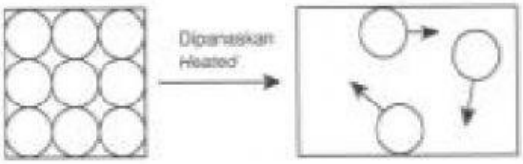
Kertas 1

[40 markah/*marks*] (1¼ jam/*hours*)

1 Antara yang berikut, yang manakah persamaan antara isotop C-12 dan C-13?
Which of the following is the similarity between isotopes C-12 and C-13?

A Bilangan neutron / *Number of neutrons*
B Bilangan proton / *Number of protons*
C Nombor nukleon / *Nucleon numbers*
D Sifat fizik / *Physical properties*

2 Rajah 1 menunjukkan pergerakan zarah-zarah bahan *X* apabila dipanaskan.
Diagram 1 below shows the movement of particles in substance X when it is heated.

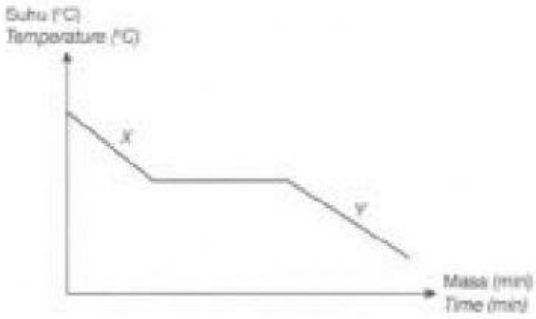


Rajah 1 *Diagram 1*

Bahan manakah *X*?
Which substance is X?

A Iodin / *Iodine*
B Plumbum / *Lead*
C Ammonium sulfat / *Ammonium sulphate*
D Plumbum(II) bromida / *Lead(II) bromide*

3 Rajah 2 menunjukkan lengkung penyejukan bagi cecair naftalena.
Diagram 2 shows the cooling curve of liquid naphthalene.



Rajah 2 *Diagram 2*

Apakah keadaan fizikal naftalena pada peringkat *X* dan *Y*?
Which are the physical states of naphthalene at X and Y?

	X	*Y*
A	Pepejal *Solid*	Cecair *Liquid*
B	Gas *Gas*	Pepejal *Solid*
C	Cecair *Liquid*	Gas *Gas*
D	Cecair *Liquid*	Pepejal *Solid*

4 Berapakah jisim formula relatif ammonium nitrat, NH_4NO_3?
[Jisim atom relatif: N = 14, H = 1, O = 16]
What is the relative formula mass of ammonium nitrate, NH_4NO_3?
[Relative atomic mass: N = 14, H = 1, O = 16]

A 76
B 79
C 80
D 90

5 Persamaan kimia berikut menunjukkan pendehidratan propanol untuk menghasilkan gas propena dan air.
The following chemical equation shows the dehydration of propanol to produce propene gas and water.

KBAT

$$C_3H_7OH(ce) \rightarrow C_3H_6(g) + H_2O(ce)$$
$$C_3H_7OH(l) \rightarrow C_3H_6(g) + H_2O(l)$$

Jika 15.0 g propanol didehidratkan, hitung isi padu gas propena yang terhasil pada suhu bilik.
If 15.0 g of propanol is dehydrated, calculate the volume of propene gas produced at room temperature.
[Jisim atom relatif/*Relative atomic mass*: C = 12, O = 16, H = 1; Isi padu molar pada keadaan bilik/*Molar volume of gas at room conditions*: 24 dm^3 mol^{-1}]

A 18.00 dm^3
B 17.14 dm^3
C 8.57 dm^3
D 6.00 dm^3

LIVEWORKSHEETS

6 Antara berikut, yang manakah **tidak** mengandungi 3×10^{22} atom?
*Which of the following does **not** contain 3×10^{22} atoms?*
[Jisim atom relatif/*Relative atomic mass*: Mg = 24, S = 32, Ti = 48, Cu = 64]

A 1.2 g magnesium *1.2 g of magnesium*
B 1.8 g sulfur *1.8 g of sulphur*
C 2.4 g titanium *2.4 g of titanium*
D 3.2 g kuprum *3.2 g of copper*

7 Persamaan kimia untuk pembakaran karbon dalam oksigen ditunjukkan di bawah.
KBAT
The chemical equation for the burning of carbon in oxygen is shown below.

$$C(p) + O_2(g) \rightarrow CO_2(g)$$
$$C(s) + O_2(g) \rightarrow CO_2(g)$$

Antara maklumat berikut, yang manakah **tidak** benar tentang tindak balas di atas?
*Which of the following information is **not** true about the above reaction?*
[Jisim atom relatif/*Relative atomic mass*: C = 12, O = 16]

A Satu mol karbon bergabung dengan satu mol oksigen untuk menghasilkan satu mol karbon dioksida.
One mole of carbon combines with one mole of oxygen to produce one mole of carbon dioxide.
B 12 g karbon bergabung dengan 32 g oksigen.
12 g of carbon combines with 32 g of oxygen.
C Satu mol karbon dioksida boleh didapati daripada satu mol oksigen.
One mole of carbon dioxide can be obtained from one mole of oxygen.
D 1 g karbon bergabung dengan 1 g oksigen.
1 g of carbon combines with 1 g of oxygen.

8 Antara pernyataan berikut, yang manakah menjelaskan mengapa unsur Kumpulan 1 mempunyai sifat kimia yang serupa?
Which of the following statements explains why Group 1 elements have similar chemical properties?

A Semua unsur Kumpulan 1 mempunyai satu elektron valens.
All Group 1 elements have one valence electron.
B Semua unsur Kumpulan 1 adalah logam alkali bumi.
All the elements are alkaline earth metals.
C Nombor proton meningkat apabila menuruni Kumpulan.
The proton number increases when going down the Group.
D Semua unsur Kumpulan 1 mempunyai takat lebur dan takat didih yang lebih rendah berbanding dengan logam berat.
All Group 1 elements have low melting and boiling points compared to heavy metals.

9 Unsur *M* mempunyai nombor proton 17 dan nombor nukleon 35. Unsur *M* terletak dalam Kumpulan mana dalam Jadual Berkala Unsur?
KBAT
Element M has a proton number of 17 and a nucleon number of 35. In which group is element M in the Periodic Table of Elements?

A Kumpulan 1 *Group 1*
B Kumpulan 13 *Group 13*
C Kumpulan 17 *Group 17*
D Kumpulan 18 *Group 18*

10 Antara pernyataan berikut, yang manakah benar tentang unsur-unsur dalam Kumpulan 17 Jadual Berkala Unsur?
Which of the following statements is true about the elements in Group 17 of the Periodic Table of Elements?

A Semua unsurnya mempunyai keelektronegatifan yang rendah.
All of the elements have low electronegativity.
B Semua unsurnya mempunyai tujuh elektron valens.
All of the elements have seven valence electrons.
C Semua unsurnya wujud sebagai molekul monoatom.
All of the elements exist as monoatomic molecules.
D Semua unsurnya bertindak balas cergas dengan larutan natrium hidroksida pada suhu bilik.
All of the elements react vigorously with sodium hydroxide solution at room temperature.

11 Suatu sebatian menghasilkan ion-ion berikut apabila larut dalam air.
A compound produces the following ions when dissolved in water.

Ion positif : X^{2+} *Positive ion*
Ion negatif : Y^{2-} *Negative ion*

Apakah formula paling ringkas untuk sebatian ini?
What is the simplest formula for this compound?

A XY
B XY_2
C X_2Y
D X_2Y_3

LIVEWORKSHEETS

12 Jadual 1 menunjukkan maklumat tentang kekonduksian elektrik bagi bahan *P*, *Q* dan *R*.
Table 1 shows the information about the electrical conductivity of substances P, Q and R.

Bahan *Substance*	*P*	*Q*	*R*
Adakah pepejalnya mengalirkan arus elektrik? *Does its solid conduct electricity?*	✓	✗	✗
Adakah cecairnya mengalirkan arus elektrik? *Does its liquid conduct electricity?*	✓	✗	✓

Jadual 1 *Table 1*

Antara pernyataan berikut, yang manakah benar?
Which of the following statements is true?

A Pepejal *P* dan leburan *P* mengandungi ion-ion yang bebas bergerak.
Solid P and molten P contain freely moving ions.

B Pepejal *Q* dan leburan *Q* mengandungi atom.
Solid Q and molten Q contain atoms.

C Tiada ion dalam pepejal *R*.
There are no ions in solid R.

D Leburan *R* mengandungi ion-ion yang bebas bergerak.
Molten R contains freely moving ions.

13 Antara berikut, pernyataan yang manakah benar tentang pembentukan ion ammonium, NH_4^+?
Which of the following statements is true about the formation of ammonium ion, NH_4^+?

A Sepasang elektron dikongsi antara ion-ion hidrogen dan satu atom nitrogen.
A pair of electrons is shared between hydrogen ions and a nitrogen atom.

B Sepasang elektron dikongsi antara atom-atom hidrogen dan satu atom nitrogen.
A pair of electrons is shared between hydrogen atoms and a nitrogen atom.

C Satu atom nitrogen berkongsi sepasang elektron bebas dengan satu atom hidrogen.
A nitrogen atom shares a pair of free electrons with one hydrogen atom.

D Satu ion nitrogen berkongsi sepasang elektron bebas dengan satu ion hidrogen.
A nitrogen ion shares a pair of free electrons with one hydrogen ion.

14 Larutan manakah mempunyai kuantiti ion hidrogen yang paling tinggi?
KBAT
Which solution has the highest quantity of hydrogen ions?

A 20 cm^3 larutan asid hidroklorik 0.4 mol dm^{-3}
20 cm^3 of 0.4 mol dm^{-3} hydrochloric acid solution

B 20 cm^3 larutan asid etanoik 0.4 mol dm^{-3}
20 cm^3 of 0.4 mol dm^{-3} ethanoic acid solution

C 30 cm^3 larutan asid nitrik 0.2 mol dm^{-3}
30 cm^3 of 0.2 mol dm^{-3} nitric acid solution

D 25 cm^3 larutan asid sulfurik 0.2 mol dm^{-3}
25 cm^3 of 0.2 mol dm^{-3} sulphuric acid solution

15 Nilai pH bahan *Z* ialah 1. Antara berikut, yang manakah **bukan** sifat kimia bahan *Z*?
*The pH value of substance Z is 1. Which of the following is **not** a chemical property of substance Z?*

A Bertindak balas dengan logam karbonat untuk menghasilkan garam, air, dan karbon dioksida
Reacts with metal carbonates to produce salts, water, and carbon dioxide

B Bertindak balas dengan logam reaktif untuk menghasilkan garam dan hidrogen
Reacts with reactive metals to produce salts and hydrogen

C Bertindak balas dengan logam oksida untuk menghasilkan garam dan oksigen
Reacts with metal oxides to produce salts and oxygen

D Menukar kertas litmus biru menjadi merah
Turns blue litmus paper red

16 Tanah di kebun Pak Samad sangat berasid. Bahan manakah paling sesuai digunakan untuk mengatasi masalah Pak Samad?
KBAT
The soil in Pak Samad's garden is highly acidic. Which material is the most suitable to be used to solve Pak Samad's problem?

A Magnesium sulfat
Magnesium sulphate

B Kalsium hidroksida
Calcium hydroxide

C Barium klorida
Barium chloride

D Barium nitrat
Barium nitrate

17 Jadual 2 menunjukkan pemerhatian bagi ujian yang dijalankan ke atas larutan *T*.
KBAT
Table 2 shows the observations of tests performed on solution T.

Ujian *Test*	**Pemerhatian** *Observation*
Tambahkan larutan ammonia sehingga berlebihan *The addition of ammonia solution until in excess*	Mendakan putih yang larut dalam larutan ammonia berlebihan terbentuk *A white precipitate that dissolves in excess ammonia solution is formed*

LIVEWORKSHEETS

Tambahkan asid sulfurik cair diikuti dengan larutan ferum(II) sulfat dan beberapa titik asid sulfurik pekat *Addition of dilute sulphuric acid followed by iron(II) sulphate solution and a few drops of concentrated sulphuric acid*	Gelang perang terbentuk *A brown ring is formed*

Jadual 2 *Table 2*

Apakah *T*?
What is T?

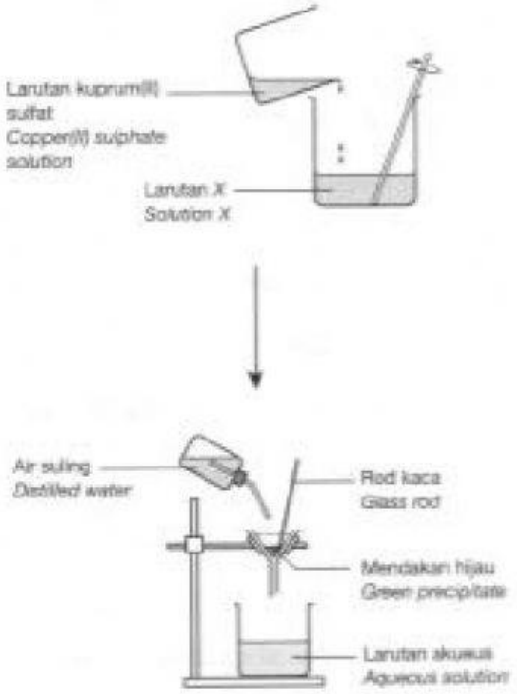
A Plumbum(II) sulfat
Lead(II) sulphate

B Plumbum(II) klorida
Lead(II) chloride

C Plumbum(II) nitrat
Lead(II) nitrate

D Zink nitrat
Zinc nitrate

18 Rajah 3 menunjukkan sebahagian daripada langkah penyediaan satu garam.
Diagram 3 shows part of the steps to prepare a salt.



Rajah 3 *Diagram 3*

Berdasarkan Rajah 3, yang manakah antara berikut adalah larutan *X*?
Based on Diagram 3, which of the following is solution X?

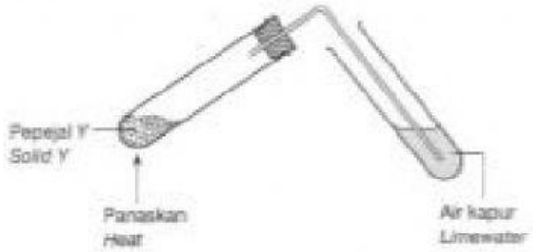
A Natrium klorida
Sodium chloride

B Kalium karbonat
Potassium carbonate

C Natrium nitrat
Sodium nitrate

D Nikel klorida
Nickel chloride

19 Rajah 4 menunjukkan susunan radas untuk pemanasan pepejal *Y*.
Diagram 4 shows the apparatus set-up for heating solid Y.



Rajah 4 *Diagram 4*

Air kapur menjadi keruh dan baki berwarna kuning apabila panas dan putih apabila sejuk terhasil. Apakah pepejal *Y*?
The limewater becomes cloudy and the residue formed is yellow when hot and white when cold. What is solid Y?

A Kalsium karbonat
Calcium carbonate

B Ferum(III) klorida
Iron(III) chloride

C Magnesium sulfat
Magnesium sulphate

D Zink karbonat
Zinc carbonate

20 Faktor manakah **tidak** mempengaruhi kadar penghasilan gas hidrogen dalam tindak balas antara magnesium dan asid hidroklorik?
*Which factor will **not** influence the rate of hydrogen gas liberated in the reaction between magnesium and hydrochloric acid?*

A Penambahan larutan kuprum(II) sulfat
Addition of copper(II) sulphate solution

B Suhu asid hidroklorik
Temperature of hydrochloric acid

C Kemolaran asid hidroklorik
Molarity of hydrochloric acid

D Jenis radas yang digunakan
The type of apparatus used

21 Jadual 3 menunjukkan dua eksperimen yang dijalankan untuk mengkaji kadar tindak balas antara zink dengan asid hidroklorik yang membebaskan gas hidrogen.
Table 3 shows two experiments carried out to study the rate of reaction between zinc and hydrochloric acid that produces hydrogen gas.

LIVEWORKSHEETS