

4541/1  
Percubaan  
SPM  
Chemistry  
2008  
Paper 1  
1¼ hours

PEPERIKSAAN PERCUBAAN  
SIJIL PELAJARAN MALAYSIA  
NEGERI PERAK  
2008

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CHEMISTRY

PAPER 1

One hour and fifteen minutes

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JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. Kertas soalan ini adalah dalam dwibahasa
2. Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam Bahasa Melayu.
3. Calon dikehendaki membaca maklumat di halaman 16 kertas soalan ini.

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Kertas soalan ini mengandungi 16 halaman bercetak.

1 Which of the following substances contains molecule?  
*Antara bahan berikut, yang manakah terdiri daripada molekul?*

- A Iron  
*Besi*
- B Carbon  
*Karbon*
- C Sodium oxide  
*Natrium oksida*
- D Carbon monoxide  
*Karbon monoksida*

2 The statement below is one of the atomic model theory,  
*Pernyataan berikut adalah salah satu teori model atom*

The proton is the positively charged particle in the atom.  
*Proton adalah zarah bercas positif dalam suatu atom*

Which of the following scientists proposed the theory?  
*Antara saintis berikut, siapakah mencadangkan teori itu?*

- A John Dalton
- B J.J Thomson
- C E. Rutherford
- D Neils Bohr

3 Which of the following pairs of molecular formulae and empirical formulae is correct?  
*Antara pasangan formula molekul dan formula empirik berikut yang manakah benar?*

	Molecular formula <i>Formula molekul</i>	Empirical formula <i>Formula empirik</i>
A	$C_6H_{12}$	$CH_3$
B	$C_2H_4$	$CH_2$
C	$H_2SO_4$	$HSO_2$
D	$H_2O_2$	$H_2O$

4 Helium is chemically inert element. Which of the following explains this statement?  
*Helium merupakan unsur yang lengai secara kimia.*

- Antara berikut, yang manakah menerangkan pernyataan ini?*
- A Helium is an element in Group 16.  
*Helium merupakan unsur Kumpulan 16.*
  - B Helium react with any other element.  
*Helium bertindak balas dengan unsur lain.*
  - C Helium has two shells occupied with electron.  
*Helium mempunyai dua petala yang mengandungi elektron.*
  - D Helium has a duplet electron arrangement in its shell.  
*Helium mempunyai susunan elektron duplet pada petalanya.*

- 5 Who contributed the Law of Octaves in the development of the modern Periodic Table?  
Siapakah yang menyumbangkan Hukum Oktaf dalam perkembangan Jadual Berkala moden?
- A John Newlands  
B Lothar Meyer  
C Johann Dobereiner  
D Dimitri Mendeleev
- 6 Table 1 below shows the electron arrangement of atom K and atom M.  
Jadual 1 menunjukkan susunan electron atom K dan atom M.

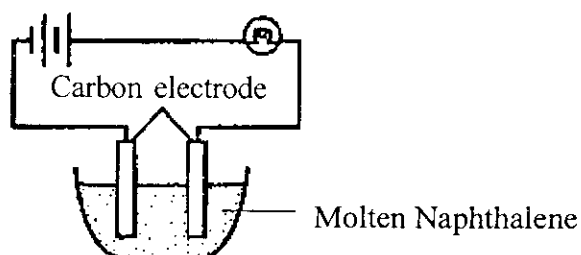
Element <i>Unsur</i>	Electron arrangement <i>Susunan elektron</i>
K	2.4
M	2.8.6

Table 1  
Jadual 1

What is the formula of the compound and the bond formed between element K and M?  
Apakah formula dan jenis ikatan bagi sebatian yang terbentuk antara K dan M?

	Formula of compound <i>Formula sebatian</i>	Bond <i>Ikatan</i>
A	$KM_2$	Covalent
B	$K_2M$	Ionic
C	$KM_2$	Ionic
D	$K_2M$	Covalent

- 7 Diagram 1 shows the apparatus set-up of an experiment.  
Rajah 1 menunjukkan set alat radas bagi satu eksperimen.



When the circuit is completed, the bulb does not light up because  
Apabila litar dilengkapkan, didapati mentol tidak menyala kerana

- A the molten naphthalene is vaporize.  
*leburan naftalena meruap.*
- B the molten naphthalene is too concentrated.  
*leburan naftalena terlalu pekat.*
- C naphthalene exists as ions in the molten state.  
*dalam keadaan leburan, naftalena wujud sebagai ion.*
- D naphthalene exists as molecules in the molten state.  
*dalam keadaan leburan, naftalena wujud sebagai molekul.*

- 8 Diagram 2 below shows how copper is purified by electrolysis  
*Rajah 2 menunjukkan bagaimana kuprum dituliskan secara elektrolisis.*

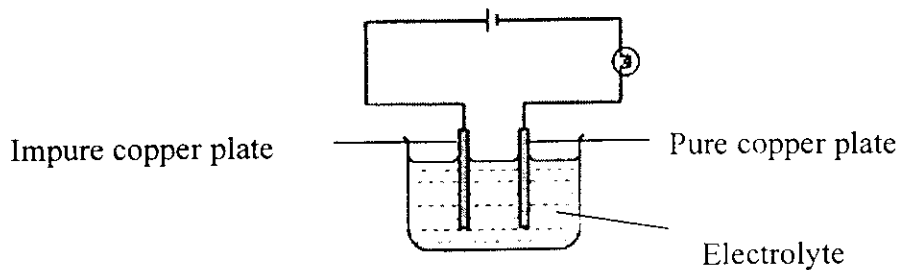


Diagram 2  
*Rajah 2*

Which of the following electrolyte is suitable to be used?  
*Elektrolit manakah yang sesuai untuk digunakan?*

- A Hydrochloric acid solution  
*Larutan asid hidroklorik*
- B Copper(II) sulphate solution  
*Larutan kuprum(II) sulfat*
- C Aluminium nitrate solution  
*Larutan aluminium nitrate*
- D Magnesium sulphate solution  
*Larutan magnesium sulfat*
- 9 Which of the following substances is an example of an acid?  
*Antara yang berikut yang manakah merupakan contoh asid?*
- |                          |                                   |
|--------------------------|-----------------------------------|
| A Soap<br><i>Sabun</i>   | C Cement<br><i>Simen</i>          |
| B Vinegar<br><i>Cuka</i> | D Tooth Paste<br><i>Ubat gigi</i> |
- 10 Which of the following solutions has the pH value below 7?  
*Antara larutan berikut yang manakah mempunyai nilai pH kurang daripada 7?*
- |   |   |
|---|---|
| A Potassium hydroxide<br><i>Kalium hidroksida</i> | C Sodium chloride<br><i>Natrium klorida</i> |
| B Distilled water<br><i>Air suling</i>            | D Sulphuric acid<br><i>Asid sulfurik</i>    |
- 11 Haber process is the process to produce....  
*Proses Haber adalah proses untuk menghasilkan...*
- |  |   |
|--|---|
| A Margarine<br><i>Majerin</i>            | C Ammonia<br><i>Ammonia</i>                   |
| B Sulphuric acid<br><i>Asid sulfurik</i> | D Ammonium sulphate<br><i>Ammonium sulfat</i> |

- 12 What is the main component of glass?  
*Apakah komponen utama kaca?*
- A Sodium  
B Carbon  
C Silica  
D Boron
- 13 Which of the following statement is the characteristic of a catalyst?  
*Antara pernyataan berikut yang manakah merupakan sifat mangkin?*
- A Catalyst is specific in its action.  
*Mangkin bersifat khusus dalam tindakannya*
- B Catalyst change the quantity of product formed.  
*Mangkin mengubah kuantiti hasil tindak balas.*
- C Catalyst remains chemically change during a reaction.  
*Mangkin berubah secara kimia semasa tindak balas.*
- D A large amount of catalyst is needed to achieve a big increase in the rate of reaction.  
*Sejumlah kuantiti mangkin yang banyak diperlukan untuk meningkatkan kadar tindak balas yang besar.*
- 14 Which of the following is the general formula of an alkane?  
*Manakah formula am bagi alkana?*
- A  $C_nH_{2n}$   
B  $C_nH_{2n+1}$   
C  $C_nH_{2n+2}$   
D  $C_nH_{2n+1}OH$
- 15 An element undergoes oxidation when  
*Satu unsur menjalani pengoksidaan apabila*
- A it loses oxygen  
*kehilangan oksigen*
- B it gains electron  
*menerima elektron*
- C it loses hydrogen  
*kehilangan hidrogen*
- D its oxidation number decreases  
*nombor pengoksidaannya berkurang*
- 16 Which of the following processes absorb heat from the surroundings?  
*Antara proses berikut yang manakah menyerap haba daripada persekitaran?*
- I Steam condenses to water  
*Wap terkondensasi kepada air*
- II The combustion of ethanol  
*Pembakaran etanol*
- III Dissolving ammonium sulphate in water  
*Melarutkan ammonium sulfat dalam air*
- IV Thermal decomposition of carbonate salts  
*Penguraian garam karbonat oleh haba*
- A I and II only  
B I and III only  
C II and IV only  
D III and IV only

- 20 Which of the following modern medicines are correctly matched?  
*Manakah antara ubat moden berikut dipadankan dengan betul?*

I	Analgesic	Paracetamol
II	Psychotherapeutic	Insulin
III	Hormone	Codeine
IV	Antibiotic	Penicillin

- A I and II only  
 B I and IV only  
 C II and III only  
 D III and IV only
- 21 Diagram 3 shows a balloon contains helium gas.  
*Rajah 3 menunjukkan sebiji belon yang mengandungi gas helium*

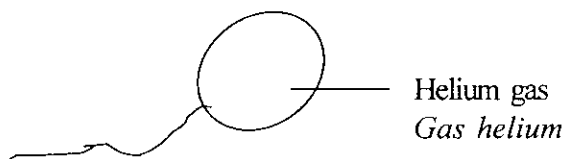
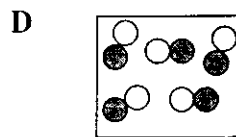
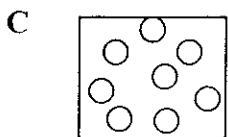
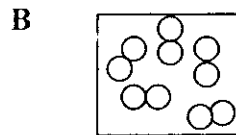
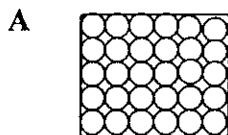
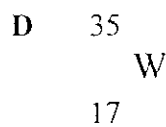
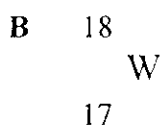
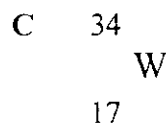
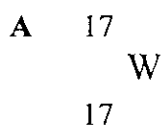


Diagram 3  
 Rajah 3

- Which of the following diagram shows the arrangement of particles in the balloon?  
*Antara rajah berikut yang manakah menunjukkan susunan zarah dalam belon itu?*



- 22 An atom W has 17 protons, 17 electrons and 18 neutrons.  
 Which of the following is the standard representative for an atom W?  
*Atom W mempunyai 17 proton, 17 elektron dan 18 neutron,*  
*Antara berikut, yang manakah perwakilan piawai bagi atom W?*



23 Table 2 shows the proton number of elements P, Q and R.

Which of the following statements is **true**?

*Jadual 2 menunjukkan nombor proton bagi unsur P, Q dan R.*

*Manakah antara pernyataan berikut adalah benar?*

Element <i>Unsur</i>	P	Q	R
Proton Number <i>Nombor proton</i>	11	13	17

Table 2

*Jadual 2*

- A The electronegativity decreases in the order P, Q, R.  
*Keelektronegatifan berkurang mengikut susunan P, Q, R*
- B P, Q and R are good conductors of electricity.  
*P, Q dan R adalah pengalir elektrik yang baik.*
- C All the elements exist as diatomic molecules.  
*Semua unsur wujud dalam dwiatom.*
- D The atomic radius decreases in the order P, Q, R.  
*Jejari atom berkurang mengikut susunan P, Q, R.*

24

1	2				13	14	15	16	17	18
H							N			

Referring to the above Periodic Table, what is the formula of the compound formed when elements H combine with element N?

*Dengan merujuk Jadual Berkala di atas, apakah formula sebatian yang terbentuk bila unsur H bergabung dengan unsur N?*

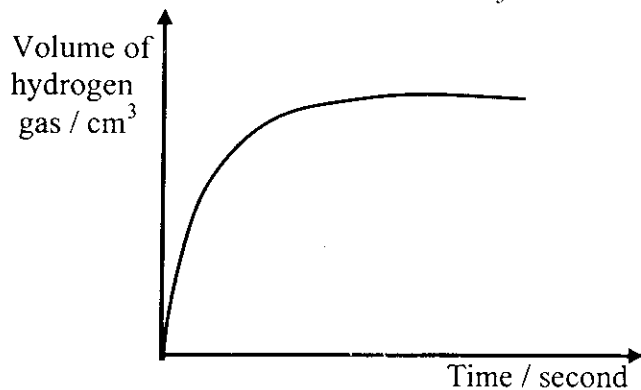
- A NH
- B NH<sub>2</sub>
- C NH<sub>3</sub>
- D NH<sub>4</sub>
- 25 During the formation of compound between calcium and bromine,  
*Semasa pembentukan sebatian antara kalsium dan bromin,*
- A a calcium atom shares a pair of electron with two bromine atoms.  
*satu atom kalsium berkongsi sepasang elektron dengan dua atom bromin.*
- B a calcium atom shares two pairs of electron with two bromine atoms.  
*satu atom kalsium berkongsi dua pasang elektron dengan dua atom bromin.*
- C a calcium atom donates two electrons to two bromine atoms.  
*satu atom kalsium menderma dua elektron kepada dua atom bromin.*
- D a bromine atom donates two electrons to a calcium atom.  
*satu atom bromin menderma dua elektron kepada satu atom kalsium.*

- 30 Which of the following salts are used as fertilizer?  
*Antara garam berikut yang manakah digunakan sebagai baja?*

- I Ammonium nitrate  
 II Ammonium carbonate  
 III Ammonium sulphate  
 IV Ammonium phosphate
- A I and II only  
 B I and IV only  
 C I, III and IV only  
 D I, II, III and IV

- 31 The graph shows the volume of hydrogen gas produced against time for the reaction between zinc and sulphuric acid.

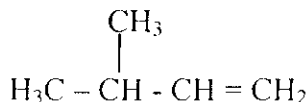
*Graf menunjukkan isipadu gas hidrogen yang dibebaskan melawan masa bagi tindakbalas antara zink dan asid sulfurik.*



The gradient of the graph decreases with time because

*Kecerunan graf berkurang dengan masa kerana*

- A catalyst is not used.  
*mungkin tidak digunakan*
- B volume of mixture decreases  
*isipadu campuran berkurang*
- C temperature of reaction decreases  
*suhu tindak balas berkurang*
- D concentration of sulphuric acid decreases  
*kepekatan asid sulfurik berkurang*
- 32 Diagram shows the structural formula of an organic compound.  
*Rajah menunjukkan formula struktur satu sebatian organik.*



What is the IUPAC name for the compound?

*Apakah nama IUPAC bagi sebatian tersebut?*

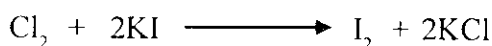
- A Pent-1-ene  
 B 2-methylbut-1-ene  
 C 2-methylbut-3-ene  
 D 3-methylbut-1-ene



- 33 Ethanol reacts with propanoic acid to produce an ester.  
What is the name of ester produced?  
*Etanol bertindak balas dengan asid propanoik menghasilkan suatu ester.*  
*Apakah nama ester yang terhasil?*

- |   |  |
|---|--|
| A Ethyl ethanoate<br><i>Etil etanoat</i>    | C Propyl ethanoate<br><i>Propil etanoat</i>    |
| B Ethyl propanoate<br><i>Etil Propanoat</i> | D Propyl Propanoate<br><i>Propil Propanoat</i> |

- 34 The equation represents a redox reaction.  
*Persamaan mewakili satu tindak balas redoks*



The oxidation number of iodine changes from  
*Nombor pengoksidaan iodin berubah dari*

- |           |           |
|-----------|-----------|
| A -2 to 2 | C 0 to -1 |
| B -1 to 0 | D 1 to -1 |

- 35 Metal X is placed between zinc and tin in the electrochemical series.  
Which of the following metals will be able to protect metal X from corrosion?  
*Kedudukan logam X dalam siri elektrokimia ialah antara logam zink dan timah.*  
*Manakah antara logam berikut boleh melindungi logam X daripada berkarat?*

- |                           |                                 |
|---------------------------|---------------------------------|
| A Copper<br><i>Kuprum</i> | C Aluminium<br><i>Aluminium</i> |
| B Lead<br><i>Plumbum</i>  | D Silver<br><i>Argentum</i>     |

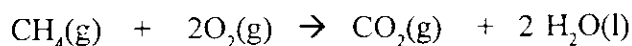
- 36 What is the volume of 0.5 mol of oxygen at room conditions?  
[ 1 mol of gas occupies the volume of 24 dm<sup>3</sup> at room temperature and pressure ]  
*Berapakah isipadu 0.5 mol oksigen pada keadaan bilik*  
*[ 1 mol gas menempati 24 dm<sup>3</sup> pada suhu dan tekanan bilik ]*

- |                       |                      |
|-----------------------|----------------------|
| A 1.2 dm <sup>3</sup> | C 12 dm <sup>3</sup> |
| B 2.4 dm <sup>3</sup> | D 24 dm <sup>3</sup> |

- 37 0.20 g of P reacts with 0.19 g of Q.  
What is the empirical formula of the compound formed?  
[ Relative atomic mass : P = 40 ; Q = 19 ]  
*0.20 g P bertindak balas dengan 0.19 g Q.*  
*Apakah formula empirik bagi sebatian yang terbentuk?*  
*[ Jisim atom relatif : P=40 ; Q=19 ]*

- |                    |                                 |
|--------------------|---------------------------------|
| A PQ               | C PQ <sub>2</sub>               |
| B P <sub>2</sub> Q | D P <sub>2</sub> Q <sub>3</sub> |

- 38 The following equation shows the combustion reaction of methane, CH<sub>4</sub> in excess oxygen.  
*Persamaan berikut menunjukkan tindak balas pembakaran metana dalam oksigen berlebihan*



Based on the equation above, calculate the mass of methane needed if 480 cm<sup>3</sup> of carbon dioxide is released at room conditions.

[ Relative atomic mass : H=1 ; C=12 ;

1 mol of gas occupies the volume of 24 dm<sup>3</sup> at room temperature and pressure ]

*Berdasarkan persamaan di atas, hitungkan jisim metana yang diperlukan jika 480 cm<sup>3</sup> karbon dioksida dibebaskan pada keadaan bilik.*

[ Jisim atom relatif : H=1 ; C=,12 ;

1 mol gas menempati 24 dm<sup>3</sup> pada suhu dan tekanan bilik ]

- |   |        |   |       |
|---|--------|---|-------|
| A | 0.32 g | C | 32 g  |
| B | 3.2 g  | D | 320 g |

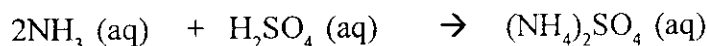
- 39 Which of the following chemical equation is a neutralization reaction?

*Antara persamaan kimia berikut yang manakah merupakan satu tindak balas peneutralan?*

- |   |  |
|---|--|
| A | $\text{Pb}(\text{NO}_3)_2 + 2\text{KI} \rightarrow \text{PbI}_2 + 2\text{KNO}_3$           |
| B | $\text{H}_2\text{SO}_4 + \text{CaO} \rightarrow \text{CaSO}_4 + \text{H}_2\text{O}$        |
| C | $\text{CaCO}_3 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{CO}_2 + \text{H}_2\text{O}$ |
| D | $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$                 |

- 40 The following chemical equation shows the reaction between excess sulphuric acid solution with aqueous ammonia.

*Persamaan kimia berikut menunjukkan tindak balas antara larutan asid sulfurik dengan ammonia akueus.*



What is the number of moles of ammonium sulphate salt produced if 200 cm<sup>3</sup> of 1.5 mol dm<sup>-3</sup> ammonia solution is used?

*Berapakah bilangan mol ammonium sulfat yang terhasil jika 200 cm<sup>3</sup>, 1.5 mol dm<sup>-3</sup> larutan ammonia akueus digunakan?*

- |   |          |   |           |
|---|----------|---|-----------|
| A | 0.15 mol | C | 0.03 mol  |
| B | 0.30 mol | D | 0.015 mol |

- 41 When lead(II) nitrate solution is added to solution X, a white precipitate is formed. Solution X could be,

*Apabila larutan plumbum(II) nitrat ditambahkan kepada larutan X, satu mendakan putih terbentuk. Kemungkinan larutan X ialah,*

- |   |  |   |  |
|---|--|---|--|
| A | Potassium iodide<br><i>Kalium iodida</i> | C | Sulphuric acid<br><i>Asid sulfurik</i>         |
| B | Nitric acid<br><i>Asid nitrik</i>        | D | Copper(II) nitrate<br><i>Kuprum(II) nitrat</i> |

- 42 The time taken for 2 g of magnesium powder to react completely with excess hydrochloric acid is 5 minutes.  
What is the average rate of the reaction?  
*Masa yang diambil untuk 2 g serbuk magnesium bertindak balas lengkap dengan asid hidroklorik berlebihan ialah 5 minit.  
Berapakah kadar purata bagi tindak balas ini?*

- A 0.4 g s<sup>-1</sup>                                      C 2.5 g s<sup>-1</sup>  
B 0.4 g min<sup>-1</sup>                                   D 2.5 g min<sup>-1</sup>

- 43 Table 3 shows the volume of oxygen gas released from the decomposition of hydrogen peroxide.  
*Jadual 3 menunjukkan isipadu gas oksigen yang terbebas daripada penguraian hidrogen peroksida.*

Time / minute	0	1	2	3	4	5	6
Volume of gas / cm <sup>3</sup>	0	5	10	13	15	15	15

Table 3  
*Jadual 3*

- What is the average rate of the decomposition of hydrogen peroxide for the first two minutes?  
*Berapakah kadar purata penguraian hidrogen peroksida bagi dua minit pertama?*

- A 0.08 cm<sup>3</sup> min<sup>-1</sup>  
B 3.75 cm<sup>3</sup> min<sup>-1</sup>  
C 5.00 cm<sup>3</sup> min<sup>-1</sup>  
D 15.00 cm<sup>3</sup> min<sup>-1</sup>

- 44 A group of student carried out an experiment to determine the rate of reaction between sodium thiosulphate solution and sulphuric acid solution.  
Which of the following conditions take the shortest time for the mark X to disappear from sight?  
*Satu kumpulan pelajar telah menjalankan eksperimen untuk menentukan kadar tindak balas antara larutan natrium tiosulfat dengan larutan asid sulfurik.  
Manakah keadaan berikut mengambil masa yang paling singkat untuk tanda X tidak kelihatan?*

	Sodium thiosulphate solution <i>Larutan natrium tiosulfat</i>		Sulphuric acid solution <i>Larutan Asid sulfurik</i>		Temperature <i>Suhu</i> / °C
	Volume <i>Isipadu</i> /cm <sup>3</sup>	Concentration <i>Kepekatan</i> /mol dm <sup>-3</sup>	Volume <i>Isipadu</i> /cm <sup>3</sup>	Concentration <i>Kepekatan</i> /mol dm <sup>-3</sup>	
A	50	0.5	10	1.0	30
B	50	0.5	10	1.0	40
C	50	0.5	10	0.5	30
D	50	0.5	10	0.5	40

- 45 Which of the following is the chemical equation for the complete combustion of propanol?  
*Manakah berikut adalah persamaan tindak balas kimia bagi pembakaran lengkap propanol?*

- A C<sub>3</sub>H<sub>7</sub>OH + 5O<sub>2</sub> → 6CO<sub>2</sub> + 6H<sub>2</sub>  
B 2C<sub>3</sub>H<sub>7</sub>OH + 9O<sub>2</sub> → 6CO<sub>2</sub> + 8H<sub>2</sub>O  
C C<sub>3</sub>H<sub>7</sub>OH + 3O<sub>2</sub> → C + 2CO<sub>2</sub> + 3H<sub>2</sub>O  
D 2C<sub>3</sub>H<sub>7</sub>OH + 7O<sub>2</sub> → 2CO + 4CO<sub>2</sub> + 6H<sub>2</sub>O

- 46 The chemical formula of butanol is  $C_4H_9OH$ .  
Calculate the percentage composition by mass of carbon in butanol?  
[Relative atomic mass : C=12 ; H=1 ; O=16]  
*Formula kimia bagi butanol ialah  $C_4H_9OH$ .  
Hitungkan peratus karbon mengikut jisim dalam butanol?  
[Jisim atom relatif : C=12 ; H=1 ; O=16]*
- A 21.62%    C 35.14%  
B 26.66%    D 64.86%
- 47 Which of the following is true when a mixture of carbon and copper(II) oxide is heated strongly?  
*Antara berikut yang manakah benar apabila satu campuran karbon dengan kuprum(II) oksida dipanaskan dengan kuat?*
- A The oxide ion loses two electrons  
*Ion oksida kehilangan dua elektron*
- B The oxidation number of carbon increases from 0 to +4  
*Nombor pengoksidaan karbon bertambah dari 0 ke +4*
- C The copper(II) oxide acts as the reducing agent  
*Kuprum(II) oksida bertindak sebagai agen penurunan*
- D The copper(II) ion releases two electrons  
*Ion kuprum(II) melepaskan 2 elektron*
- 48 Diagram 5 shows the energy level diagram for the heat change of precipitation of calcium carbonate.  
*Rajah 5 menunjukkan rajah aras tenaga bagi perubahan haba pemendakan kalsium karbonat.*

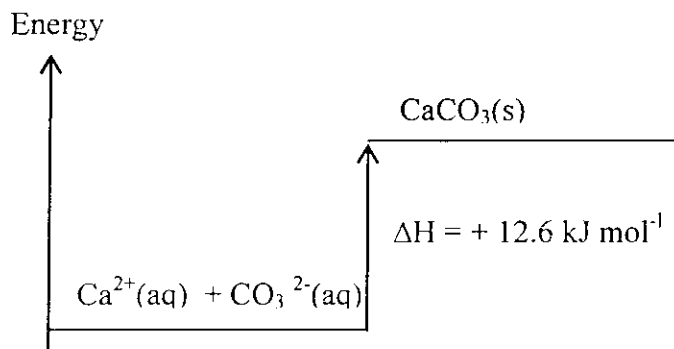


Diagram 5  
*Rajah 5*

Which of the following statements is true?  
*Manakah antara pernyataan berikut adalah benar?*

- A Heat is released in the reaction  
*Haba dibebaskan dalam tindak balas ini.*
- B The temperature of the mixture increases  
*Suhu campuran meningkat*
- C The reactants have less energy than the products  
*Kandungan tenaga bahan tindak balas lebih rendah daripada hasil tindak balas.*
- D The energy absorbed for bond breaking is less than the energy released from the bond formation  
*Tenaga yang diserap untuk memutuskan ikatan adalah lebih rendah daripada tenaga yang dibebaskan untuk membentuk ikatan.*

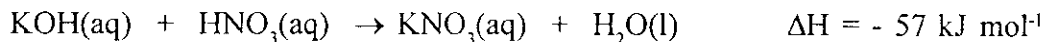
- 49 50 cm<sup>3</sup> of 1.0 mol dm<sup>-3</sup> calcium nitrate solution is added to the 50 cm<sup>3</sup> of 1.0 mol dm<sup>-3</sup> sodium carbonate solution. The temperature of the mixture decrease about  $a$  °C.  
What is the decreasing temperature if 50 cm<sup>3</sup> of 0.5 mol dm<sup>-3</sup> calcium nitrate solution is added to the 50 cm<sup>3</sup> of 0.5 mol dm<sup>-3</sup> sodium carbonate solution?

*50 cm<sup>3</sup> larutan kalsium nitrat 1.0 mol dm<sup>-3</sup> dicampurkan kepada 50 cm<sup>3</sup> larutan natrium karbonat 1.0 mol dm<sup>-3</sup>. Suhu campuran menurun sebanyak  $a$  °C. Berapakah penurunan suhu jika 50 cm<sup>3</sup> larutan kalsium nitrat 0.5 mol dm<sup>-3</sup> dicampurkan kepada 50 cm<sup>3</sup> larutan natrium karbonat 0.5 mol dm<sup>-3</sup>?*

- A  $a$  °C  
B  $2a$  °C  
C  $\frac{a}{2}$  °C  
D  $\frac{a}{4}$  °C

- 50 The thermochemical equation below shows a neutralization reaction.

*Persamaan termokimia di bawah menunjukkan tindak balas peneutralan.*



What is the heat change if 2.7 g of water is produced?

*Apakah perubahan haba sekiranya 2.7 g air dihasilkan?*

[ Relative atomic mass : H= 1 ; O= 16 ]

- A - 5.70 kJ mol<sup>-1</sup>  
B - 8.55 kJ mol<sup>-1</sup>  
C - 57.0 kJ mol<sup>-1</sup>  
D - 153.9 kJ mol<sup>-1</sup>

END OF QUESTION PAPER  
KERTAS SOALAN TAMAT