu unsur.*



Diagram 1  
*Rajah 1*

What is the proton number of the element?  
*Apakah nombor proton bagi unsur ini?*

- A 13  
 B 14  
 C 27  
 D 40
- 2 The following chemical equation shows the reaction of the formation of zinc carbonate precipitate.  
*Persamaan kimia berikut menunjukkan tindak balas pembentukan mendakan zink karbonat.*



Which of the following is true about the reaction ?  
*Manakah antara berikut benar tentang tindak balas tersebut ?*

	Heat change <i>Perubahan haba</i>	Type of reaction <i>Jenis tindakbalas</i>
A	Heat is released <i>Haba dibebaskan</i>	Exothermic <i>Eksotermik</i>
B	Heat is released <i>Haba dibebaskan</i>	Endothermic <i>Endotermik</i>
C	Heat is absorbed <i>Haba diserap</i>	Exothermic <i>Eksotermik</i>
D	Heat is absorbed <i>Haba diserap</i>	Endothermic <i>Endotermik</i>

- 3 Diagram 2 shows an experiment to electroplate an iron spoon with copper.  
*Rajah 2 menunjukkan satu eksperimen untuk meyadurkan sudu besi dengan kuprum.*

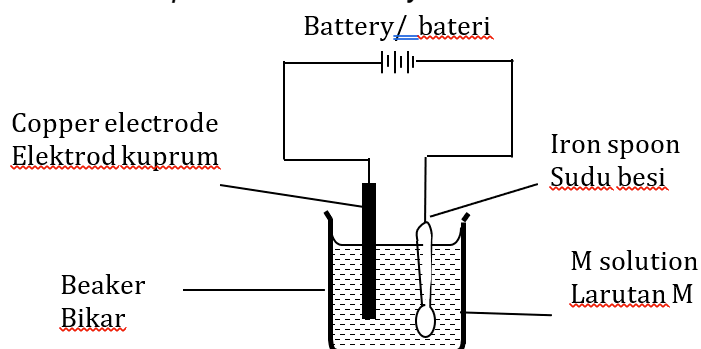


Diagram 2  
*Rajah 2*

Which of the following is the best solution for electrolyte M?  
*Manakah di antara berikut adalah larutan yang terbaik untuk elektrolit M?*

- A Iron(II) carbonate  
*Ferum (II) karbonat*
  - B Iron(II) sulphate solution  
*Larutan ferum(II) sulfat*
  - C Copper (II) carbonate  
*Kuprum (II) karbonat*
  - D Copper (II) sulphate solution  
*Larutan kuprum (II) sulfat*
- 4 Which statement is **correct** about acid?  
*Pernyataan manakah betul tentang asid?*
- I Acid contains hydroxide ions  
*Asid mengandungi ion hidroksida*
  - II Acid reacts with base to produce salt and water  
*Asid bertindak balas dengan bes menghasilkan garam dan air.*
  - III Acid produces hydroxide ions when ionises in water.  
*Asid menghasilkan ion hidroksida apabila mengion dalam air.*
  - IV Acid reacts with metal carbonates to produce salt, water and carbon dioxide.  
*Asid bertindak balas dengan logam karbonat menghasilkan garam, air dan karbon dioksida.*
- A I and II  
*I dan II*
  - B I and IV  
*I dan IV*
  - C II and III  
*II dan III*
  - D II and IV  
*II dan IV*

5 Which of the following salts can be prepared by precipitation reaction?  
*Manakah antara berikut garam yang boleh disediakan dengan kaedah pemendakan?*

- A Lead (II) nitrate  
*Plumbum (II) nitrat*
- B Copper (II) chloride  
*Kuprum (II) klorida*
- C Zinc sulphate  
*Zink sulfat*
- D Barium sulphate  
*Barium sulfat*

6 Diagram 3 shows a cockle shell which contains natural ionic compound.  
*Rajah 3 menunjukkan suatu cengkerang yang mengandungi sebatian ion semulajadi.*



Diagram 3  
*Rajah 3*

Other than oxygen, what elements can be found in the ionic compounds?  
*Selain oksigen, apakah unsur-unsur yang terkandung dalam sebatian ion itu?*

- A Calcium and carbon  
*Kalsium dan karbon*
- B Calcium and hydrogen  
*Kalsium dan hidrogen*
- C Sodium and carbon  
*Natrium dan karbon*
- D Sodium and hydrogen  
*Natrium dan hidrogen*

- 7 Diagram 4 shows the particles arrangement of a substance at room temperature.  
*Rajah 4 menunjukkan susunan zarah-zarah suatu bahan pada suhu bilik.*

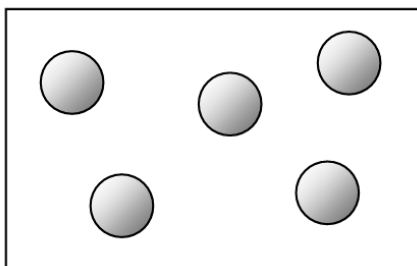


Diagram 4  
*Rajah 4*

What is the substance?  
*Apakah bahan itu?*

- A Helium  
*Helium*
  - B Water  
*Air*
  - C Chlorine  
*Klorin*
  - D Nitrogen  
*Nitrogen*
- 8 Diagram 5 shows the electron arrangement of T atom.  
*Rajah 5 menunjukkan rajah susunan elektron untuk atom T.*

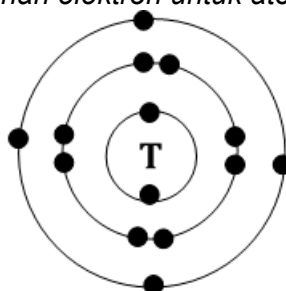


Diagram 5  
*Rajah 5*

Which of the following is the correct position of element T in the periodic table?  
*Manakah di antara berikut adalah kedudukan unsur T di dalam Jadual Berkala?*

	Group <i>Kumpulan</i>	Period <i>Kala</i>
A	4	3
B	3	4
C	14	3
D	3	14

9 Which of the following properties does show that an alloy is better than its pure metal form?

*Manakah antara sifat berikut yang menunjukkan bahawa aloi adalah lebih baik daripada logam tulennya?*

- A Softer  
*Lebih lembut*
- B More corrosion resistant  
*Lebih tahan kakisan*
- C More ductile  
*Lebih mulur*
- D Weaker  
*Lebih lemah*

10 Which of the following unit is incorrect to measure rate of reaction?

*Manakah antara unit berikut adalah tidak benar untuk mengukur kadar tindak balas?*

- A  $\text{cm}^3 \text{s}^{-1}$
- B  $\text{g s}^{-1}$
- C  $\text{mol min}^{-1}$
- D  $\text{mol dm}^{-3}$

11 What are the products formed when ethene is burnt in excess oxygen?

*Apakah bahan yang terhasil apabila etena terbakar dalam oksigen berlebihan?*

- I Water  
*Air*
  - II Carbon  
*Karbon*
  - III Carbon dioxide  
*Karbon dioksida*
  - IV Carbon monoxide  
*Karbon monoksida*
- 
- 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*

- 12 Table 1 shows the electron arrangement of element S and T.  
*Jadual 1 menunjukkan susunan elektron bagi unsur S dan T.*

Element S <i>Unsur S</i>	Element T <i>Unsur T</i>
2.4	2.6

Table 1  
*Jadual 1*

What is the formula and the type of bond of the compound formed from the reaction between S and T?

*Apakah formula dan jenis ikatan bagi sebatian yang terbentuk daripada tindak balas antara S dan T?*

	Formula <i>Formula</i>	Type of bond <i>Jenis ikatan</i>
A	ST <sub>2</sub>	Covalent / <i>Kovalen</i>
B	S <sub>2</sub> T	Covalent / <i>Kovalen</i>
C	S <sub>2</sub> T	Ionic / <i>Ion</i>
D	ST <sub>2</sub>	Ionic / <i>Ion</i>

- 13 The relative molecular mass of compound with empirical formula of CH<sub>2</sub> is 56. Find the molecular formula of this compound.

*Jisim molekul relatif untuk sebatian dengan formula empirik CH<sub>2</sub> ialah 56. Cari formula molekul sebatian ini.*

[Relative atomic mass / *Jisim atom relatif* : C = 12; H = 1]

- A CH<sub>2</sub>
- B C<sub>5</sub>H<sub>10</sub>
- C C<sub>5</sub>H<sub>12</sub>
- D C<sub>4</sub>H<sub>8</sub>

- 14 Which of the following elements can be found in group 18?

*Manakah antara unsur-unsur berikut boleh dijumpai dalam kumpulan 18?*

- I Kr
  - II Br
  - III Xe
  - IV Be
- 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*

- 15 Which of the following particles in a solution hydrochloric acid is responsible for its acidic properties?  
*Manakah antara zarah-zarah dalam larutan asid hidroklorik berikut bertanggungjawab ke atas sifat asidnya?*

A  $H^+$   
B  $OH^-$   
C  $Cl^-$   
D HCl

- 16 Which substance is used as a traditional food preservative?  
*Bahan manakah yang digunakan secara tradisional sebagai pengawet makanan?*

A Sodium carbonate  
*Natrium karbonat*  
B Sodium thiosulphate  
*Natrium tiosulfat*  
C Sodium bromide  
*Natrium bromide*  
D Sodium chloride  
*Natrium klorida*

- 17 Why chlorine atom is different from chloride ion?  
*Mengapakah atom klorin berbeza dari ion klorida?*

A more protons  
*lebih proton*  
B smaller size  
*saiz lebih kecil*  
C more neutrons  
*lebih neutron*  
D more electrons  
*lebih elektron*

- 18 Diagram 6 shows salt X is added into water.  
*Rajah 6 menunjukkan garam X ditambah ke dalam air.*

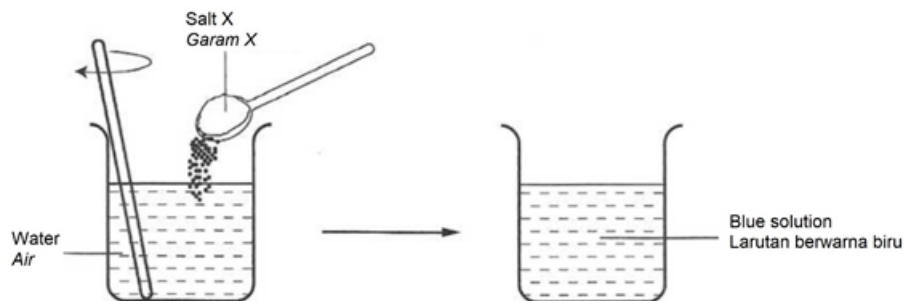


Diagram 6  
*Rajah 6*

What is salt X?  
*Apakah garam X?*

- A Iron(II) sulphate  
*Ferum(II) sulfat*
- B Copper(II) nitrate  
*Kuprum(II) nitrat*
- C Sodium chloride  
*Natrium klorida*
- D Calcium carbonate  
*Kalsium karbonat*

19 Diagram 7 shows the set up of apparatus to investigate the transfer of electron at a distance.

*Rajah 7 menunjukkan susunan radas bagi mengkaji pemindahan elektron pada suatu jarak.*

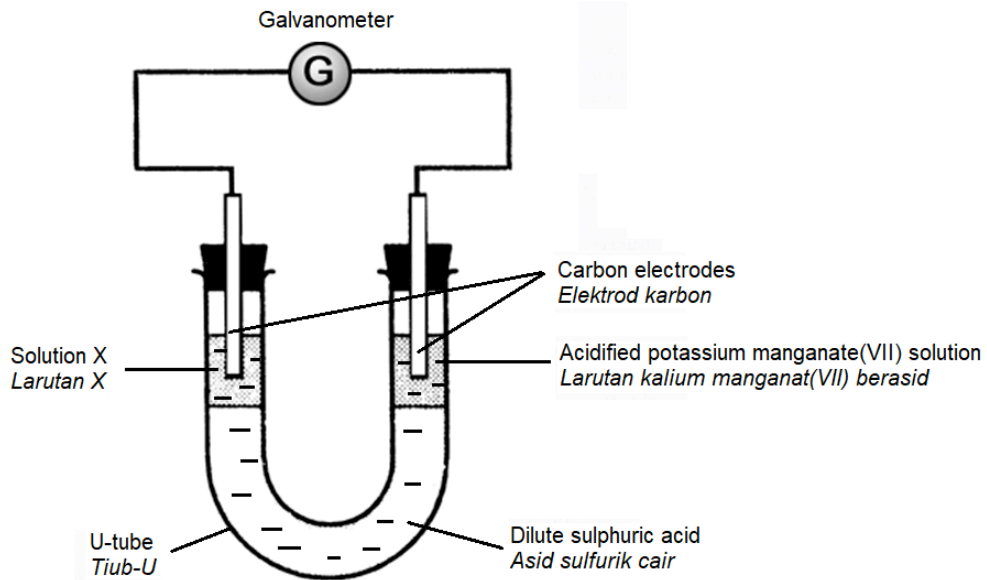


Diagram 7  
*Rajah 7*

The pointer of galvanometer deflects. What is solution X?

*Jarum galvanometer terpesong. Apakah larutan X?*

- A Chlorine water  
*Air klorin*
- B Bromine water  
*Air bromin*
- C Iron(III) sulphate solution  
*Larutan ferum(III) sulfat*
- D Iron(II) sulphate solution  
*Larutan ferum(II) sulfat*



- 20 Which gas is the main agent of pollution which causes acid rain?  
*Gas manakah yang merupakan agen utama bagi pencemaran yang menyebabkan hujan asid?*
- A Ozone  
*Ozon*
  - B Methane  
*Metana*
  - C Sulphur dioxide  
*Sulfur dioksida*
  - D Carbon dioxide  
*Karbon dioksida*

- 21 Table 2 shows the melting points and types of particles of four substances.  
*Jadual 2 menunjukkan takat lebur dan jenis zarah bagi empat bahan.*

Solid substance <i>Bahan pepejal</i>	Melting point / °C <i>Takat lebur / °C</i>	Type of particle <i>Jenis zarah</i>
W	80	Molecules <i>Molekul</i>
X	320	Ions <i>Ion</i>
Y	780	Ions <i>Ion</i>
Z	3000	Atoms <i>Atom</i>

Table 2  
*Jadual 2*

Based on table 1, which solid substance becomes an electrolyte when it is heated to a temperature of 450°C?

*Berdasarkan jadual 1, bahan pepejal yang manakah menjadi elektrolit apabila dipanaskan sehingga suhu 450°C?*

- A W
  - B X
  - C Y
  - D Z
- 22 Which of the following gases occupies 3.36 dm<sup>3</sup> at s.t.p ?  
 [Relative atomic mass: H=1, N=14, O=16 and 1 mol of gas occupies a volume of 22.4 dm<sup>3</sup> at s.t.p]  
*Manakah antara gas berikut yang memenuhi 3.36 dm<sup>3</sup> pada s.t.p?*  
 [Jisim atom relative: H=1, N=14, O=16 dan 1 mol gas 22.4 dm<sup>3</sup> pada s.t.p]
- A 4.25 g NH<sub>3</sub>
  - B 6.9 g NO<sub>2</sub>
  - C 9.8 g N<sub>2</sub>
  - D 11.2 g O<sub>2</sub>

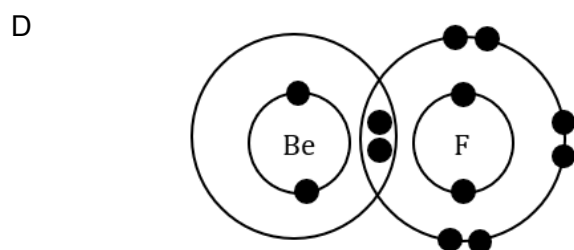
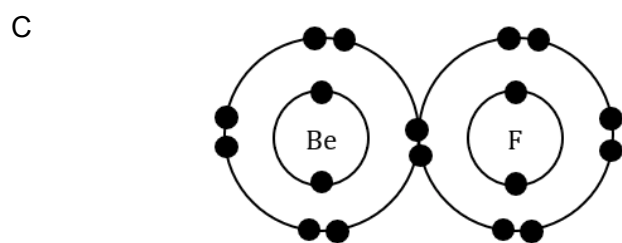
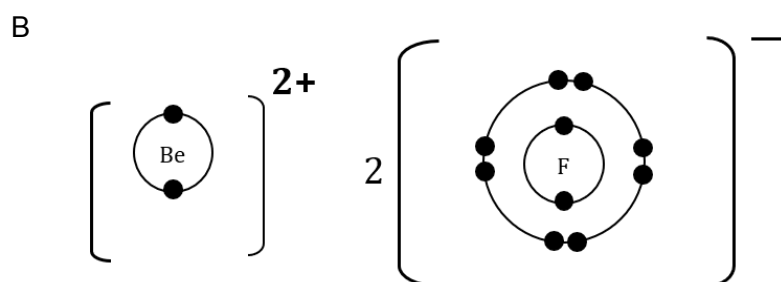
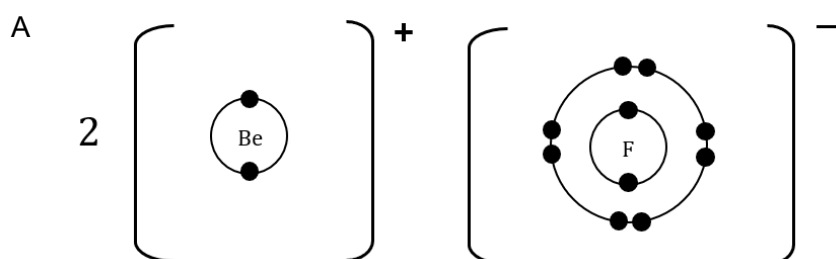
23 What is the electron arrangement of an element that is found in Group 16 and Period 2?  
*Apakah susunan elektron bagi unsur yang terdapat dalam Kumpulan 16 kala 2 ?*

- A 2
- B 2.6
- C 2.8.6
- D 2.8.8.6

24 Which of the following is the correct electron arrangement diagram of beryllium fluoride?  
*Manakah di antara yang berikut adalah rajah susunan elektron untuk berilium flourida?*

[ Proton number : Be= 4; F = 9]

[ *Nombor proton* : Be= 4; F = 9]



- 25 Diagram 8 shows an experiment to study the particles theory of matter.  
*Rajah 8 menunjukkan satu eksperimen untuk mengkaji teori zarah jirim.*

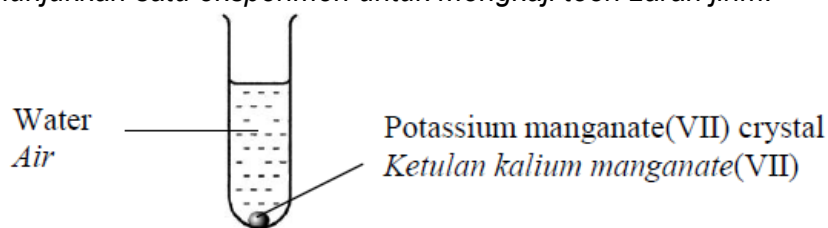


Diagram 8  
*Rajah 8*

After 30 minutes, the water turns purple. What is the process occur in the experiment shown in the diagram 8?

*Selepas 30 minit, air bertukar ungu. Apakah proses yang berlaku dalam eksperimen yang ditunjukkan dalam rajah 8?*

- A Melting  
*Peleburan*
  - B Freezing  
*Pembekuan*
  - C Diffusion  
*Resapan*
  - D Evaporation  
*Penyejatan*
- 26 Diagram 9 shows the setup of apparatus for the electrolysis of iron(II) sulphate solution using carbon electrodes.  
*Rajah 9 menunjukkan susunan radas bagi elektrolisis larutan ferum(II) sulfat mengguna elektrod karbon.*

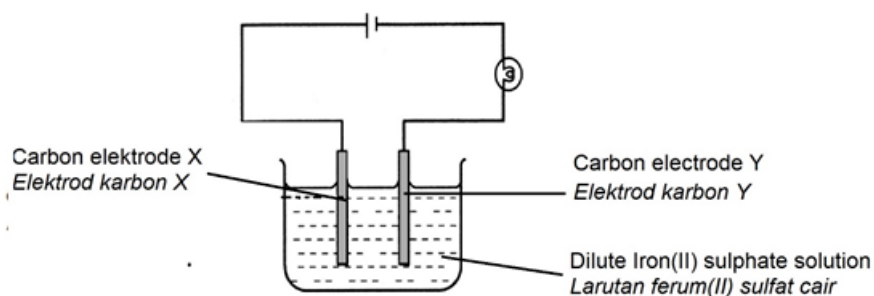


Diagram 9  
*Rajah 9*

What is formed at carbon electrode X?

*Apakah yang terbentuk di elektrod karbon X?*

- A Oxygen  
*Oksigen*
  - B Iron  
*Ferum*
  - C Sulphur dioxide  
*Sulfur dioksida*
  - D Hydrogen gas  
*Gas hidrogen*
- 27 Diagram 10 shows copper wire insulated with substance Y.

Rajah 10 menunjukkan dawai kuprum diselaputi bahan Y.

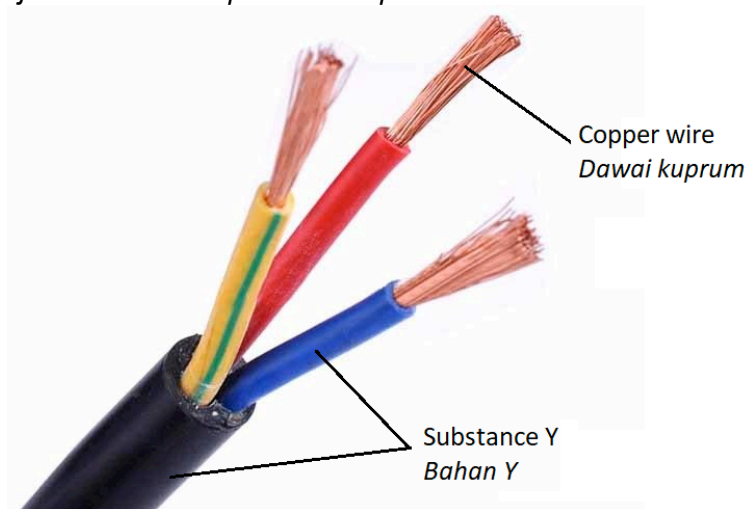
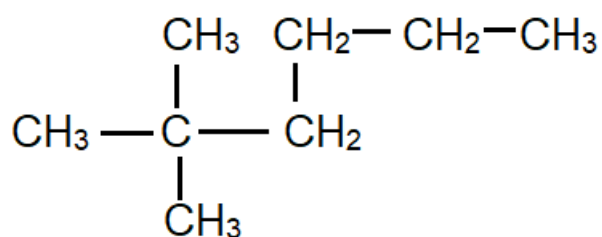


Diagram 10  
Rajah 10

What is the property of substance Y?  
Apakah sifat bahan Y?

- A Hard  
*Kuat*
- B Brittle  
*Rapuh*
- C As an insulator  
*Sebagai penebat*
- D As conductor  
*Sebagai konduktor*

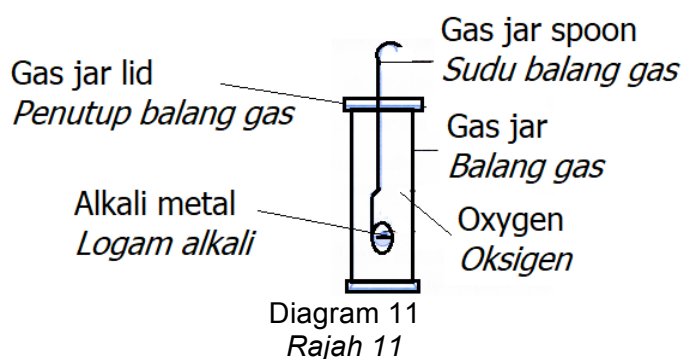
28 What is an IUPAC name of the following compound?  
Apakah nama IUPAC bagi sebatian berikut?



- A 1,1,1-trimethylpentane  
*1,1,1-trimetilpentana*
- B 2-methyl-2-butylpropane  
*2-metil-2-butilpropana*
- C 2,2-dimethylhexane  
*2,2-dimetilheksana*
- D 1,2-dimethylhexane  
*1,2-dimetilheksana*

29 Diagram 11 explains a redox reaction.

Rajah 11 menerangkan tindak balas redoks.



Which statement is **true**?

Pernyataan manakah yang **benar**?

- A Oxygen is oxidised  
*Oksigen teroksida*
- B Oxygen loses electron  
*Oksigen kehilangan elektron*
- C Alkali metal is an oxidising agent  
*Logam alkali ialah agen pengoksidaan*
- D The oxidation number of alkali metal increases  
*Nombor pengoksidaan logam alkali bertambah*

- 30 Table 3 shows the proton number of elements in Period 3.  
*Jadual 3 menunjukkan nombor proton bagi unsur dalam Kala 3.*

Element <i>Unsur</i>	Na	Mg	Al	Si	P	S	Cl	Ar
Proton number <i>Nombor proton</i>	11	12	13	14	15	16	17	18

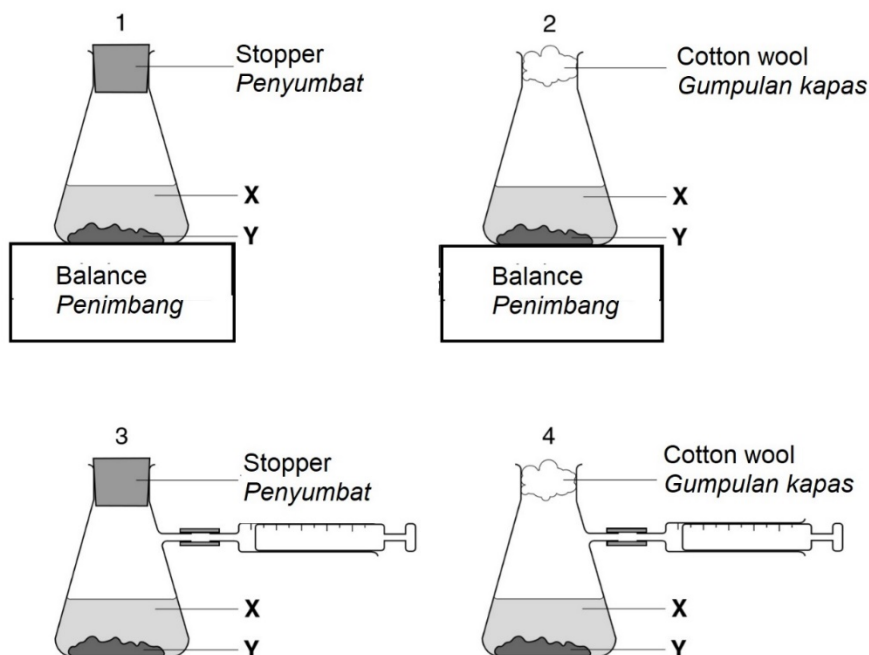
Table 3  
*Jadual 3*

Which of the following represent changes from left to right across the period?  
*Manakah antara berikut mewakili perubahan merentasi kala dari kiri ke kanan?*

- A Decrease in metallic properties  
*Pengurangan sifat logam*
- B Decrease in electronegativity  
*Pengurangan keelektronegatifan*
- C Increase in alkaline property  
*Pertambahan sifat kealkalian*
- D Increase in atomic size  
*Pertambahan saiz atom*

- 31 The following diagrams show a reaction between liquid X and solid Y to form a gas.

Rajah-raja berikut menunjukkan satu tindak balas di antara cecair X dan pepejal Y untuk membentuk gas.



Which two diagrams show suitable methods for investigating the rate of the reaction?  
 Manakah dua rajah menunjukkan kaedah yang sesuai untuk mengkaji kadar tindak balas?

- |   |                    |   |                    |
|---|--------------------|---|--------------------|
| A | 1 and 3<br>1 dan 3 | B | 1 and 4<br>1 dan 4 |
| C | 2 and 3<br>2 dan 3 | D | 2 and 4<br>2 dan 4 |

32 A student is required to study the exothermic reaction between a metal and an acid.  
 Which of the following metal and acid solution produces the highest temperature rise?  
 Seorang pelajar dikehendaki mengkaji tindak balas eksotermik di antara suatu logam dengan asid.

Manakah antara campuran logam dan larutan asid berikut menghasilkan kenaikan suhu yang paling tinggi?

- A 1 g zinc + 50 cm<sup>3</sup> of 0.2 mol dm<sup>-3</sup> hydrochloric acid  
1 g zink + 50 cm<sup>3</sup> asid hidroklorik 0.2 mol dm<sup>-3</sup>
- B 1 g zinc + 50 cm<sup>3</sup> of 0.2 mol dm<sup>-3</sup> sulphuric acid  
1 g zink + 50 cm<sup>3</sup> asid sulfurik 0.2 mol dm<sup>-3</sup>
- C 1 g magnesium + 50 cm<sup>3</sup> of 0.2 mol dm<sup>-3</sup> hydrochloric acid  
1 g magnesium + 50 cm<sup>3</sup> asid hidroklorik 0.2 mol dm<sup>-3</sup>
- D 1 g magnesium + 50 cm<sup>3</sup> of 0.2 mol dm<sup>-3</sup> sulphuric acid  
1 g magnesium + 50 cm<sup>3</sup> asid sulfurik 0.2 mol dm<sup>-3</sup>

33 Diagram 12 shows a plant that can be used as traditional medicine.

Rajah 12 menunjukkan sejenis tumbuhan yang boleh digunakan sebagai ubat tradisional.

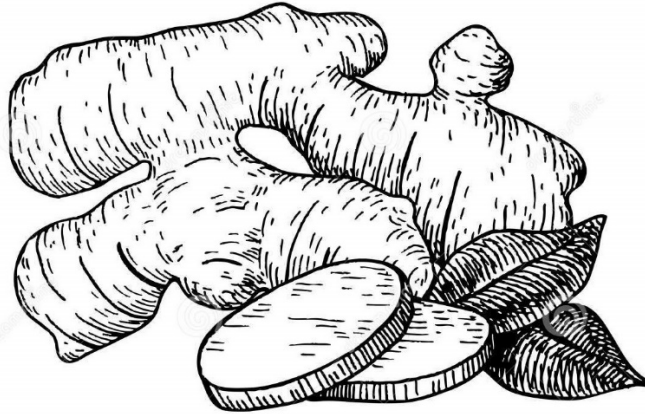


Diagram 12  
Rajah 12

The stem (rhizome) is boiled with water to produce juice for drinking. What is the function of the juice?

Akar rizom dididihkan dengan air untuk menghasilkan jus untuk diminum. Apakah kegunaan jus itu?

- A To treat asthma  
*Untuk merawat asma*
- B To help maintain youthfulness  
*Untuk mengekalkan keremajaan*
- C To treat stomach aches, nausea and diarrhoea  
*Untuk merawat sakit perut, mabuk dan cirit-birit*
- D To lower the blood glucose and control the blood pressure  
*Untuk menurunkan paras gula dalam darah dan mengawal tekanan darah*

- 34 Diagram 13 shows the structure of a soap ion.  
Rajah 13 menunjukkan struktur ion sabun.

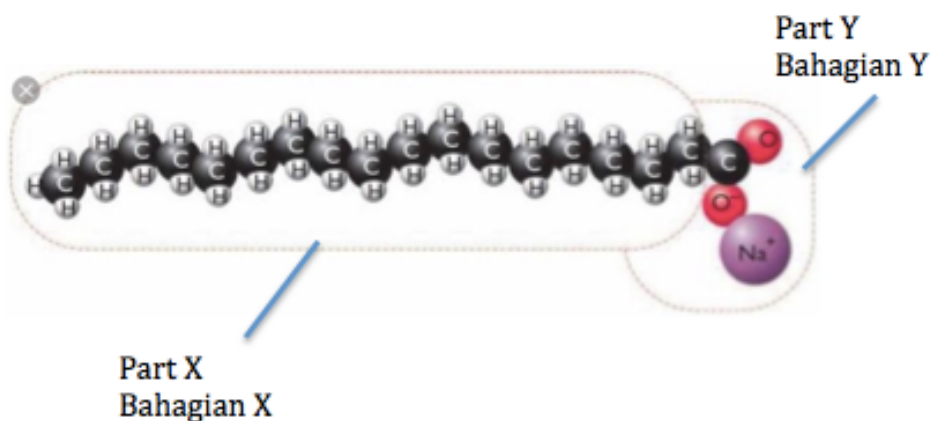


Diagram 13  
Rajah 13

Based on the diagram, which of the following statements is true?  
Berdasarkan rajah, pernyataan yang manakah benar?

- A Part X and Y are soluble in water molecules  
*Bahagian X dan Y adalah larut dalam molekul air*
- B Part X and Y are soluble in oil molecules  
*Bahagian X dan Y adalah larut dalam molekul minyak*
- C Part X is soluble in grease molecules and part Y is soluble in water molecules  
*Bahagian X adalah larut dalam molekul gris dan bahagian Y adalah larut dalam molekul air*
- D Part X is soluble in water molecules and part Y is soluble in grease molecules  
*Bahagian X adalah larut dalam molekul air dan bahagian Y adalah larut dalam molekul gris*

- 35 Table 4 shows the electron arrangement of atoms of elements V, W, X, Y and Z.  
*Jadual 4 menunjukkan susunan elektron atom-atom bagi unsur-unsur V, W, X, Y dan Z.*

<b>Element Unsur</b>	<b>Electron Arrangement Susunan elektron</b>
V	2.8
W	2.8.2
X	2.8.4
Y	2.8.7
Z	2.8.8.1

Table 4  
*Jadual 4*

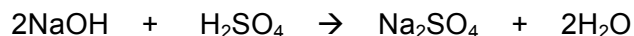
Which of the pair of elements will combine to form a compound which will conduct electricity in molten state?

*Manakah pasangan unsur-unsur berikut boleh bergabung membentuk satu sebatian yang mengkonduksikan elektrik dalam keadaan leburan?*

- A V and X  
*V dan X*
  - B W and Z  
*W dan Z*
  - C X and Y  
*X dan Y*
  - D Y and Z  
*Y dan Z*
- 36 Which of the following pairs of metals will produce the smallest voltage when used as electrodes in a voltaic cell?  
*Pasangan logam yang manakah akan menghasilkan voltan terkecil apabila digunakan sebagai elektrod dalam sel voltan?*
- A Copper and lead  
*Kuprum dan plumbum*
  - B Copper and iron  
*Kuprum dan besi*
  - C Copper and zinc  
*Kuprum dan zink*
  - D Copper and aluminium  
*Kuprum dan aluminium*



- 37 The following chemical equation shows a neutralisation reaction.  
*Persamaan kimia berikut menunjukkan satu tindak balas peneutralan.*



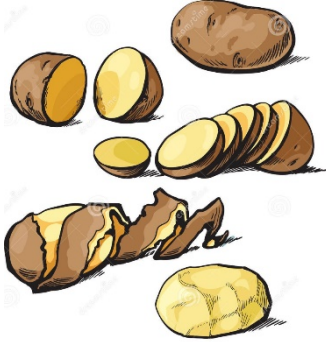
What volume of sodium hydroxide solution  $0.2 \text{ mol dm}^{-3}$  needed to neutralise completely  $100 \text{ cm}^3$  of  $0.2 \text{ mol dm}^{-3}$  of sulphuric acid?

*Berapakah isipadu larutan natrium hidroksida  $0.2 \text{ mol dm}^{-3}$  yang diperlukan untuk meneutralkan dengan lengkap  $100 \text{ cm}^3$  asid sulfurik  $0.2 \text{ mol dm}^{-3}$ ?*

- A  $100 \text{ cm}^3$   
B  $200 \text{ cm}^3$   
C  $50 \text{ cm}^3$   
D  $20 \text{ cm}^3$
- 38 How does the presence of vanadium ( V ) oxide increase the rate of reaction in the Contact Process?  
*Bagaimanakah kehadiran vanadium ( V ) oksida dapat meningkatkan kadar tindakbalas Proses Sentuh?*
- A Increase the kinetic energy of the particles of the reactants.  
*Menambahkan tenaga kinetic zarah-zarah bahan tindak balas*
- B Provides a bigger total surface area for the reaction  
*Menyediakan jumlah luas permukaan yang lebih besar untuk tindakbalas.*
- C Increases the frequency of collisions between the particles of the reactants.  
*Menambahkan frekuensi perlanggaran antara zarah-zarah bahan tindakbalas*
- D Provides an alternative pathway with the lower activation energy.  
*Memberi lintasan alternative yang mempunyai tenaga pengaktifan yang lebih rendah.*
- 39 A woman is always sad and anxious. Which medicine is suitable to treat this patient?  
*Seorang wanita selalu sedih dan gelisah. Ubat manakah paling sesuai untuk mengubati pesakit itu?*
- A Chlorpromazine  
*Klorpromazin*
- B Penicillin  
*Penisilin*
- C Tranquilizer  
*Trankuilizer*
- D Aspirin  
*Aspirin*

- 40 The following diagrams are related to the rate of reaction. Which of the following is true about the decrease in rate of reaction on the particles of reactants?  
*Rajah berikut adalah berkaitan dengan kadar tindak balas. Manakah antara berikut adalah benar mengenai penurunan dalam kadar tindak balas pada zarah-zarah bahan?*

A



B



C



D



- 41 Diagram 14(a) shows instant hot and cold packs which are very useful to our daily life. *Rajah 14(a) menunjukkan pek panas dan sejuk segera yang sangat berguna dalam kehidupan seharian.*



Diagram 14(a)  
*Rajah 14(a)*



Diagram 14(b)  
*Rajah 14(b)*

Commercial instant cold packs typically use either ammonium nitrate or urea as their salt component; hot packs often use magnesium sulfate or calcium chloride. These reactions happen in a similar manner. When the salt is dissolved in water, the ionic bonds of the salt separate.

*Kebiasaannya pek sejuk segera komersial menggunakan sama ada ammonium nitrat atau urea sebagai komponen garam; pek panas selalunya menggunakan magnesium sulfat atau kalsium klorida. Tindak balas ini berlaku dalam cara yang sama. Apabila garam dilarutkan dalam air, ikatan ion dalam garam akan terpisah.*

A farmer in Cameron Highland suddenly has a chronic pain in his hand shows in Diagram 14(b). Cold therapy can help people who suffer from the chronic pain. How we can make our own cold pack to reduce the farmer's pain?

*Petani di Cameron Highland tiba-tiba mengalami satu sakit kronik di tangannya seperti dalam Rajah 14(b). Terapi sejuk boleh membantu mereka yang menderita sakit kronik ini. Bagaimanakah kita boleh membuat pek sejuk sendiri untuk mengurangkan kesakitan petani tersebut?*

- A Sacks of gel that turn into ice packs in your freezer  
*Bungkusan jeli yang dijadikan pek ais di dalam peti sejuk beku*
- B A bag of frozen vegetables in a towel.  
*Satu beg berisi sayur-sayuran beku diletakkan di dalam tuala.*
- C Fabric hot packs that filled with rice  
*Kain pek panas berisi dengan beras*
- D Wrapping some ice in a towel  
*Bungkuskan beberpa ketul ais di dalam tuala.*

- 42 Given three test tubes that contains R solutions. Three qualitative tests are conducted to the solution and the observations obtained as shown in table 5.

*Di beri tiga tabung uji yang mengandungi larutan R. Tiga ujian kualitatif telah dijalankan ke atas tabung uji tersebut dan pemerhatian yang diperolehi ditunjukkan dalam jadual 5.*

Tests <i>Ujian</i>	Observations <i>Pemerhatian</i>
Drops of sodium hydroxide solution are added to the first test tube until excess <i>Larutan natrium hidroksida ditambahkan sedikit demi sedikit hingga berlebihan</i>	White precipitate soluble in excess is formed <i>Mendakan putih terbentuk larut dalam berlebihan terbentuk</i>
Drops of ammonia solution are added to the first test tube until excess <i>Larutan ammonia ditambahkan sedikit demi sedikit hingga berlebihan</i>	White precipitate soluble in excess is formed <i>Mendakan putih terbentuk larut dalam berlebihan terbentuk</i>
Hydrochloric acid is added to the test tube and then barium chloride solution is added. <i>Asid hidroklorik di tambahkan kepada tabung uji dan kemudian larutan barium klorida di tambahkan.</i>	White precipitate formed <i>Mendakan putih terbentuk</i>

Table 5

Jadual 5

Based on the results obtained, what is salt R?

*Berdasarkan keputusan ujian, apakah garam R?*

- A Zinc chloride  
*Zink klorida*
- B Lead (II) nitrate  
*Plumbum (II) nitrat*
- C Magnesium sulphate  
*Magnesium sulfat*
- D Zinc sulphate  
*Zink sulfat*

- 43 Diagram 15 shows an incomplete apparatus set up of an experiment.  
*Rajah 15 menunjukkan susunan radas yang tidak lengkap dalam satu eksperimen.*

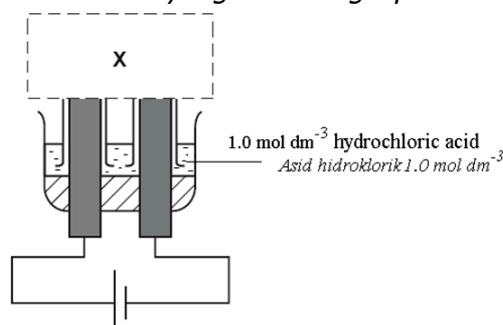
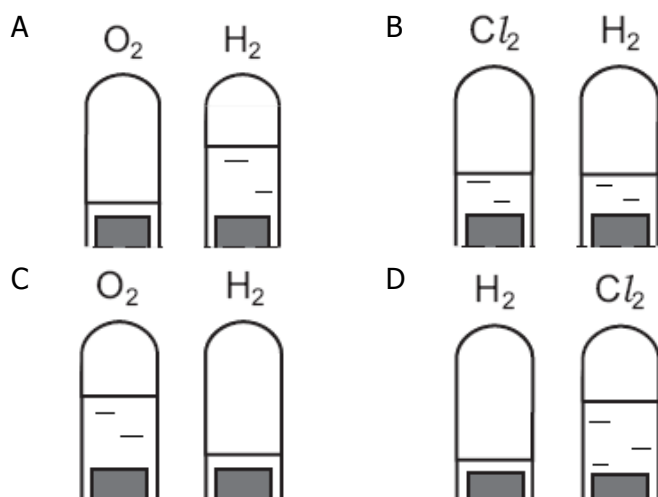


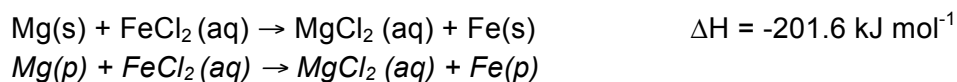
Diagram 15  
*Rajah 15*

Which of the following diagrams shows the correct completion at X after the solution has been electrolysed for some time?

*Manakah antara rajah berikut menunjukkan lengkapan yang betul di X selepas larutan dielektrolisiskan beberapa ketika?*



- 44 The following thermochemical equation shows heat of displacement of iron by magnesium.  
*Persamaan termokimia berikut menunjukkan haba penyesaran ferum oleh magnesium.*



What is the heat change if 2.4 g of magnesium displaces 2.8 g of iron from iron(II) chloride?

[Relative atomic mass: Mg = 24; Fe = 56]

*Berapakah perubahan haba jika 2.4 g magnesium menyesarkan 2.8 g ferum daripada ferum(II) klorida?*

[Jisim atom relative: Mg = 24; Fe = 56]

- A -10.1 kJ
- B -20.2 kJ
- C -72.0 kJ
- D 84.0 kJ

- 45 25 cm<sup>3</sup> of 0.5 mol dm<sup>-3</sup> potassium iodide solution is added into excess lead(II) nitrate solution. What is the maximum mass of lead(II) iodide precipitate formed?  
 25 cm<sup>3</sup> larutan kalium iodida 0.5 mol dm<sup>-3</sup> dicampurkan ke dalam larutan plumbum(II) nitrat berlebihan. Berapakah jisim maksimum mendakan plumbum(II) iodida yang dihasilkan?

[Relative Atomic Mass: Pb=207; I=127]

[Jisim Atom Relatif: Pb=207; I=127]

- A 2.88 g                                      B 5.76 g  
 C 8.64 g                                      D 11.52 g

- 46 Diagram 16 shows a graph of volume of carbon dioxide gas against time. Curve K is obtained from an experiment of excess calcium carbonate chips with 25 cm<sup>3</sup> of 0.1 mol dm<sup>-3</sup> hydrochloric acid.

Rajah 16 menunjukkan graf isipadu gas karbon dioksida melawan masa. Graf K diperolehi daripada tindak balas antara ketulan kalsium karbonat berlebihan dengan 25 cm<sup>3</sup> asid hidroklorik 0.1 mol dm<sup>-3</sup>.

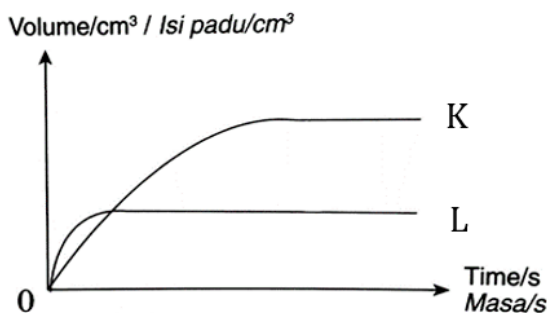


Diagram 16  
 Rajah 16

Which of the following solutions will produce curve L when it is reacted with excess of calcium carbonate?

Manakah antara larutan-larutan berikut akan menghasilkan graf L apabila bertindak balas dengan kalsium karbonat berlebihan?

- A 25 cm<sup>3</sup> of 0.15 mol dm<sup>-3</sup> hydrochloric acid  
 25 cm<sup>3</sup> asid hidroklorik 0.15 mol dm<sup>-3</sup>  
 B 20 cm<sup>3</sup> of 0.15 mol dm<sup>-3</sup> hydrochloric acid  
 20 cm<sup>3</sup> asid hidroklorik 0.15 mol dm<sup>-3</sup>  
 C 15 cm<sup>3</sup> of 0.15 mol dm<sup>-3</sup> hydrochloric acid  
 15 cm<sup>3</sup> asid hidroklorik 0.15 mol dm<sup>-3</sup>  
 D 10 cm<sup>3</sup> of 0.25 mol dm<sup>-3</sup> hydrochloric acid  
 10 cm<sup>3</sup> asid hidroklorik 0.25 mol dm<sup>-3</sup>
- 47 A simple experiment on electroplating of metal is carried out to electroplate an iron key with copper. Which half equation shows oxidation reaction for the electroplating process?  
 Satu eksperimen penyaduran logam telah dilakukan untuk menyadur kunci besi dengan kuprum. Manakah persamaan setengah yang menunjukkan tindak balas pengoksidaan bagi proses penyaduran tersebut?

- A Fe → Fe<sup>2+</sup> + 2e                                      B Cu → Cu<sup>2+</sup> + 2e  
 C Cu<sup>2+</sup> + 2e → Cu                                      D Fe<sup>2+</sup> + 2e → Fe

- 48 Diagram 17 shows a rubber tapper facing a problem to coagulate the latex. To solve the problem she has to add a substance into the latex.

*Rajah 17 menunjukkan seorang penoreh getah menghadapi masalah untuk menggumpalkan lateks. Untuk menyelesaikan masalah itu, beliau perlu menambahkan suatu bahan ke dalam lateks itu.*



Diagram 17

*Rajah 17*

What is the correct substance and explanation to solve the problem?

*Apakah bahan dan penerangan yang betul untuk menyelesaikan masalah itu?*

	<b>Substance Bahan</b>	<b>Explanation Penerangan</b>
A	Water <i>Air</i>	To make the latex more dilute and easy to pour out from the little container <i>Menjadikan lateks lebih cair dan senang dituang keluar daripada bekas kecil</i>
B	Sodium chloride solution <i>Larutan natrium klorida</i>	As a preservative to maintain the original state of the latex <i>Menjadikan pengawet untuk mengekalkan keadaan asal lateks</i>
C	Ethanoic acid <i>Asid etanoik</i>	Contains $H^+$ ion that neutralises the negative charge on the membrane of the rubber particle <i>Mengandungi ion <math>H^+</math> yang meneutralkan cas negatif pada membran zarah getah</i>
D	Ammonium solution <i>Larutan ammonia</i>	Contains $OH^-$ ion that neutralises the $H^+$ ion from the lactic acid <i>Mengandungi ion <math>OH^-</math> yang meneutralkan ion <math>H^+</math> daripada asid laktik</i>

- 49 The molarities of a solution of sulphuric acid is  $2.0 \text{ mol dm}^{-3}$ .  
What is the concentration of the acid in  $\text{g dm}^{-3}$ ?

*Kemolaran larutan asid sulfurik adalah  $2.0 \text{ mol dm}^{-3}$ .*

*Apakah kepekatan asid ini dalam  $\text{g dm}^{-3}$ ?*

[Relative atomic mass: H=1, O=16, S=32]

[*Jisim atom relatif: H=1; O=16; S=32*]

- A 97
- B 98
- C 194
- D 196

- 50 Diagram 18 shows some food which contains food additives.

*Rajah 18 menunjukkan beberapa makanan yang mengandungi bahan tambah makanan.*

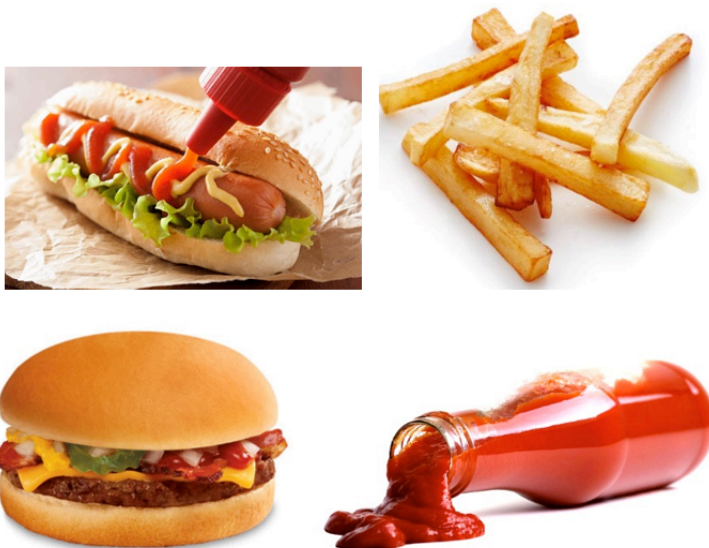


Diagram 18

*Rajah 18*

Which of the following is a function of food additives?

*Manakah antara berikut merupakan satu fungsi bahan tambah makanan?*

- A Keeping the food fresher  
*Mengekalkan kesegaran makanan*
- B Ensuring nutritional balance  
*Memastikan keseimbangan nutrien*
- C Better nutritional value  
*Nilai nutrien yang lebih baik*
- D Natural food taste  
*Rasa semulajadi makanan*