4541/1
CHEMISTRY
Kertas 1
Mei
2011
1 ¼ jam

BAHAGIAN PENGURUSAN
SEKOLAH BERASRAMA PENUH DAN SEKOLAH KECEMERLANGAN
KEMENTERIAN PELAJARAN MALAYSIA

PEPERIKSAAN PERTENGAHAN TAHUN 2011
TINGKATAN LIMA

CHEMISTRY
Kertas 1

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. Kertas soalan ini mengandungi **50** soalan.
2. Jawab **semua** soalan
3. Tiap-tiap soalan diikuti oleh empat pilihan jawapan, iaitu **A, B, C** dan **D.** Bagi setiap soalan, pilih **satu jawapan sahaja.** Hitamkan jawapan anda pada kertas jawapan objektif yang disediakan.
4. Jika anda hendak menukar jawapan, padamkan tanda yang telah dibuat, kemudian hitamkan jawapan yang baru.
5. Rajah yang mengiringi soalan tidak dilukiskan mengikut skala kecuali dinyatakan
6. Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogramkan.

Kertas soalan ini mengandungi **26** halaman bercetak

1 Diagram 1 shows the inter-conversion of the states of matter of a substance.
Rajah 1 menunjukkan perubahan keadaan jirim bagi suatui bahan.

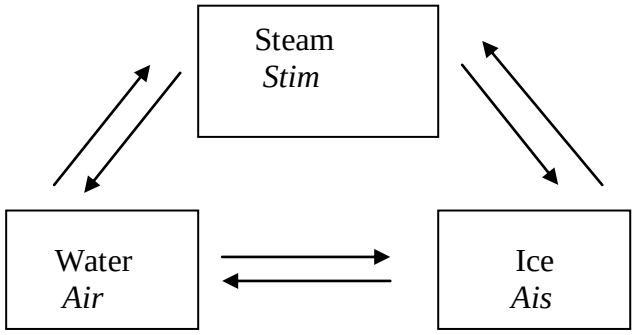


Diagram 1
Rajah 1

Which inter-conversion involves the absorb of energy?
Perubahan keadaan manakah yang melibatkan penyerapan tenaga?

A Ice ⟶ Steam
Ais ⟶ *Stim*

B Steam ⟶ Water
Stim ⟶ *Air*

C Water ⟶ Ice
Air ⟶ *Ais*

D Steam ⟶ Ice
Stim ⟶ *Ais*

2 The relative atomic mass of aluminium and silver is 27 and 108 respectively. How many aluminium atom have same the mass as one silver atom
Jisim atom relatif bagi aluminum dan argentum adalah 27 *dan* 108. *Berapakah atom aluminium yang mempunyai jisim yang sama dengan jisim satu atom argentum*

A 2
B 3
C 4
D 5

3 Which of the following elements is an alkali earth metal?
Antara unsur berikut yang manakah logam alkali bumi?

A Iron
Besi

B Copper
Kuprum

C Helium
Helium

D Beryllium
Berilium

4 Diagram 2 shows the electron arrangement of a compound formed between atoms X and atom Y.
Rajah 2 *menunjukkan susunan elektron bagi sebatian yang terbentuk di antara atom X dan atom* Y

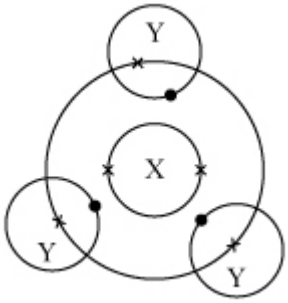


Diagram 2
Rajah 2

Which of the following statements is true about this compound?
Yang manakah di antara pernyataan berikut benar tentang sebatian ini?

A It is an ionic compound
Ia merupakan sebatian ion

B The compound conducts electricity
Sebatian ini boleh mengkonduksikan arus elektrik

C The compound has high melting point
Sebatian ini mempunyai takat lebur yang tinggi

D The compound is formed by the sharing of electrons
Sebatian terbentuk melalui perkongsian elektron

5 Solid lead(II) bromide does not conduct electricity because
Pepejal plumbum(II) bromida tidak mengkonduksi elektrik kerana

A It consists of molecules.
Ia terdiri daripada molekul-molekul

B It does not contain ion.
Ia tidak mengandungi ion-ion

C It contains lead(II) ions and bromide ions that are not free to move.
Ia terdiri daripada ion plumbum(II) *dan ion bromida yang tidak bebas bergerak*

D Lead(II) ions and bromide ions are bonded by strong covalent bonds
Ion plumbum(II) *dan ion bromida terikat oleh ikatan kovalen yang kuat*

6 Which of the following substance can react with glacial ethanoic acid?
Antara bahan berikut yang manakah boleh bertindak balas dengan asid etanoik glasial?

A Calcium carbonate
Kalsium karbonat

B Magnesium
Magnesium

C Sodium hydroxide solution
Larutan natrium hidroksida

D Copper(II) oxide
Kuprum(II) oksida

7 Which of the following is a coloured salt?
Antara berikut yang manakah suatu garam berwarana?

A Iron(II) sulphate
Ferum(II) *sulfat*

B Silver nitrate
Argentum nitrat

C Lead(II) nitrate
Plumbum(II) *nitrat*

D Calcium carbonate
Kalsium karbonat

8 Ammonia is reacted with substance X in industry to produce the fertiliser, ammonium sulphate, $(NH_4)_2SO_4$.
Ammonia bertindak balas dengan bahan X *dalam industri untuk menghasilkan baja ammonium sulfat,* $(NH_4)_2SO_4$.
What is X?
Apakah X?

A Sulphuric acid
Asid sulfurik
B Copper(II) sulphate
Kuprum(II) *sulfat*
C Sulphur dioxide
Sulfur dioksida
D Sulphur
Sulfur

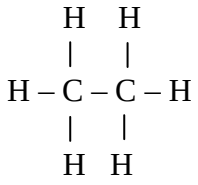
9 The equation shows a reaction to produce carbon dioxide gas
Persamaan menunjukkan tindak balas untuk menghasilkan gas karbon dioksida

$$CaCO_3 + 2HCl \rightarrow CaCl_2 + H_2O + CO_2$$

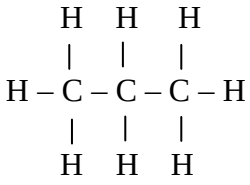
Which of the following would increase the rate of reaction above?
Antara berikut yang manakah dapat meningkatkan kadar tindak balas di atas?

A Increase the volume of hydrochloric acid
Menambahkan isi padu asid hidroklorik
B Use powder of calcium carbonate
Menggunakan serbuk kalsium karbonat
C Decrease the temperature of the mixture
Merendahkan suhu campuran
D Add copper(II) sulphate solution
Menambahkan larutan kuprum(II) *sulfat*

10 Diagram 3 shows structural formulae of two hydrocarbons P and Q .
Rajah 3 *menunjukkan formula struktur bagi hidrokarbon* P *dan* Q.



P



Q

Diagram 3
Rajah 3

Which statement is true of both hydrocarbon P and Q?
Pernyataan yang manakah benar bagi kedua – dua hidrokarbon P *dan* Q?

A They have different functional groups
Kedua-duanya mempunyai kumpulan berfungsi yang berlainan
B All their physical properties are similar
Semua sifat fiziknya sama
C All their chemical properties are different
Semua sifat kimianya berbeza
D They can be represented by the same general formula
Kedua-duanya boleh diwakili oleh satu formula am yang sama

11 In a chemical reaction of calcium carbonate with hydrochloric acid, 9.03×10^{22} molecules of carbon dioxide is produced. What is number of mole of carbon dioxide collected?
[Avogadro constant : 6.02×10^{23}]
Tindak balas antara kalsium karbonat dengan asid hidroklorik menghasilkan 9.03×10^{22} *molekul karbon dioksida. Apakah bilangan mol karbon dioxida yang dihasilkan?*
[*Pemalar Avogadro :* 6.02×10^{23}]

A 0.067 mol
B 0.903 mol
C 0.15 mol
D 1.00 mol

12 Diagram 4 shows the structure of atom of an element.
Rajah 4 *menunjukkan susunan atom bagi suatu unsur.*

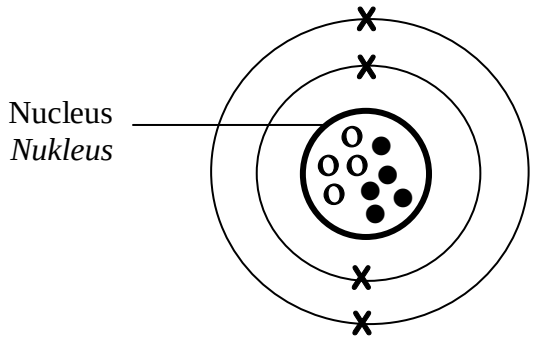


Diagram 4
Rajah 4

What is the number of proton, electron and neutron in this element?

Berapakah bilangan proton, elektron dan neutron dalam unsur ini?

	Proton ***Proton***	**Electron** ***Elektron***	**Neutron** ***Neutron***
A	4	4	5
B	4	5	9
C	5	4	4
D	9	4	4

13 Element J is placed in Group 13 and Period 3 of the Periodic Table of Elements.
What is the electron arrangement of an atom J?
The letter J is not the actual symbol of the element
Unsur J *ditempatkan dalam Kumpulan* 13 *dan Kala* 3 *pada Jadual Berkalan Unsur.*
Apakah susunan elektron bagi atom J?
Huruf J *bukan simbol sebenar unsur itu*

A 2.3
B 2.8.3
C 2.8.13
D 2.8.8.3

14 What is the meaning of ionic bond?
Apakah maksud ikatan ion?

A A bond formed when metal atoms contribute electrons to each other to achieve octet electron arrangement
Ikatan yang terbentuk apabila atom-atom logam menyumbangkan elektron kepada satu sama lain untuk mencapai suatu susunan elektron oktet

B A bond formed when non-metals share electrons to achive octet electron arrangement
Ikatan yang terrbentuk apabila atom-atom bukan logam berkongsi elektron untuk mencapai susunan elektron oktet

C A bond formed by weak Van der Waals force between the non-metal atoms
Ikatan yang terbentuk oleh daya Van der Waals yang lemah di antara atom-atom bukan logam

D A bond formed when a metal atom transfer an electron to a non-metal atom
Ikatan yang terbentuk apabila satu atom logam memindahkan satu elektron ke satu atom bukan logam.

15 Which of the following substance conducts electricity in molten and aqueous state?
Di antara bahan berikut, yang manakah mengkonduksi elektrik dalam keadaan lebur dan akueus?

A Potassium sulphate
Kalium sulfat

B Naphthalene
Naftalena

C Copper
Kuprum

D Lead(II) bromide
Plumbum(II) *bromide*

16 Which of the following solution has the lowest pH value?
Antara larutan berikut yang manakah mempunyai nilai pH *paling rendah*?

A 1.0 mol dm^{-3} hydrochloric acid solution
1.0 mol dm^{-3} *larutan asid hidroklorik*

B 1.0 mol dm^{-3} sodium hydroxide solution
1.0 mol dm^{-3} *larutan natrium hidroksida*

C 1.0 mol dm^{-3} sulphuric acid solution
1.0 mol dm^{-3} *larutan asid sulfurik*

D 1.0 mol dm^{-3} ethanoic acid solution
1.0 mol dm^{-3} *larutan asid etanoik*

17 Which salt is not decomposed when heated?
Garam yang manakah tidak terurai apabila dipanaskan

A Calcium carbonate
Kalsium karbonat
B Sodium carbonate
Natrium karbonat
C Ammonium carbonate
Ammonium karbonat
D Copper(II) carbonate
Kuprum(II) *karbonat*

18 What is the main component of glass?
Apakah komponen utama kaca?

A Silica
Silika
B Calcium carbonate
Kalsium karbonat
C Sodium carbonate
Natrium karbonat
D Aluminium silicate
Aluminium silikat

19 Which of the following statements are true about catalyst?
Antara pernyataan berikut yang manakah benar tentang mangkin?

I A catalyst increases the quantity of products
Mangkin menambahkan kuantiti hasil tindak balas
II A positive catalyst increases the rate of reaction
Mangkin positif menambahkan kadar tindak balas
III Only a small quantity of catalyst is needed to catalyst a reaction
Sedikit mangkin sahaja diperlukan untuk memangkinkan satu tindak balas
IV A catalyst increases the frequency of collision between particles of reactant
Mangkin menambahkan frekuensi perlanggaran antara molekul reaktan

A I and II
I *dan* II
B II and III
II *dan* III
C III and IV
III *dan* IV
D II, III and IV
II, III *dan* IV

20 Which of the following is the general formula of alkene?
Yang manakah formula umum alkene?

A C_nH_{2n}
B $C_nH_{2n+1}OH$
C $C_nH_{2n+1}COOH$
D $C_nH_{2n+1}COO\ C_nH_{2n+1}$

21 Table 1 shows the melting point and boiling point of four substances.
Jadual 1 *menunjukkan takat lebur dan takat didih bagi empat bahan.*

Substances ***Bahan***	**Melting point / ^{0}C** ***Takat lebur*** **/ ^{0}C**	**Boiling point / ^{0}C** ***Takat didih*** **/ ^{0}C**
P	157	-9
Q	-13	55
R	80	196
S	256	300

Table 1
Jadual 1

Which substance is a liquid at room temperature?
Bahan manakah ialah cecair pada suhu bilik?

A P
B Q
C R
D S

22 A compound contains 75% carbon and 25% of hydrogen by mass. What is the empirical formula of the compound?
[Relative atomic mass of H=1; C = 12]

Satu sebatian mempunyai 75% *karbon dan* 25% *hidrogen mengikut jisim. Apakah formula empirik sebatian itu*?
[*Jisim atom relative* H = 1; C = 12]

A CH_2
B CH_4
C C_2H_4
D C_3H_8

23 The following statements describe the characteristics of element X
Pernyataan berikut memperihalkan ciri-ciri unsur X

- React with water to produce hydrogen gas
- Burn in oxygen to produce substance which dissolve in water to form alkaline solution.

Which of the following elements is suitable with the characteristics above?
Antara unsur berikut yang manakah sesuai dengan ciri-ciri di atas

A Chlorine
Klorin
B Sulphur
Sulfur
C Sodium
Natrium
D Aluminium
Aluminium

24 The following statements show the steps taken in an experiment.
Pernyataan berikut menunjukkan langkah-langkah yang diambil dalam satu eksperimen.

- Lead(II) nitrate solution is mixed with potassium sulphate solution
Larutan plumbum(II) *nitrat dicampurkan dengan larutan kalium sulfat*

- The mixture is filtered
Campuran dituraskan

- The residue in the filter paper is lead(II) sulphate
Baki turasan pada kertas turas ialah plumbum(II) *sulfat*

The steps are related to
Langkah-langkah tersebut adalah berkaitan dengan

A Preparation of soluble salt
Penyediaan garam terlarut
B Preparation of insoluble salt
Penyediaan garam tak terlarut
C Purification of soluble salt
Penulenan garam terlarut
D Purification of insoluble salt
Penulenan garam tak terlarut

25 Diagram 5 shows the electron arrangement of a compound formed between element T and element Q.
Rajah 5 *menunjukkan susunan elektron bagi sebatian yang terbentuk daripada unsur T dan unsur Q.*

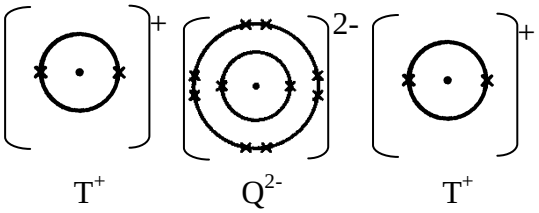


Diagram 5
Rajah 5

Which statements are true about the compound?
Pernyataan manakah benar tentang sebatian tersebut?

I One atom T donates one electron to atom Q
Satu atom T *menderma satu electron kepada. atom* Q
II Each ions achieve octet electron arrangement
Setiap ion mencapai susunan electron octet
III Ion T^+ and ion Q^{2-} are attracted by electrostatic force
Ion T^+ *dan ion* Q^{2-} *ditarik oleh daya elektrostatk*
IV Ion T^+ and ion Q^{2-} are attracted by Van der Waals force
Ion T^+ *and ion* Q^{2-} *ditarik oleh daya Van der Waals*

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

26 Diagram 6 shows the apparatus for the electrolysis of molten lead(II) bromide.
Rajah 6 *menunjukkan radas bagi menjalankan elektrolisis leburan plumbum*(II) *bromida.*

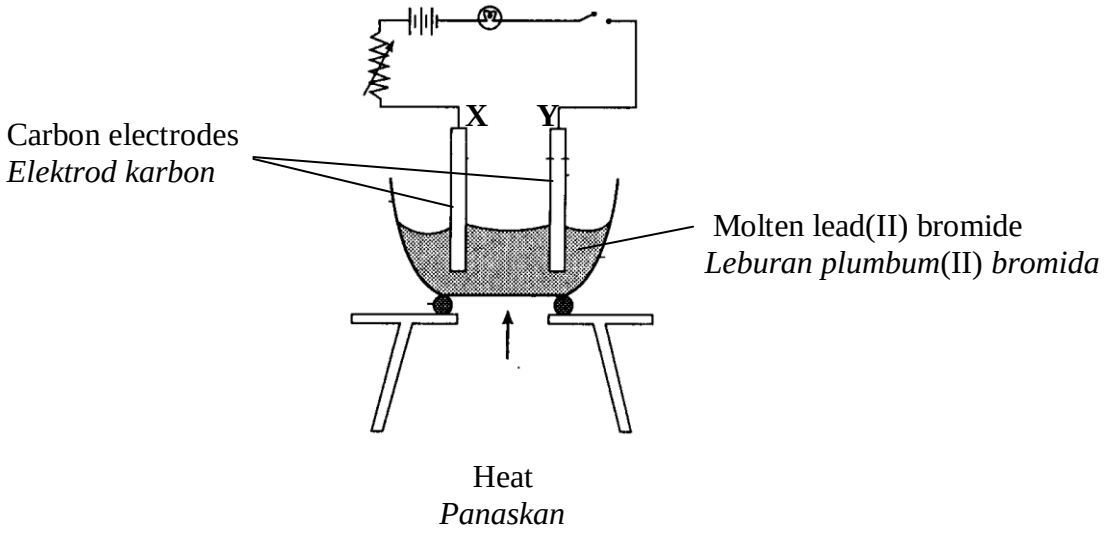


Diagram 6
Rajah 6

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

A X is the cathode, Y is the anode
X *ialah katod,* Y *ialah anod*

B Bromine gas is formed at electrode X
Gas bromin terbentuk pada elektrod X

C Lead atom becomes lead(II) ion at electrode Y
Atom plumbum menjadi ion plumbum(II) pada elektrod Y

D The molten electrolyte consists of lead(II) ions, hydrogen ions, bromide ions and hydroxide ions.
Leburan elektrolit mengandungi ion plumbum(II), ion hidrogen, ion bromida dan ion hidroksida.

27 Which of the following is ionic equation for the reaction between potassium hydroxide and hydrochloric acid?
Antara berikut yang manakah persamaan ion bagi tindak balas antara kalium hidroksida dengan asid hidroklorik?

A $KOH + HCl \rightarrow KCl + H_2O$

B $K^+ + Cl^- \rightarrow KCl$

C $OH^- + H^+ \rightarrow H_2O$

D $OH^- + HCl \rightarrow H_2O + Cl^-$

28 . Water tanks made from metal are very heavy and can rust easily. Present day water tanks which are lighter and longer lasting, are made from a composite material, Y.
*Tangki air yang diperbuat daripada logam adalah sangat berat dan mudah karat. Tangki air masa kini adalah ringan dan tahan lebih lama kerana diperbuat daripada suatu bahan komposit,*Y.

Which of the following is Y?
Antara berikut yang manakah Y?

A Plastic
Plastik
B Optical fibres
Gentian optic
C Fibre glass
Gentian kaca
D Photochromic glass
Kaca fotokromik

29 Meat cut into small pieces takes a shorter time to cook compare of meat cut into big pieces
Daging yang dipotong dengan kepingan-kepingan kecil mengambil masa yang singkat untuk masak berbanding dengan daging yang dipotong kepingan-kepingan besar?

Which of the following is true to explain the statement above ?
Antara berikut yang manakah benar untuk menerangkan pernyataan di atas?

A The particles of meat in small pieces move faster
Zarah-zarah daging dalam kepingan kecil bergerak lebih cepat
B Meat in small pieces has more heat
Daging dalam kepingan kecil mempunyai lebih banyak haba
C Meat in small pieces has total surface area exposed for cooking is bigger
Daging dalam kepingan kecl mempunyai jumlah luas permukaan yang terdedah untuk dimasak lebih besar.
D The activation energy for cooking meat in small pieces lower
Tenaga pengaktifan untuk memasak daging dalam kepingan kecil lebih rendah

30 Diagram 7 shows an ester produced when an alcohol reacts with a carboxylic acid.
Rajah 7 menunjukkan sejenis ester yang terhasil apabila sejenis alkohol bertindak balas dengan sejenis asid karboksilik.

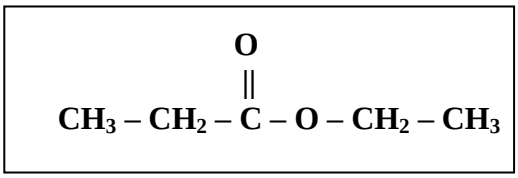
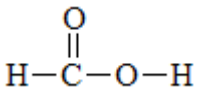
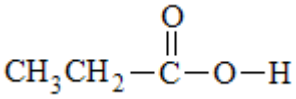
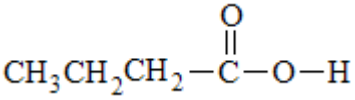
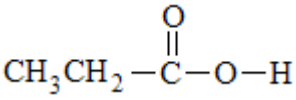


Diagram 7
Rajah 7

Which of the substances are used in the reaction?
Manakah antara sebatian berikut digunakan dalam tindak balas tersebut?

	Alcohol ***alkohol***	**Carboxylic acid** ***Asid karboksilik***
A	$CH_3CH_2\,CH_2OH$	
B	CH_3CH_2OH	
C	CH_3CH_2CHOH	
D		CH_3CH_2OH

31 Diagram 8 shows the heating curve of solid naphthalene.
Rajah 8 *menunjukkan kelok pemanasan pepejal naftalena.*

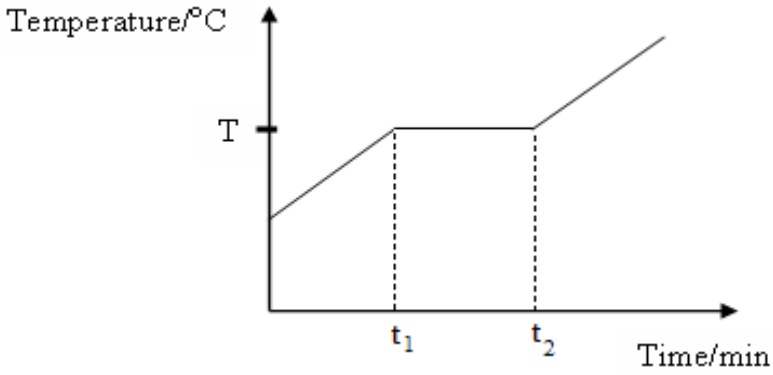


Diagram 8
Rajah 8

Which of the following statement is true about the particles of naphthalene at T °C?
Antara pernyataan berikut, yang manakah benar mengenai zarah-zarah naftalena pada T°C*?*

A The particles release heat energy
Zarah-zarah membebaskan tenaga haba
B The forces of attraction between particles are overcome
Daya tarikan antara zarah-zarah diatasi
C Both liquid and gas are present between t_1 and t_2
Kedua-dua pepejal dan cecair wujud antara t_1 dan t_2
D The particles can only vibrate and rotate at fixed positions at t_1
Zarah-zarah hanya bergetar dan berputar di kedudukan yang tetap pada t_1

32 . Which of the following chemical equation is correctly balanced
Antara persamaan kimia yang berikut, yang manakah diseimbangkan dengan betul ?

A $Na + O_2 \rightarrow Na_2O$
B $Na + Br_2 \rightarrow NaBr$
C $Mg + HCl \rightarrow MgCl_2 + H_2$
D $Mg + H_2SO_4 \rightarrow MgSO_4 + H_2$

33 Table 2 shows the observations of three metals X, Y and Z burnt in oxygen
Jadual 2 *menunjukkan pemerhatian bagi ti*ga *logam* X, Y *dan* Z *dibakar dalam oksigen*

Metal ***Logam***	**Observation** ***Pemerhatian***
X	Burnt slowly with a red flame *Terbakar dengan nyala merah dan perlahan*
Y	Burnt vigorously with a brilliant purple flamed *Terbakar dengan nyala ungu yang sangat cepat dan sangat terang*
Z	Burnt quickly with a yellow flame *Terbakar dengan nyala kuningdengan terang dan cepat*

Table 2
Jadual 2

Which of the following is the correct arrangement of the reactivity of metals by increasing order
Antara berikut yang manakah susunan betul bagi kereaktifan logam mengikut susunan menaik

A X, Y, Z
B X, Z, Y
C Z, Y, X
D Y, Z, X

34 Table 3 shows the electron arrangement of atoms P , Q , R and
Jadual 3 *menunjukkan susunan elektron atom-atom* P, Q, R *dan* S

Atom ***Atom***	P	Q	R	S
Electron arrangement ***Susunan elektron***	2.1	2.4	2.8.2	2.8.7

Table 3
Jadual 3

Which of the following pairs of elements can combine to form a covalent compound?
Pasangan unsur yang manakah dapat berpadu membentuk sebatian kovalen?

A Q and S
Q *dan* S
B P and R
P *dan* R
C R and S
R *dan* S
D Q and R
Q *dan* R

35 . Table 4 shows the results of experiments carried out on four chemical cells.
Jadual 4 *menunjukkan keputusan eksperimen bagi empat sel kimia.*

Chemical cell ***Sel kimia***	**Pairs of metals** ***Pasangan logam***	**Potential difference /V** ***Beza upaya / V***	**Negative terminal** ***Terminal negatif***
Set I	W and Y	2.8	Y
Set II	W and X	1.7	X
Set III	X and Y	1.1	Y
Set IV	X and Z	0.6	Z

Table 4
Jadual 4

Which of the following arrangement shows the tendency of the metals to release electrons, in ascending order?
Antara berikut yang manakah menunjukkan susunan menaik bagi kecenderungan logam melepaskan elektron?

A Z, X, W, Y
B W, X, Z, Y
C Z, W, Y, X
D W, Y, Z, X

36 8.0 g sodium hydroxide is dissolved in water to prepare 250 cm^3 of solution. What is the molarity of sodium hydroxide solution obtained?
[Relative atomic mass of H = 1, O = 16, Na = 23]
8.0 g *natrium hidroksida dilarutkan dalam air untuk menyediakan larutan 250* cm^3.
Berapakah kemolaran larutan natrium hidroksida yang terhasil?
[*Jisim atom relatif* H = 1, O = 16, Na = 23]

A 0.2 mol dm^{-3}
B 0.4 mol dm^{-3}
C 0.8 mol dm^{-3}
D 1.6 mol dm^{-3}

37 Table 5 shows the observations in three tests on solution Y.
Jadual 5 *menunjukkan pemerhatian bagi tiga set ujian ke atas larutan* Y.

Test ***Ujian***	**Observation** ***Pemerhatian***
Add sodium hydroxide solution until excess *Tambah larautan natrium hidroksida sehingga berlebihan*	White precipitate which dissolves in excess sodium hydroxide solution. *Mendakan putih laraut dalam larutan natrium hidroksida berlebihan*
Add ammonia solution until excess *Tambah larautan ammonia sehingga berlebihan*	White precipitate which dissolves in excess ammonia solution. *Mendakan putih laraut dalam larutan ammonia berlebihan*
Add 2 cm^3 of dilute nitric acid and a few drops of silver nitrate solution *Tambah* 2 cm^3 *asid nitrik cair dan beberapa titik larutan argentum nitrat*	White precipitate formed *Mendakan putih terbentuk*

Table 5
Jadual 5

What is Y?
Apakah Y?

A Zinc chloride
Zink klorida

B Zinc sulpahate
Zink sulfat

C Lead(II) chloride
Plumbum(II) *klorida*

D Lead II) sulphate
Plumbum(II) *sulfat*

38 . Equations below represent four stages of reactions in the manufacture of sulphuric acid by the Contact Process.
Persamaan di bawah mewakili empat peringkat tindak balas bagi penyediaan asid sulfurik melalui Proses Sentuh.

P : $2SO_2(g) + O_2(g) \rightarrow 2SO_3(g)$
Q : $S(s) + O_2(g) \rightarrow SO_2(g)$
R : $H_2S_2O_7(l) + H_2O(l) \rightarrow 2H_2SO_4(aq)$
S : $SO_3(g) + H_2SO_4(aq) \rightarrow H_2S_2O_7(l)$

Which of the following arrangement shows the correct sequence of reactions in the process?
Antara susunan berikut, yang manakah menunjukkan urutan tindak balas yang betul bagi proses tersebut?

A P, Q, R, S
B Q, P, R, S
C P, S, Q, R
D Q, P, S, R

39 Element J reacts with element K to form a covalent compound with the formula JK_2. The electron arrangement of an atom K is 2.8.7.
Which of the following is a possible electron arrangement of an atom J?

Unsur J *bertindak balas dengan unsur* K *untuk membentuk satu sebatian kovalen yang mempunyai formula* JK_2. *Susunan elektron atom* K *ialah* 2.8.7
Antara berikut, yang manakah susunan elektron yang mungkin bagi atom J?

A 2.8.1
B 2.8.2
C 2.8.4
D 2.8.6

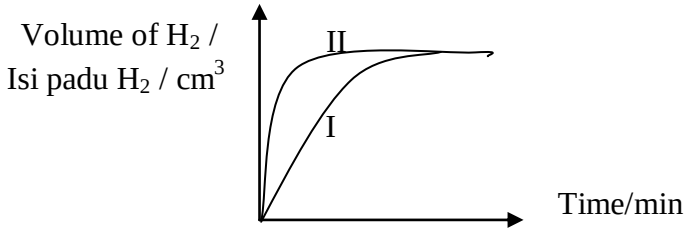
40 Table 6 shows two experiments are carried out to study the rate of reaction between zinc and hydrochloric acid to produce hydrogen gas.
Jadual 6 *menunjukkan dua eksperimen dijalankan untuk mengkaji kadar tindak balas antara zink dengan asid hidroklorik untuk membebaskan gas hidrogen*

Experiment ***Eksperimen***	**Substances** ***Bahan***
I	Excess zinc granules and 100 cm^3 of 0.5 mol dm^{-3} hydrochloric acid *Ketulan zink berlebihan dan* 100 cm^3 of 0.5 mol dm^{-3} *asid hidroklorik*
II	Excess powder zinc and 25 cm^3 of 1.0 mol dm^{-3} hydrochloric acid *Serbuk zink berlebihan dan* 25 cm^3 of 1.0 mol dm^{-3} *asid hidroklorik*

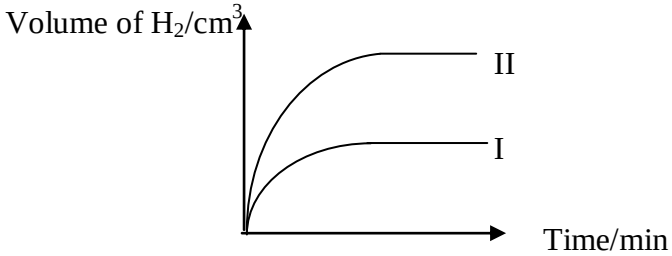
Table 6
Jadual 6

Which of the following graph represents the experiments?
Antara berikut yang manakah mewakili keputusan bagi kedua-dua eksperimen itu?

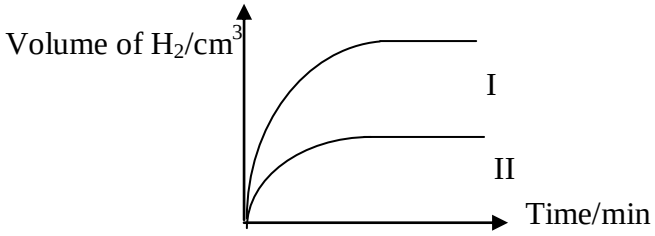
A



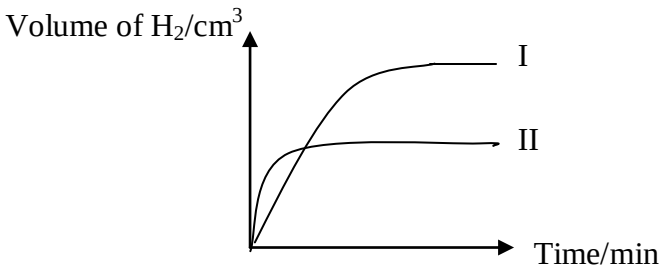
B



C

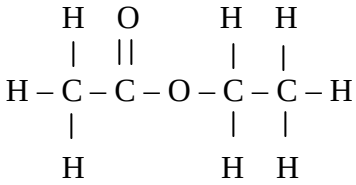


D

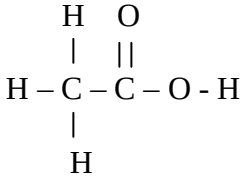


41 Which chemical formula represents carboxylic acid?
Formula kimia manakah mewakili asid karboksilik?

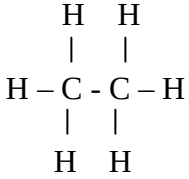
A



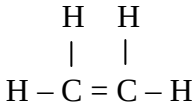
B



C



D



42 A pupil found that solid M changes directly to gaseous state without melting when it is heated.
Which of the following is solid M?

Seorang murid mendapati pepejal M *bertukar terus kepada keadaan gas tanpa melebur apabila dipanaskan.*
Antara berikut, yang manakah bahan M *itu*?

A Iodine
Iodin

B Sodium
Natrium

C Zinc carbonate
Zink karbonat

D Sulphur dioxide
Sulfur dioksida

43 2.6 g of zinc reacts with excess hydrochloric acid to produce zinc chloride and hydrogen gas. The chemical equation for the reaction is as follows:
2.6 g zink bertindak balas dengan asid hidrokloirk berlebihan menghasilkan zink klorida dan gas hydrogen. Persamaan kimia untuk tindak balas ini adalah seperti berikut:

$$Zn + 2HCl \rightarrow ZnCl_2 + H_2$$

What is the maximum mass of zinc chloride formed?
[Relative atomic mass of Zn=65; Cl=35.5]
Apakah jisim maksimum zink klorida yang dihasilkan?
[*Jisim atom relatif* Zn=65; Cl=35.5]

A 2.60 g
B 3.94 g
C 5.44 g
D 6.20 g

44 Table 7 shows the proton numbers of elements X and Y.
X and Y are not the actual symbols of the elements

Jadual 7 menunjukkan nombor proton bagi unsur X *dan* Y
X *dan* Y *bukan simbol sebenar unsur itu*

Element ***Unsur***	**Proton number** ***Nombor proton***
X	11
Y	17

Table 7
Jadual 7

Which statement is true about elements X and Y?
Pernyataan manakah yang benar tentang unsur X *dan* Y?

A Atoms X and Y have one valences electron
Atom X *dan* Y *mempunyai satu elektron valens*
B Atom X has a bigger atomic size than atom Y
Atom X *mempunyai saiz atom lebih besar daripada atom* Y
C Element X is more electronegative than element Y
Unsur X *lebih elektronegatif daripada unsur* Y
D Elements X and Y are in the same Group in the Periodic Table
Unsur X *dan* Y *berada dalam Kumpulan yang sama dalam Jadual Berkala*

45 Diagram 9 shows the apparatus set up for electrolysis of copper(II) sulphate solution using carbon electrodes.
Rajah 9 *menunjukkan susunan radas bagi elektrolisis larutan kuprum*(II) *sulfat menggunakan elektrod karbon*

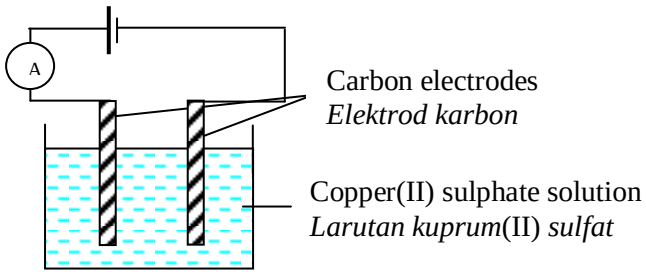


Diagram 9
Rajah 9

Which of the following ate true about the electrolysis
Manakah antara berikut adalah benar tentang elektrolisis tersebut?

I Brown deposit is formed at the cathode
Enapan perang terbentuk di katod
II Intensity of the blue solution decreases
Keamatan warna biru larutan berkuranga
III Bubbles of greenish yellow gas is evolved at the anode
Gas kuning kehijauan terbebas di anod
IV Size of both electrodes increase
Saiz kedua-dua elektrod bertambah

A I and II
I *dan* II
B II and III
II *dan* III
C II and IV
II *dan* IV
D I, III and IV
I, III *dan* IV

46 . What is the percentage of nitrogen by mass in ammonium sulphate?
[Relative atomic mass of H=1; N=14; O=16; S=32]
Berapakah peratus nitrogen mengikut jisim dalam ammonium sulfat?
[*Jisim atom relatif* H=1; N=14; O=16; S=32]

A 12.20
B 21.21
C 24.56
D 35.00

47 Diagram 10 shows the set-up of apparatus for the titration of sodium hydroxide solution with sulphuric acid.
Rajah 10 *menunjukkan susunan radas bagi pentitratan larutan natrium hidroksida dengan asid sulfurik*

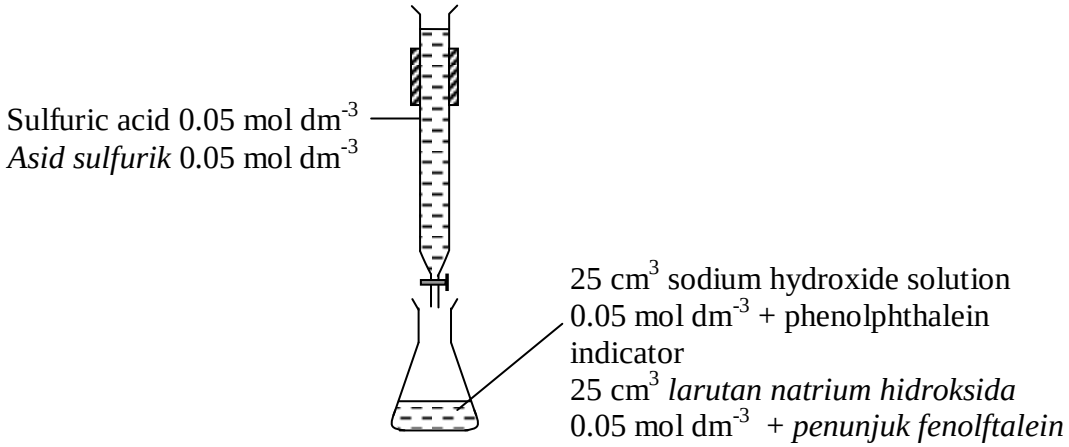


Diagram 10
Rajah 10

If the initial burette reading is 2.50 cm^3 , what is the final burette reading at the end point of the titration above?
Jika bacaan awal buret ialah 2.50 cm^3 *, berapakah bacaan akhir buret pada takat akhir titratan di atas*?

A 12.50 cm^3
B 15.00 cm^3
C 22.50 cm^3
D 42.50 cm^3

48 Ion Pb^{2+} can be differentiated from ion Al^{3+} by using the following reagents **except**
Ion Pb^{2+} *dapat dibezakan daripada ion* Al^{3+} *menggunakan bahan-bahan uji berikut* ***kecuali***

A sodium hydroxide
natrium hidrosida
B sodium sulphate
natrium sulfat
C potassium iodide
kalium iodida
D hydrochloric acid
asid hidroklorik

49 Diagram 11 shows the chemical equation for the reaction between sodium thiosulphate and sulphuric acid.
Rajah 11 *menunjukkan persamaan kimia bagi tindak balas diantara natrium tiosulfat dengan asid sulfurik.*

$$Na_2S_2O_3 + H_2SO_4 \rightarrow Na_2SO_4 + H_2O + SO_2 + S$$

Diagram 11
Rajah 11

Which of the following combination of conditions will result in the highest rate of reaction?
Antara kombinasi keadaan berikut yang manakah akan menghasilkan kadar tindak balas paling tinggi?

	Sodium thiosulphate solution ***Larutan natrium tiosulfat***		**Sulphuric acid** ***Asid sulfuric***		**Temperature/^{o}C** ***Suhu*/^{o}C**
	Volume/cm^3 ***Isi padu* cm^3**	**Concentration / mol dm^{-3}**	**Volume/cm^3** ***Isi padu* cm^3**	**Concentration / mol dm^{-3}**	
A	50	1.0	10	0.5	30
B	50	1.0	10	0.5	40
C	50	0.5	10	0.5	30
D	40	0.5	20	0.5	40

50 Hydration of propene produces two isomers X and Y
Penghidratan propene menghasilkan dua isomer X *dan* Y

Which of the following statement is true about isomers X and Y ?
Antara pernyataan berikut yang manakah benar tentang X *dan* Y?

A X and Y have similar molecular structure
X dan Y mempunyai struktur molekul yang sama
B X and Y have similar chemical properties
X dan Y mempunyai sifat kimia yang sama
C X and Y have different relative molecular mass
X dan Y mempunyai jisim molekul relatif yang berbeza
D X and Y undergo oxidation to produces ester
X dan Y mengalami pengoksidaan menghasilkan ester

END OF QUESTION PAPER
KERTAS SOALAN TAMAT