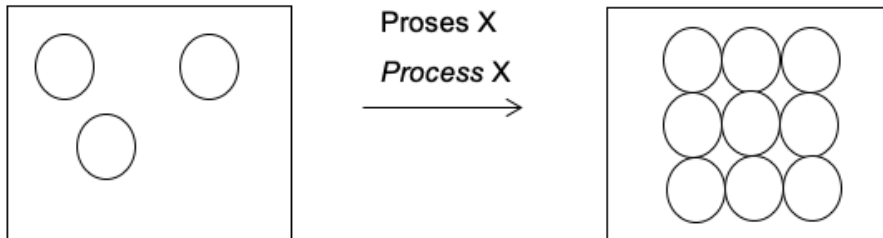


Jawab **SEMUA** soalan.
Answer **ALL** questions.

- 1 Rajah 1 menunjukkan susunan zarah bagi perubahan keadaan jirim.
Diagram 1 shows the particles arrangement for the change of state of matter.

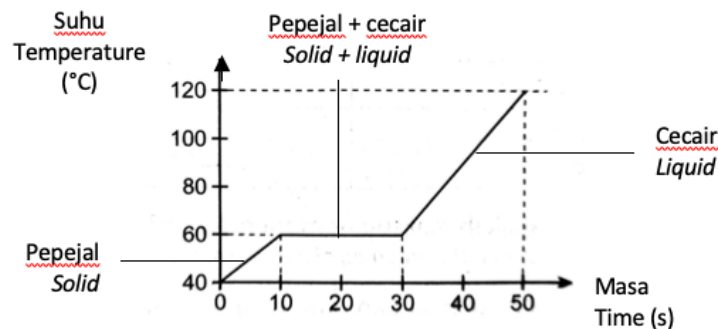


Rajah 1
Diagram 1

Apakah proses X?
What is process X?

- A Pemejalwapan
Sublimation
 - B Pembekuan
Freezing
 - C Kondensasi
Condensation
 - D Pengendapan
Deposition
- 2 Antara yang berikut, pernyataan manakah yang menerangkan sebab karbon-12 dipilih sebagai rujukan piawai untuk menentukan jisim atom relatif?
Which of the following statements explains the reason of carbon-12 chosen as the standard reference to determine relative atomic mass?
- A Unsur bukan logam
Non-metal element
 - B Mempunyai tiga isotop
Has three isotopes
 - C Pepejal dan mudah dikendali
Solid and easier to handle
 - D Terletak di dalam Kumpulan 14
Located in Group 14
- 3 Antara yang berikut, kumpulan manakah xenon terletak dalam Jadual Berkala Unsur?
Which of following group is xenon located in the Periodic Table of Elements?
- A Kumpulan 15
Group 15
 - B Kumpulan 16
Group 16
 - C Kumpulan 17
Group 17
 - D Kumpulan 18
Group 18

- 4 Rajah 2 menunjukkan lengkung pemanasan bagi pepejal X.
Diagram 2 shows the heating curve of solid X.



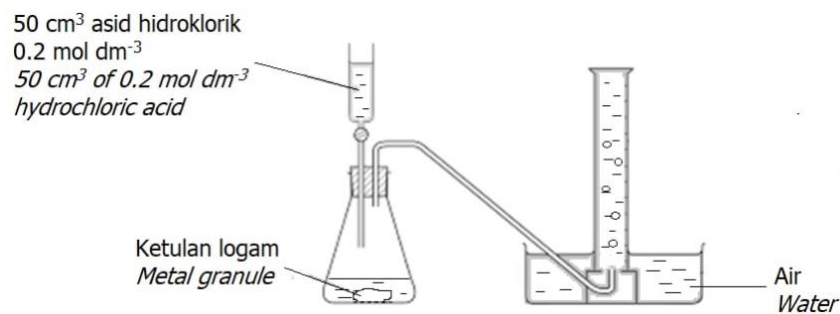
Rajah 2
Diagram 2

Apakah proses yang berlaku antara 0 hingga 10 saat?
What is the process happened between 0 to 10 seconds?

- A Peleburan
Melting
- B Pendidihan
Boiling
- C Penyejatan
Evaporation
- D Pemejalwapan
Sublimation
- 5 Antara yang berikut, pernyataan manakah yang betul tentang pembentukan ikatan ion?
Which of following statements is correct about formation of ionic bond?
- A Daya tarikan di antara lautan elektron dan ion logam
The attraction between the sea of electrons and metal ions
- B Pemindahan elektron dari atom logam kepada atom bukan logam
Transfer of electron from metal atom to non-metal atom
- C Perkongsian elektron di antara atom bukan logam dengan atom bukan logam
Sharing of electron between non-metal atom and non-metal atom
- D Daya tarikan antara atom hidrogen dengan atom yang lebih elektronegatif
The attraction between hydrogen atom with a more electronegative atom
- 6 Kalium nitrat ialah sebatian yang boleh larut di dalam air. Apakah nilai pH bagi larutan kalium nitrat?
Potassium nitrate is a compound that can dissolve in water. What is the pH value of potassium nitrate solution?
- A 3
- B 5
- C 7
- D 9

- 7 Rajah 3 menunjukkan satu eksperimen untuk mengkaji faktor yang mempengaruhi kadar tindak balas.

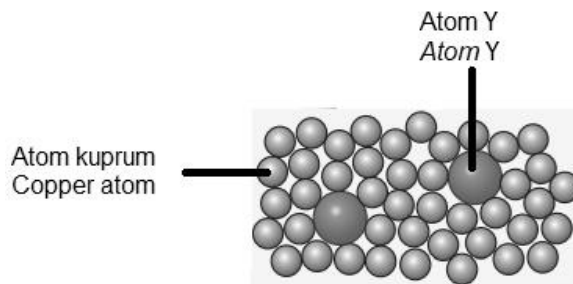
Diagram 3 shows an experiment to study the factor that affect the rate of reaction.



Rajah 3
Diagram 3

Apakah faktor yang mempengaruhi kadar tindak balas itu?
What is the factor that affect the rate of reaction?

- A Saiz ketulan logam
Size of metal granule
 - B Tekanan
Pressure
 - C Mangkin
Catalyst
 - D Suhu
Temperature
- 8 Rajah 4 menunjukkan susunan atom bagi sejenis aloi.
Diagram 4 shows the arrangement of atoms of a type of alloy.



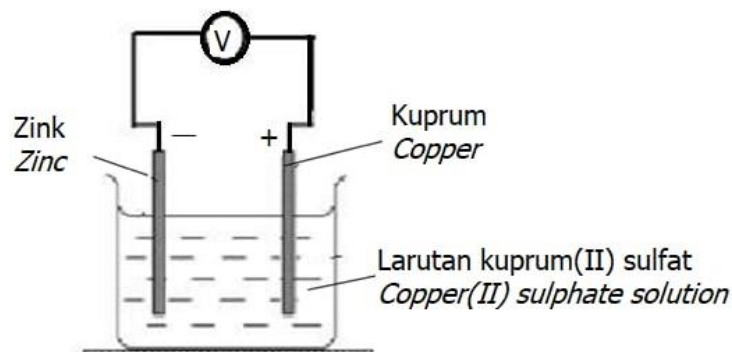
Rajah 4
Diagram 4

Aloi itu digunakan untuk membuat alatan muzik. Apakah atom Y?
The alloy is used to make musical instrument. What is atom Y?

- A Aluminium
Aluminium
- B Ferum
Iron
- C Stanum
Tin
- D Zink
Zinc

- 9 Antara yang berikut, pernyataan manakah yang betul tentang sifat fizik unsur Kumpulan 18 apabila menurun kumpulan?
Which of the following statements are correct about the physical properties of elements in Group 18 when going down the group?
- I Keamatan warna berkurang
The intensity of colour decreases
 - II Daya tarikan antara atom meningkat
The attraction forces between atom is increasing
 - III Ketumpatan unsur-unsur ini berkurang
The density of the elements is berkurang
 - IV Takat lebur dan takat didih unsur-unsur ini meningkat
Melting point and boiling point of these elements increase
- A I dan II
I and II
- B I dan III
I and III
- C II dan IV
II and IV
- D III dan IV
III and IV

- 10 Rajah 5 menunjukkan susunan radas bagi satu sel kimia.
Diagram 5 shows an apparatus set-up of a chemical cell.

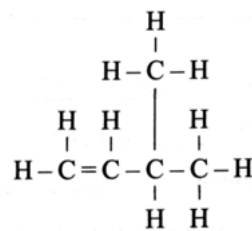


Rajah 5
Diagram 5

Antara yang berikut, pernyataan manakah yang betul tentang sel itu?
Which of the following statements is correct about the cell?

- A Elektron mengalir dari terminal negatif kepada terminal positif
Electron flow from negative terminal to positive terminal
- B Kuprum lebih elektropositif daripada zink
Copper is more electropositive than zinc
- C Tenaga elektrik berubah kepada tenaga kimia
Electrical energy change to chemical energy
- D Ion-ion dalam elektrolit ialah ion kuprum(II) dan ion sulfat sahaja
Ions in electrolyte are copper(II) ion and sulphate ion only

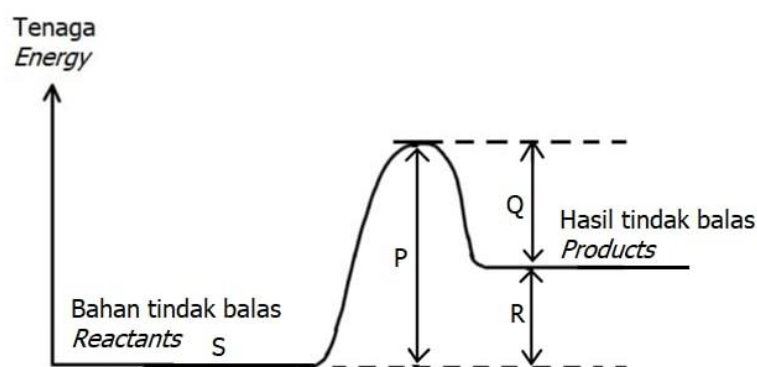
- 11 Rajah 6 menunjukkan formula struktur bagi satu sebatian karbon.
Diagram 6 shows the structural formula of a carbon compound.



Rajah 6
 Diagram 6

Apakah siri homolog bagi sebatian karbon itu?
What is the homologous series for the carbon compound?

- A Alkana
Alkane
 B Alkena
Alkene
 C Alkohol
Alcohol
 D Asid karboksilik
Carboxylic acid
- 12 Rajah 7 menunjukkan satu gambar rajah profil tenaga.
Diagram 7 shows an energy profile diagram.

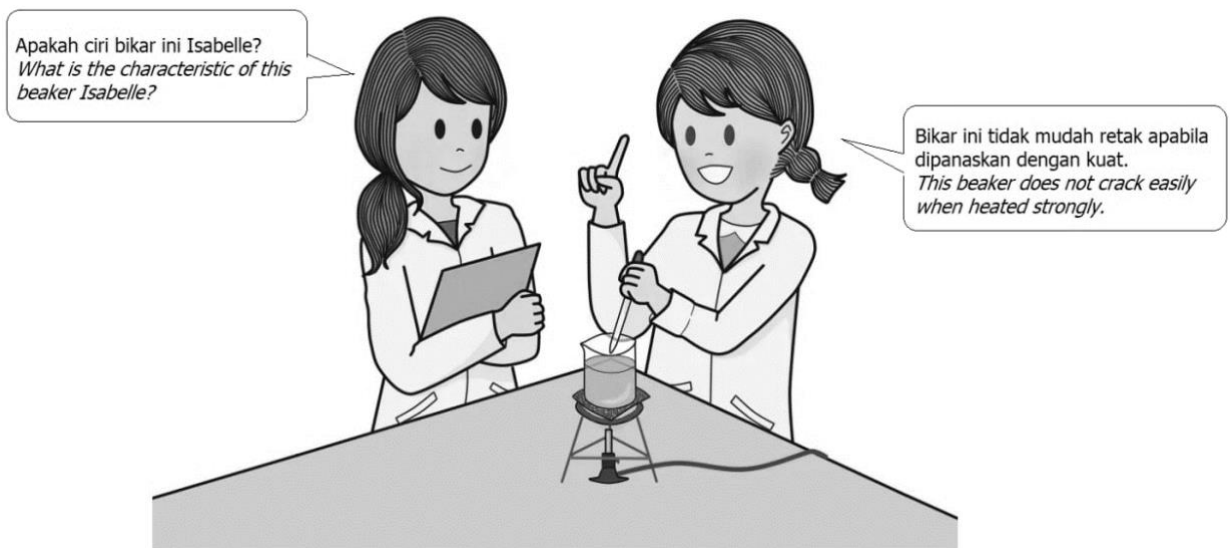


Rajah 7
 Diagram 7

Antara yang berikut, yang manakah mewakili haba tindak balas?
Which of the following represents heat of the reaction?

- A P
 B Q
 C R
 D S

- 13 Pektin ditambahkan dalam pembuatan jem.
Antara yang berikut, yang manakah fungsi pektin?
Pectin is added in making of jam.
Which of the following is the function of pectin?
- A Memperbaiki tekstur bagi jem
Improves the texture of jam
 - B Menjadikan jem lebih sedap
Gives jam a better taste
 - C Mencegah pertumbuhan bakteria
Prevent the growth of bacteria
 - D Melambatkan pengoksidaan jem
Slow down the oxidation of jam
- 14 Apakah formula am bagi alkuna?
What is the general formula for alkyne?
- A C_nH_{2n}
 - B C_nH_{2n+2}
 - C C_nH_{2n-2}
 - D $C_nH_{2n+1}OH$
- 15 Rajah 8 menunjukkan perbualan di antara Isabelle dengan gurunya.
Diagram 8 shows the conversation between Isabelle and her teacher.



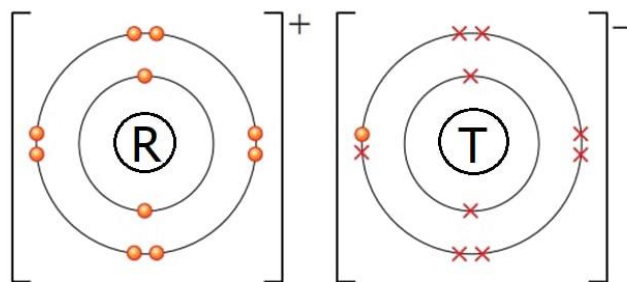
Rajah 8
Diagram 8

- Apakah jenis kaca bagi bikar itu?
What type of glass is the beaker?
- A Kaca plumbum
Lead crystal glass
 - B Kaca borosilikat
Borosilicate glass
 - C Kaca soda kapur
Soda lime glass
 - D Kaca silika terlakur
Fused silica glass

- 16 Karbon adalah unik dari segi keupayaannya membentuk pelbagai jenis ikatan kovalen. Molekul yang manakah mengandungi hanya ikatan tunggal antara atom karbon?
Carbon is unique in terms of its ability to form various types of covalent bonds. Which molecule contains only single bonds between carbon atoms?

A C_2H_4
B C_3H_4
C $\text{C}_3\text{H}_7\text{COOH}$

- 17 Rajah 9 menunjukkan rajah susunan elektron bagi satu sebatian.
Diagram 9 shows a diagram of electron arrangement of a compound.



Rajah 9
Diagram 9

Antara yang berikut, padanan manakah yang betul tentang nombor proton bagi ion R dan ion T?

Which of the following is correctly matched about the proton number of ion R and T?

	R	T
A	10	10
B	11	9
C	9	11
D	9	9

- 18 Antara yang berikut, kumpulan manakah yang unsur X terletak dalam Jadual Berkala Unsur jika nombor protonnya adalah 16?
Which of the following group of element X located in the Periodic Table of Elements if its proton number is 16?

A 3
B 6
C 16
D 18

- 19 Salbiah menjalankan satu eksperimen untuk mengkaji sifat fizik bagi getah X dan getah Y. Jadual 1 menunjukkan keputusan bagi eksperimen itu.
Salbiah conducted an experiment to study the physical properties of rubber X and Y. Table 1 shows the results of the experiment.

Jenis getah <i>Type of rubber</i>	Panjang kepingan getah sebelum diletakkan pemberat (cm) <i>The length of the rubber sheet before the weight is hung (cm)</i>	Panjang kepingan getah semasa diletakkan pemberat (cm) <i>The length of the rubber sheet during the weight is hung (cm)</i>	Panjang kepingan getah selepas pemberat dialihkan (cm) <i>The length of the rubber sheet after the weight is removed (cm)</i>
Getah X <i>Rubber X</i>	3.0	5.0	3.0
Getah Y <i>Rubber Y</i>	3.0	5.5	4.5

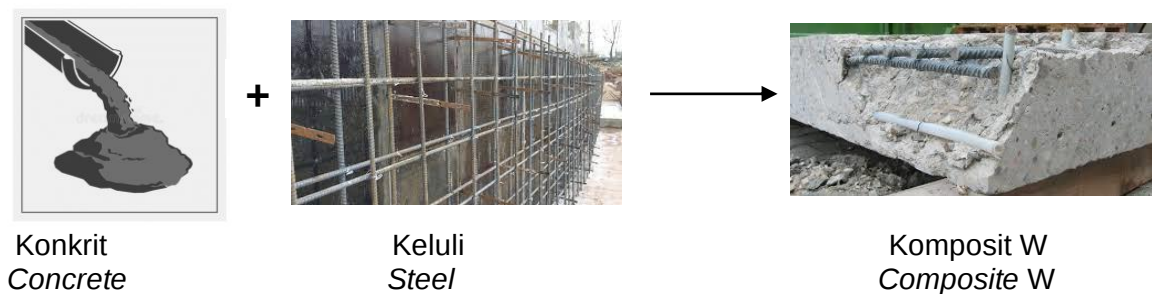
Jadual 1
Table 1

Antara yang berikut, padanan manakah yang betul tentang X dan Y?
Which of the following is correctly matched about X and Y?

	Getah X Rubber X	Getah Y Rubber Y
A	Lembut Soft	Keras Hard
B	Tidak mudah teroksida daripada udara Not easily oxidised by the air	Mudah teroksida daripada udara Easily oxidised by the air
C	Kurang elastik Less elastic	Lebih elastik More elastic
D	Mudah bertindak balas dengan bahan kimia yang lain. Easily reacts with other chemicals.	Lengai dengan bahan kimia. Inert towards chemicals

- 20 Mendakan kuning terhasil apabila larutan natrium tiosulfat, $\text{Na}_2\text{S}_2\text{O}_3$ bertindak balas dengan asid sulfurik, H_2SO_4 . Apakah mendakan kuning itu?
Yellow precipitate formed when sodium thiosulphate, $\text{Na}_2\text{S}_2\text{O}_3$ solution reacts with sulphuric acid, H_2SO_4 . What is the yellow precipitate?
- A Sulfur
Sulphur
- B Natrium klorida
Sodium chloride
- C Sulfur dioksida
Sulphur dioxide
- D Sulfur trioksida
Sulphur trioxide

- 21 Rajah 10 menunjukkan pembentukan komposit W daripada komponen asalnya.
Diagram 10 shows the formation of composite W from its original components.

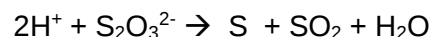


Rajah 10
Diagram 10

Antara yang berikut, pernyataan manakah yang betul menerangkan pemilihan W dalam pembinaan bangunan berbanding konkrit?

Which of the following statements is correctly explains the choice of W in building construction compare to concrete?

- A Zarah-zarah keluli tidak boleh diregangkan dan menjadikan ia kukuh
The steel particles cannot be stretched and make it tough
- B Keluli menempati ruang dalam zarah-zarah konkrit dan menjadikan ia kuat
The steel particles fix the position of the concrete particles and make it strong
- C Zarah-zarah konkrit dan keluli menggelongsor antara satu sama lain menjadikannya keras.
The concrete and steel particles can slide between each other and make it hard
- D Zarah-zarah konkrit diagih ke seluruh konkrit yang diperkukuhkan dan menjadikan ia boleh menahan kakisan
The concrete particles are distributed over the fibre glass and make it able to withstand corrosion
- 22 Persamaan ion berikut mewakili satu tindak balas kimia.
The following ionic equation represents a chemical reaction.

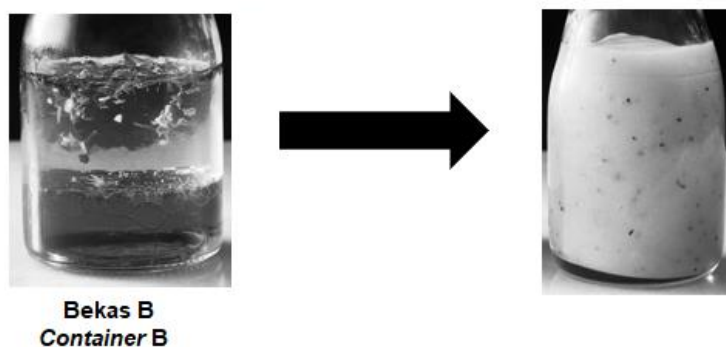


Antara yang berikut, pernyataan manakah yang betul menerangkan kadar tindak balas bagi persamaan itu berdasarkan teori perlanggaran?

Which of the following statements is correctly explains the rate of reaction for the equation based on the collision theory?

- A Tenaga pengaktifan tindak balas bertambah
Activation energy of the reaction increases
- B Jumlah luas permukaan bahan tindak balas bertambah
The total surface area of the reactants increases
- C Bilangan ion H^+ dan ion $\text{S}_2\text{O}_3^{2-}$ per unit isi padu bertambah
The number of H^+ ions and $\text{S}_2\text{O}_3^{2-}$ ions per unit volume increases
- D Masa perlanggaran antara ion H^+ dan ion $\text{S}_2\text{O}_3^{2-}$ bertambah
The time of collision between H^+ ions and $\text{S}_2\text{O}_3^{2-}$ ions increases

- 23 Rajah 11 menunjukkan pemerhatian bagi dua lapisan cecair dalam bekas B selepas bahan tambah makanan X ditambahkan.
Diagram 11 shows the observation of two layers of liquid in container B after a food additive X is added.



Rajah 11
Diagram 11

Apakah X?
What is X?

- A Perisa
Flavouring
- B Pengawet
Preservative
- C Pengantioksida
Antioxidant
- D Pengemulsi
Emulsifiers

- 24 Jadual 2 menunjukkan maklumat tentang lima unsur.
Table 2 shows information about five elements.

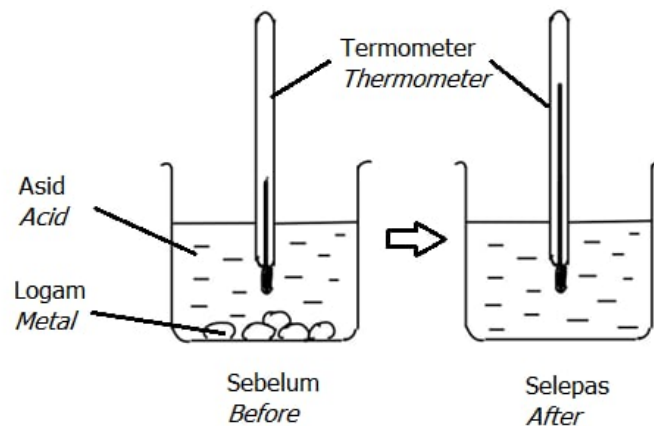
Unsur <i>Element</i>	J	K	L	M	N
Susunan elektron <i>Electron arrangement</i>	2.4	2.8.1	2.8.3	2.8.6	2.8.7

Jadual 2
Table 2

Setiap unsur dalam jadual boleh bertindak balas antara satu sama lain.
 Antara yang berikut, formula manakah yang merupakan sebatian kovalen?
Each element in the table can reacts with each other.
Which of the following formulae is covalent compound?

- A JM_2
- B J_4N
- C KN
- D LN_3

- 25 Rajah 12 menunjukkan pemerhatian bagi satu tindak balas.
Diagram 12 shows the observation for a reaction.



Rajah 12
Diagram 12

Antara yang berikut, maklumat manakah yang betul tentang tindak balas itu?
Which of the following information are correct about the reaction?

- I Bekas menjadi sejuk
Container becomes cold
 - II Haba diserap dari persekitaran
Heat is absorbed from surrounding
 - III Nilai ΔH tindak balas ini adalah negatif
The value of ΔH in the reaction is negative
 - IV Jumlah kandungan tenaga bahan tindak balas adalah lebih tinggi berbanding jumlah kandungan tenaga hasil tindak balas
The total energy content of the reactants higher than the energy content of the products.
- 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
- 26 Antara yang berikut, yang manakah betul tentang paip PVC?
Which of the following is correct about PVC pipe?
- A Kekenyalan yang tinggi.
High elasticity.
 - B Boleh dikitar semula.
Can be recycled.
 - C Terurai atau hangus apabila dipanaskan.
Disintegrate or burn upon heating.
 - D Boleh diacu semula berulang kali selepas dipanaskan.
Can be remoulded repeatedly upon heating.

- 27 Fazli mengalami gatal-gatal di lengan tangannya selepas menikmati makanan laut di sebuah restoran.

Antara yang berikut, jenis ubat manakah yang akan disarankan oleh doktor kepada Fazli?

Fazli developed an itch on his arm after eating seafood at a restaurant.

Which of the following type of medicine will the doctor recommend to Fazli?

- A Analgesik
Analgesics
- B Antimikrob
Antimicrobials
- C Ubat psikotik
Psychotic drugs
- D Kortikosteroid
Corticosteroids

- 28 Unsur X mempunyai tiga isotop X-126, X-128 dan X-131.

Antara yang berikut, pernyataan manakah yang betul menerangkan isotop itu?

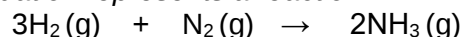
Element X has three isotopes X-126, X-128 and X-131.

Which of the following statements is correctly explains the isotopes?

- A Bilangan proton yang berlainan
Different number of protons
- B Bilangan neutron yang berbeza
Different number of neutrons
- C Sifat fizik yang sama
Same physical properties
- D Sifat kimia yang berbeza
Different chemical properties

- 29 Persamaan kimia berikut mewakili satu tindak balas.

The following chemical equation represents a reaction.



3.4 g gas ammonia dihasilkan daripada tindak balas antara gas hidrogen dengan gas nitrogen. Apakah jisim bagi kedua-dua bahan yang digunakan itu?

[Jisim atom relatif : H = 1; N = 14]

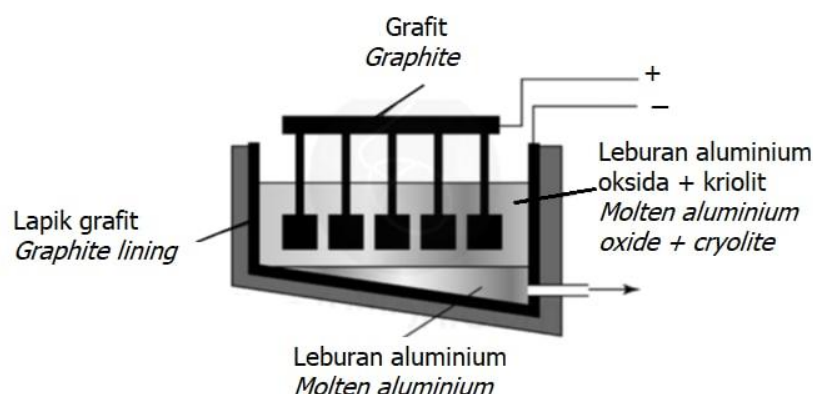
3.4 g of ammonia gas is produced from the reaction between hydrogen gas and nitrogen gas. What is the mass of the two reactants used?

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

- A 0.6 g
- B 1.2 g
- C 2.8 g
- D 3.4 g

- 30 Rajah 13 menunjukkan satu tindak balas redoks yang berlaku dalam pengekstrakan aluminium daripada bijihnya.

Diagram 13 shows a redox reaction that occurs in the extraction of aluminium from its ore.



Rajah 13
Diagram 13

Antara yang berikut, pernyataan manakah yang betul tentang tindak balas itu?
Which of the following statements is correct about the reaction?

- A Ion aluminium diturunkan di anod
Aluminium ions are reduced at the anode
- B Ion oksida mengalami penurunan
Oxide ions undergoes reduction
- C Kriolit ialah agen penurunan
Cryolite is reducing agent
- D Pengoksidaan lanjutan berlaku di anod grafit.
Further oxidation occurs at the graphite anode.
- 31 Seorang penoreh getah mendapati lateks yang dikumpulkan telah tergumpal. Beliau hendak mengatasi masalah itu dengan menambahkan bahan kimia Y ke dalam lateks. Antara yang berikut, padanan manakah yang betul mengenai Y dan sebabnya ditambah?
A rubber tapper found that latex he was collected had coagulated. He wants to solve the problem by adding chemical substance Y into the latex.
Which of the following is correctly matched about Y and why is it added?

	Y	Sebab Reason
A	Asid propanoik <i>Propanoic acid</i>	Ia meneutralkan cas negatif pada membran zarah-zarah getah. <i>It neutralises the negative charges on the membranes of the rubber particles.</i>
B	Larutan ammonia <i>Ammonia solution</i>	Ia meneutralkan H^+ daripada asid laktik. <i>It neutralises the H^+ from the lactic acid.</i>
C	Larutan disulfur diklorida dalam metilbenzena <i>Disulphur dichloride solution in methylbenzene</i>	Ia membentuk rangkai silang sulfur antara rantai polimer getah bersebelahan. <i>It formed sulphur cross-links between adjacent chains of rubber polymer.</i>
D	Sulfur <i>Sulphur</i>	Ia menghasilkan getah ter Vulkan. <i>It produces vulcanised rubber.</i>

- 32 50 cm³ larutan kalium klorida 1.0 mol dm⁻³ dicampurkan ke dalam cawan polistirena yang mengandungi 50 cm³ larutan argentum nitrat 1.0 mol dm⁻³. Haba pemendakan bagi tindak balas tersebut ialah - 51 kJ mol⁻¹. Apakah suhu maksimum bagi campuran itu jika purata suhu awal larutan tersebut ialah 29.0°C?

[Muatan haba tentu larutan = 4.2 J g⁻¹°C]

50 cm³ of 1.0 mol dm⁻³ potassium chloride solution is mixed into a polystyrene cup which containing 50 cm³ of 1.0 mol dm⁻³ silver nitrate solution. The heat of precipitation for the reaction is - 51 kJ mol⁻¹. What is the maximum temperature of the mixture if the average of initial temperature of the solution is 29.0°C?

[Specific heat capacity of solutions = 4.2 J g⁻¹°C]

- A 6.0 °C
B 12.1 °C
C 35.0 °C
D 41.1 °C
- 33 Rajah 14 menunjukkan bacaan meter pH larutan yang diukur oleh seorang pelajar di dalam makmal.

Figure 14 shows the pH meter reading of the solution measured by a student in the laboratory.



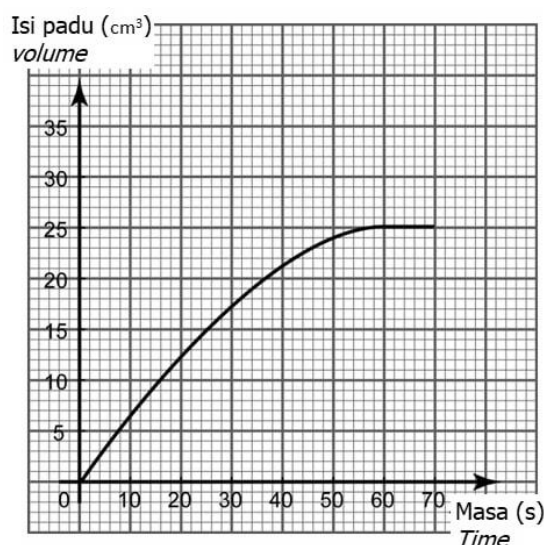
Rajah 14
Diagram 14

Apakah kemolaran larutan itu?

What is the molarity of the solution?

- A 0.01 mol dm⁻³
B 2.0 mol dm⁻³
C 1×10⁻¹² mol dm⁻³
D 1×10⁻¹⁴ mol dm⁻³

- 34 Rajah 15 menunjukkan graf isipadu gas hidrogen melawan masa bagi satu tindak balas.
Diagram 15 shows a graph of volume of hydrogen gas against time for a reaction.



Rajah 15
 Diagram 15

Apakah kadar tindak balas purata keseluruhan bagi tindak balas itu?
What is the average rate of reaction for the first 60 seconds?

- A $0.36 \text{ cm}^3 \text{ s}^{-1}$
 B $0.42 \text{ cm}^3 \text{ s}^{-1}$
 C $0.48 \text{ cm}^3 \text{ s}^{-1}$
 D $0.57 \text{ cm}^3 \text{ s}^{-1}$
- 35 Persamaan kimia berikut mewakili tindak balas penguraian kuprum(II) nitrat apabila dipanaskan.
The chemical equation represents the decomposition reaction of copper(II) nitrate when heated.



Antara yang berikut, yang manakah akan dihasilkan apabila 37.6 g kuprum(II) nitrat terurai lengkap pada keadaan bilik?

[Isipadu molar: $24 \text{ dm}^3 \text{ mol}^{-1}$ pada keadaan bilik; pemalar Avogadro, N_A : $6.02 \times 10^{23} \text{ mol}^{-1}$]

Which of the following is produced when 37.6g copper(II) nitrate is decomposed completely at room conditions?

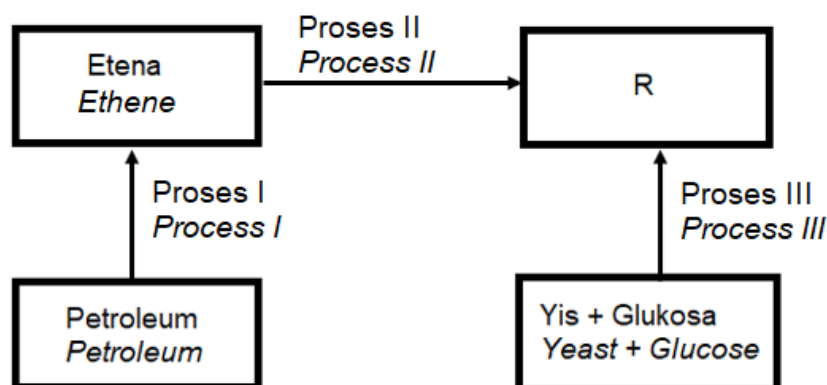
[Molar volume: $24 \text{ dm}^3 \text{ mol}^{-1}$ at room conditions, Avogadro constant, N_A : $6.02 \times 10^{23} \text{ mol}^{-1}$]

- A 16 g kuprum(II) oksida
 16 g copper(II) oxide
 B 4.8 dm^3 gas oksigen
 4.8 dm^3 of oxygen gas
 C 1.204×10^{23} molekul nitrogen dioksida
 1.204×10^{23} nitrogen dioxide molecule
 D 0.1 mol atom oksigen
 0.1 mol of oxygen atom

- 36 Niza menggemari aktiviti perkhemahan dan menyukai minuman sejuk. Antara yang berikut, kaedah manakah yang paling sesuai untuk membantu Niza menikmati minuman sejuk ketika berkhemah?
Niza enjoys camping activities and likes cold drinks. Which of the following is the most suitable method to help Niza enjoys a cold drink while camping?
- A Menyimpan bekas yang mengandungi minuman di dalam plastik yang berisi larutan asid dan larutan alkali.
Store the container with drinks into plastic containing acidic and alkaline solutions.
 - B Meletakkan bekas yang mengandungi minuman di dalam bekas polistirena berisi ais.
Place the container with drinks into polystyrene container filled with ice.
 - C Meletakkan bekas yang mengandungi minuman di dalam air sungai.
Place the container with drinks in the river water.
 - D Menyimpan bekas mengandungi minuman di dalam plastik berisi pepejal ammonium klorida dan air.
Store the container with drinks into plastic containing ammonium chloride solids and water.
- 37 2.22 g butanol terbakar lengkap dalam oksigen berlebihan telah memanaskan 500 cm³ air dari 28.5 °C ke 56.8 °C. Apakah haba pembakaran bagi butanol?
[Muatan haba tentu bahan larutan = 4.2 J g⁻¹ °C⁻¹]
[Jisim atom relatif: H = 1; C = 12; O, 16]
2.22 g of butanol is burnt completely in excess of oxygen heated 500 cm³ of water from 28.5 °C to 56.8 °C. What is the heat of combustion of butanol?
[Specific heat capacity of water = 4.2 J g⁻¹ °C⁻¹]
[Relative atomic mass: H = 1; C = 12; O, 16]
- A 3976 kJ mol⁻¹
 - B 3224 kJ mol⁻¹
 - C 1981 kJ mol⁻¹
 - D 1606 kJ mol⁻¹

- 38 Rajah 16 menunjukkan carta alir bagi beberapa siri tindak balas kimia yang melibatkan sebatian karbon.

Diagram 16 shows the flow chart of few series of chemical reactions involving carbon compounds.



Rajah 16
Diagram 16

Bahan R merupakan satu bahan yang digunakan secara meluas dalam penghasilan pembasmi kuman. Namun, pengeluaran petroleum yang semakin berkurang telah menjejaskan penghasilan bahan R.

Antara yang berikut, pernyataan manakah yang boleh dilakukan untuk mengatasi masalah itu?

Substance R is a substance that is widely used in the production of sanitiser. However, the decreasing production of petroleum has affected the production of substance R. Which of the following statements can be done to overcome the problem?

- A Menjalankan penapaian air tebu.
Conduct fermentation of sugarcane juice.
- B Mengoksidakan etena kepada R.
Oxidise ethene to R.
- C Menggantikan petroleum dengan tenaga solar.
Replace the petroleum with solar energy.
- D Menggurangkan penggunaan pembasmi kuman.
Reduce the use of sanitiser.

- 39 Aisyah ingin mengenal pasti garam R dengan menjalankan tiga ujian kualitatif di dalam makmal.

Jadual 3 menunjukkan tiga pemerhatian bagi ujian kualitatif garam R.

Aisyah wants to identify salt R by conducting three qualitative tests in the laboratory.

Table 3 shows three observations for qualitative tests of salt R.

Tabung uji <i>Test tube</i>	Ujian <i>Test</i>	Pemerhatian <i>Observation</i>
1	Garam R dilarutkan dalam air suling. Kemudian larutan natrium hidroksida dan larutan ammonia ditambahkan sedikit demi sedikit sehingga berlebihan ke dalam larutan R secara berasingan. <i>Salt R is dissolved in distilled water. Then sodium hydroxide solution and ammonia solution are added a little by little until excess into solution R separately.</i>	Mendakan putih terbentuk dan larut dalam larutan natrium hidroksida dan larutan ammonia berlebihan. <i>White precipitate is formed and dissolve in excess sodium hydroxide solution and ammonia solution.</i>
2	Garam R dilarutkan dalam air suling dan larutan kalium iodida ditambahkan ke dalamnya. <i>Substance R is dissolved in distilled water and potassium iodide solution is added into it.</i>	Tiada perubahan. <i>No changes.</i>
3	Garam R dilarutkan dalam air suling. Kemudiannya, sedikit asid nitrik ditambahkan ke dalam larutan R diikuti 2cm ³ larutan barium nitrat. <i>Salt R is dissolved in distilled water. Then, a little nitric acid is added into solution R followed by 2 cm³ of barium nitrate solution.</i>	Mendakan putih terbentuk. <i>White precipitate is formed.</i>

Jadual 3

Table 3

Kemudian, Aisyah mencampurkan larutan R dengan larutan kalsium nitrat untuk menghasilkan mendakan S.

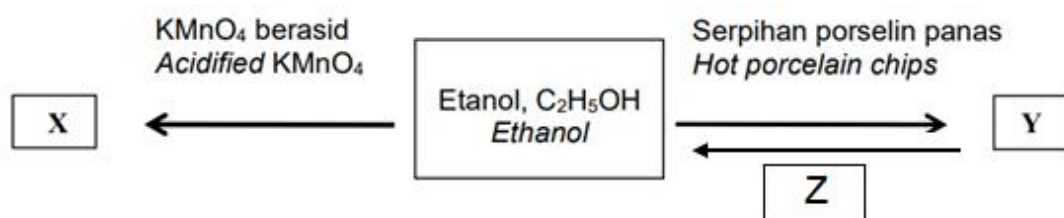
Apakah S?

After that, Aisyah mixed the solution R with calcium nitrate solution to produce precipitate S.

What is S?

- A Kalsium oksida
Calcium oxide
- B Kalsium karbonat
Calcium carbonate
- C Kalsium hidroksida
Calcium hydroxide
- D Kalsium sulfat
Calcium sulphate

- 40 Rajah 17 menunjukkan tindak balas kimia bagi etanol.
Diagram 17 shows a chemical reaction of ethanol.



Rajah 17
Diagram 17

Rudi telah menjalankan satu eksperimen menggunakan etanol dan hasil X untuk menghasilkan satu bahan W.

Antara yang berikut, padanan manakah yang betul tentang sifat W, Y dan proses Z?

Rudi had carried out an experiment using ethanol and product X to produce a substance W.

Which of the following matches is correct about the properties of W, Y and process Z?

	W	Y	Z
A	Larut dalam pelarut organik <i>Dissolve in organic solvent</i>	Melunturkan warna perang air bromin <i>Decolourised the brown bromine water</i>	Penghidratan <i>Hydration</i>
B	Lebih tumpat daripada air <i>Denser than water</i>	Melunturkan warna perang air bromin <i>Decolourised the brown bromine water</i>	Penghidratan <i>Hydration</i>
C	Mudah meruap <i>Volatile</i>	Melunturkan warna ungu larutan kalium manganat(VII) berasid <i>Decolourised the purple potassium manganate(VII) solution</i>	Pendehidratan <i>Dehydration</i>
D	Berbau wangi <i>Sweet smell</i>	Melunturkan warna ungu larutan kalium manganat(VII) berasid <i>Decolourised the purple potassium manganate(VII) solution</i>	Pendehidratan <i>Dehydration</i>