

PEPERIKSAAN PROGRASIF PDPR/2021
SMK SADONG JAYA, SAMARAHAN, SARAWAK

TINGKATAN 5

KIMIA

KERTAS 1

4541/1

OGOS

1 ¼ JAM

1 JAM 15 MINIT

.....
JANGAN BUKA KERTAS PEPERIKSAAN INI SEHINGGA DIBERITAHU

1. Kertas peperiksaan ini mengandungi 40 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.

.....
Kertas peperiksaan ini mengandungi **18 halaman bercetak** termasuk muka hadapan

1 Antara pernyataan berikut, yang manakah benar tentang Kimia?

Which of the following statement is true about Chemistry?

A Kajian tentang mineral semula jadi dan sifatnya.

A study about natural minerals and their properties

B Kajian tentang komposisi, sifat dan perubahan jirim.

A study about composition, properties and changes in matter.

C Kajian tentang hubungan antara organisma hidup dan bahan kimia.

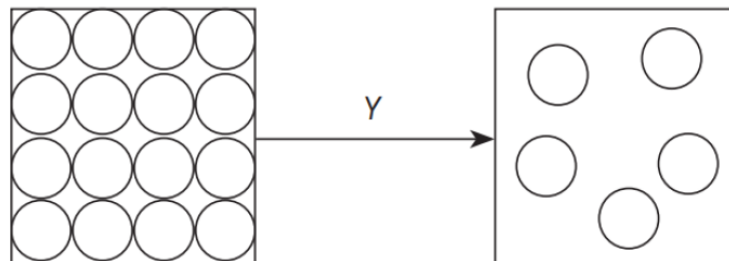
A study about the relationship between living organism and chemicals.

D Kajian tentang pembuatan bahan-bahan kimia baharu.

A study about making of new chemicals.

2 Rajah 1 menunjukkan susunan zarah-zarah bagi suatu bahan yang mengalami perubahan keadaan fizikal melalui proses Y.

Diagram 1 shows the arrangement of particles of a substance that undergo change in the physical state through process Y.



Rajah 1

Antara bahan berikut, yang manakah mengalami proses Y?

Which of the following substances undergo process Y?

I Bromin/ Bromine

II Iodin /Iodine

III Klorin / Chlorine

IV Naftalena / Naphtalene

A I dan IV

B I dan III

C II dan III

D II dan IV

3 Karbon-14 adalah isotop bagi karbon. Apakah kegunaan karbon-14?

Carbon-14 is an isotope of carbon. What is the use of carbon-14?

A Menganggar umur fosil dan artifak

Estimate the age of fossils and artifacts

B Radioterapi untuk merawat kanser

Radiotherapy for the treatment of cancer

C Memulihkan degupan jantung pesakit jantung

Regulate the heartbeats of patients with heart problems.

D Memusnahkan bakteria dalam makanan tanpa mengubah kualiti makanan.

Destroy bacteria in food without changing the quality of food

4 Ciri manakah yang betul tentang unsur-unsur dalam Kumpulan 17 dalam Jadual Berkala apabila menuruni kumpulan?

Which characteristic is correct about elements in Group 17 in the Periodic Table as going down the group?

A Keamatan warna berkurang

The intensity of colour decreases

B Kecenderungan menerima elektron berkurang

The tendency to accept an electron decreases

C Keadaan fizikal berubah daripada cecair kepada gas

The physical state changes from liquid to gas

D Daya tarikan antara nukleus dan elektron lebih kuat.

Force of attraction between nucleus and electron become stronger

5 Antara berikut, yang manakah sebatian ion?

Which of the following is an ionic compound?

A NaCl

B NH₃

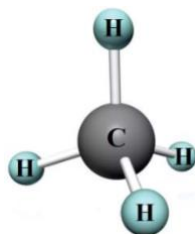
C HCl

D CO₂

- 6 Antara yang berikut yang manakah benar bagi oksida Kala 3 dalam Jadual Berkala?
Which of the following is true of the oxides of elements in Period 3 of the Periodic Table?

	Na_2O	MgO	Al_2O_3	SiO_2	P_4O_{10}	SO_2	Cl_2O_7
A	Bes <i>Basic</i>			Amfoterik <i>Amphoteric</i>	Asid <i>Acidic</i>		
B	Bes <i>Basic</i>		Amfoterik <i>Amphoteric</i>	Asid <i>Acidic</i>			
C	Bes <i>Basic</i>		Asid <i>Acidic</i>			Amfoterik <i>Amphoteric</i>	
D	Amfoterik <i>Amphoteric</i>	Bes <i>Basic</i>		Asid <i>Acidic</i>			

- 7 Rajah 2 menunjukkan model atom satu sebatian.
Diagram 1 shows the atom model of a compound.



Rajah 2

Antara berikut, yang manakah sifat sebatian itu?

Which of the following is the property of the compound?

- A Larut dalam air / *Dissolves in water*
 B Larut dalam pelarut organik / *Dissolve in organic solvent*
 C Takat lebur dan takat didih yang tinggi / *High melting and boiling points*
 D Boleh mengkonduksikan elektrik dalam keadaan leburan
Able to conduct electricity in molten state

8 Antara berikut, yang manakah bes? / Which of the following is a base?

- A Jus epal / *Apple juice*
- B Garam buluh / *Bamboo salt*
- C Serbuk penaik / *Baking soda*
- D Minuman ringan / *Soft drink*

9 Antara yang berikut, yang manakah alkali lemah dan asid kuat?

Which of the following, is a weak alkali and a strong acid?

- A Kalium hidroksida dan asid nitrik / *Potassium hydroxide and nitric acid*
- B Ammonia dan asid sulfurik / *Ammonia and sulphuric acid*
- C Ammonia dan asid etanoik / *Ammonia and ethanoic acid*
- D Natrium hidroksida dan asid etanoik / *Sodium hydroxide and ethanoic acid*

10 Tindak balas mana yang paling pantas? / Which reaction is the fastest?

- A 1 g serbuk batu kapur, 100 cm³ asid 1 mol dm⁻³ dan 30°C
1 g limestone powder, 100 cm³ of 1 mol dm⁻³ acid and 30°C
- B 1 g pepejal batu kapur, 100 cm³ asid 1 mol dm⁻³ acid dan 40°C
1 g limestone solid, 100 cm³ of 1 mol dm⁻³ acid and 40°C
- C 1 g serbuk batu kapur, 100 cm³ asid 1 mol dm⁻³ dan 40°C
1 g limestone powder, 100 cm³ acid of 1 mol dm⁻³ and 40°C

11 Amri ingin membuat air gula dengan cepat.

Antara berikut, apakah faktor yang perlu diberikan perhatian?

Amri wants to make sugar syrup quickly.

Which of the following factors, does he need to pay attention to?

- A Suhu air / *Temperature of water*
- B Jisim gula / *Mass of sugar*
- C Isi padu air / *Volume of water*

12 Apakah siri homolog bagi propil propanoat?

What is the homologous series of propyl propanoate?

A Ester /*Ester*

B Alkena /*Alkene*

C Alkohol /*Alcohol*

D Asid karboksilik /*Carboxylic acid*

13 Antara berikut, yang manakah maksud haba penyesaran?

Which of the following is the meaning of the heat of displacement?

A Perubahan haba apabila 1 mol halogen disesarkan oleh larutan halidanya

Heat change when 1 mol of halogen is displaced from its halide solution

B Perubahan haba apabila 1 mol ion dihasilkan daripada logamnya.

Heat change when 1 mol of ion is produced from its metal.

C Perubahan haba apabila 1 mol logam disesarkan daripada larutan garamnya

Heat change when 1 mol of metal is displaced from its salt solution.

14 Ahmad ialah seorang penoreh getah. Dia mengumpulkan lateks daripada pokok getah dan membawanya ke kilang. Apakah yang perlu Ahmad lakukan untuk menghalang lateks daripada menggumpal sebelum dia sampai ke kilang?

Ahmad is a rubber tapper. He collects latex from rubber trees and brings it to the factory. What should Ahmad do to prevent the latex from coagulating before he reaches the factory?

A Tambahkan cuka ke dalam lateks / *Add vinegar into the latex*

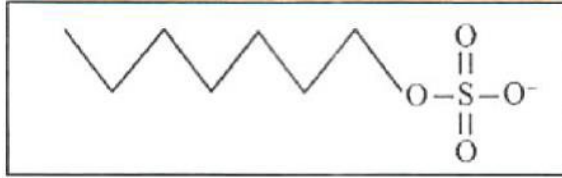
B Tambahkan larutan ammonia ke dalam lateks / *Add ammonia solution into the latex*

C Cairkan lateks dengan menambahkan sedikit air / *Dilute the latex by adding some water*

D Tambahkan secawan garam biasa ke dalam lateks / *Add one cup of table salt into the latex*

15 Rajah 3 menunjukkan formula struktur suatu bahan

Diagram shows the structural formula of a substance.



Rajah 3

Apakah bahan tersebut? /What is the substance?

- A Sabun /*Soap*
 - B Ester /*Ester*
 - C Detergen /*Detergent*
 - D Getah tervulkan /*Vulcanized rubber*
- 16 Antara yang berikut, yang manakah merupakan contoh bagi jirim?
Which of the following is an example of matter?
- A Api /*Fire*
 - B Haba /*Heat*
 - C Udara /*Air*
 - D Cahaya /*Light*
- 17 Antara yang berikut, yang manakah adalah satu gas monoatom?
Which of the following is a monoatomic gas?
- A Argon /*Argon*
 - B Klorin /*Chlorine*
 - C Hidrogen /*Hydrogen*
 - D Oksigen /*Oxygen*

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

	Formula kimia <i>Chemical formula</i>	Nama <i>Name</i>
I	CCl ₄	Karbon klorida <i>Carbon chloride</i>
II	CS ₂	Karbon disulfida <i>Carbon disulphide</i>
III	BF ₃	Boron trifluorida <i>Boron trifluoride</i>
IV	NaHCO ₃	Natrium karbonat <i>Sodium carbonat</i>

- A I dan II
 B II dan III
 C II dan IV
 D III dan IV

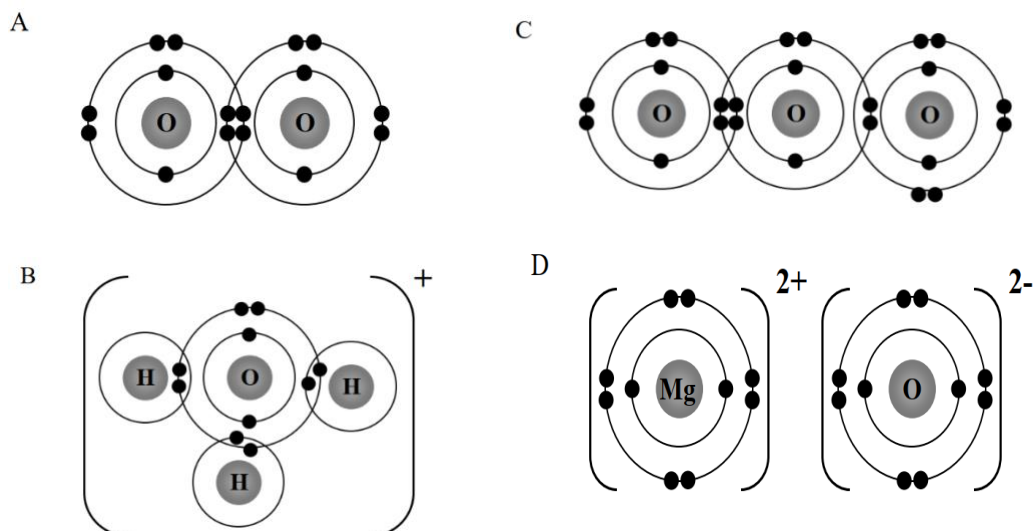
19 Suatu unsur X membentuk dua garam klorida berwarna, XCl₂ dan XCl₃. Apakah X?

An element X forms two coloured chloride salts, XCl₂ and XCl₃. What is X?

- A Halogen / *Halogen*
 B Gas Adi / *Noble gases*
 C Logam alkali / *Alkali metal*
 D Unsur peralihan / *Transition element*

20 Antara berikut, yang manakah rajah susunan elektron bagi pembentukan sebatian ion?

Which of the following is the electron arrangement diagram for the formation of ionic compound?



- 21 Antara berikut, yang manakah kaedah untuk menguji kealkalian gas ammonia?
Which of the following is the method to test the alkalinity of ammonia gas?
- A Menggunakan kertas turas /*Using filter paper*
 - B Menggunakan kertas litmus biru lembap /*Using moist blue litmus paper*
 - C Menggunakan kertas litmus merah lembap /*Using moist red litmus paper*
 - D Menggunakan kertas kobalt klorida kontang /*Using anhydrous cobalt chloride paper*

- 22 Persamaan berikut mewakili tindak balas antara kalsium karbonat dan asid hidroklorik
The following equation represents the reaction between calcium carbonate and hydrochloric acid



Antara faktor berikut, yang manakah boleh meningkatkan kadar tindak balas ini?

Which of the following factors can increase the rate of this reaction.

- A Meningkatkan saiz kalsium karbonat /*Increase the size of calcium carbonate*
 - B Meningkatkan suhu campuran /*Increase the temperature of the mixture*
 - C Mengurangkan isipadu asid hidroklorik /*Decrease the volume of hydrochloric acid*
 - D Mengurangkan kepekatan asid hidroklorik / *Decrease the concentration of hydrochloric acid*
- 23 Seramik termaju diperbuat daripada sebatian bukan organik seperti oksida, karbida and nitrida. Antara bahan berikut yang manakah diperbuat daripada seramik termaju?
Advanced ceramics are made from inorganic compounds such as oxides, carbides and nitrides. Which of the following is made from advance ceramics?
- A Cakera brek /*Brake disc*
 - B Mangkuk /*Bowl*
 - C Landasan keretapi /*Railway track*
 - D Cenderahati /*Souvenir*

24

Hidrokarbon adalah sebatian organik yang mengandungi atom hidrogen dan karbon sahaja.

Hydrocarbon is organic compound containing only hydrogen and carbon atom.

Berdasarkan kenyataan di atas, yang manakah sebatian organik berikut merupakan hidrokarbon?

Based on the statement above, which of the following organic compound is hydrocarbon?

A Protein /*Protein*

B Kanji /*Starch*

C Alkohol /*Alcohol*

D Petrol /*Petrol*

25 Penamaan $\text{CH}_3\text{CH}_2\text{CH}=\text{CH}_2$ mengikut IUPAC adalah?

What is the IUPAC name of $\text{CH}_3\text{CH}_2\text{CH}=\text{CH}_2$?

A Prop-1-ena /*Prop-1-ene*

B But-1-ena /*But-1-ene*

C Butuna /*Butyne*

D 3-butena /*3-buten*

26 Apabila pepejal Q larut dalam air, suhu berubah dari 26°C kepada 38°C . Antara pernyataan yang berikut, manakah benar tentang tindak balas itu?

When solid Q dissolves in water, the temperature change from 26°C to 38°C . Which of the following statements is true about the reaction?

A Tenaga haba dari sistem hilang ke persekitaran

Heat energy is lost from the system to the surroundings

B Tenaga haba bertukar kepada tenaga kimia

Heat energy is converted to chemical energy

C Larutan itu mendapat tenaga haba dari persekitaran

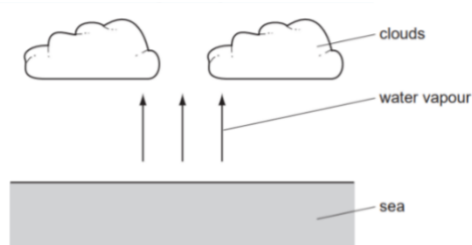
The solution gains its heat energy from the surroundings

D Ia adalah suatu tindak balas endotermik

It is an endothermic reaction.

27 Rajah 4 menunjukkan kejadian awan yang terbentuk apabila wap air tersejat dari laut.

Diagram 4 shows the formation of clouds when water vapour evaporates from the sea.



Rajah 4

Apakah perubahan tenaga haba dan jenis tindak balas yang terlibat ketika air menyejat?

What is the heat energy change and the type of reaction occur when water evaporates?

	Perubahan tenaga haba <i>Heat energy change</i>	Jenis tindak balas <i>Type of reaction</i>
A	Tenaga haba dibebaskan <i>Heat energy given out</i>	Endotermik <i>Endothermic</i>
B	Tenaga haba dibebaskan <i>Heat energy given out</i>	Eksotermik <i>Exothermic</i>
C	Tenaga haba diserap <i>Heat energy absorb</i>	Endotermik <i>Endothermic</i>
D	Tenaga haba diserap <i>Heat energy absorb</i>	Eksotermik <i>Exothermic</i>

28 Antara gabungan berikut, yang manakah merupakan polimer sintetik?

Which of the following combination is synthetic polymer?

- I Getah / Rubber
- II Selulosa / Cellulose
- III Polivinil klorida / Polyvinyl chloride
- IV Polipropena/Polypropene

- A I dan II
- B I dan IV
- C I dan III
- D III dan IV

- 29** Pelembap muka yang dikeluarkan oleh sebuah syarikat A lebih mahal dan lebih efektif daripada pelembap muka yang dikeluarkan oleh syarikat B. Mengapakah pelembap muka syarikat A lebih mahal?

The facial moisturizers manufactured by company A are more expensive and more effective than facial moisturizers manufactured by company B. Why are facial moisturizers from company A more expensive?

- A** Tahan lama /*Long lasting*
- B** Diperbuat daripada bahan organik /*Made up from organic materials*
- C** Mengandungi gliserin yang dapat mengekalkan kelembapan
Contain glycerine that can retain the moisture
- D** Menggunakan bahan nano yang dapat menembusi kulit dengan lebih baik
Use nanoparticles that can penetrate the skin better.

- 30** Sendi kaki seorang murid bengkak dan berasa sakit. Apakah ubat yang sesuai diberikan kepada murid itu.

The joint of student's leg is swollen and painful. What medicine is suitable to be given to the student.

- A** Kodeina /*Codeine*
- B** Parasetamol /*Paracetamol*
- C** Streptomisin /*Streptomycin*
- D** Klorpormazin /*Chlorpormazine*

- 31** Jika 41.4 g unsur P berpadu dengan 6.4 g unsur Q, apakah formula bagi sebatian yang terbentuk?

[Jisim atom relatif : P = 207; Q = 16]

If 41.4 g of element P is combined with 6.4 g of element Q, what is the formula for the compound formed?

[Relative atomic mass : P = 207; Q = 16]

- A** PQ
- B** P₂Q
- C** PQ₂
- D** P₂Q₃

32 Jadual 1 menunjukkan takat lebur dan takat didih bahan P,Q,R dan S.

Table 1 below shows the melting and boiling points of substances P, Q, R and S.

Bahan yang manakah cecair pada suhu bilik?

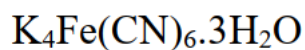
Which substances is a liquid at room temperature?

Bahan <i>Substance</i>	Takat lebur (°C) <i>Melting point (°C)</i>	Takat didih (°C) <i>Boiling point (°C)</i>
P	-75	-15
Q	-20	97
R	35	147
S	5	120

Jadual 1

- A Q sahaja
- B R sahaja
- C Q dan S
- D R dan S

33



Rajah di atas menunjukkan formula kimia bagi kalium heksasianoferrat(III) trihidrat.

Apakah jisim relatif sebatian ini?

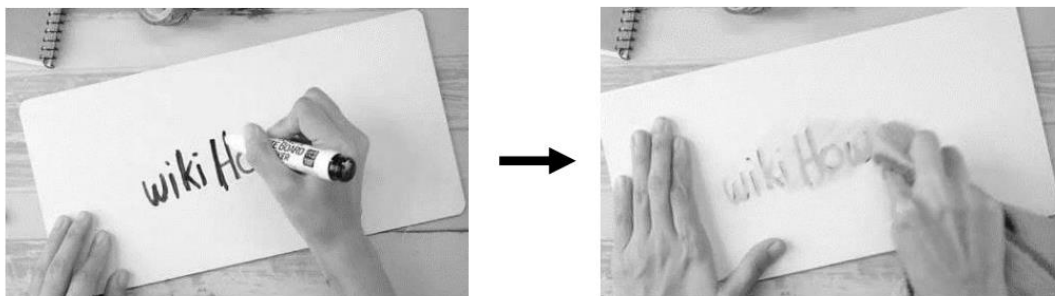
[Jisim atom relatif : H = 1; C = 12; N = 14; O = 16; K = 39; Fe = 56]

Diagram above shows the chemical formula of potassium hexacyanoferrate(III) trihydrate. What is the relative mass of this compound?

[Relative atomic mass : H = 1; C = 12; N = 14; O = 16; K = 39; Fe = 56]

- A 141
- B 256
- C 389
- D 422

- 34 Rajah 5 di bawah menunjukkan Haikal cuba memadam tulisan di atas papan putih menggunakan pelarut X. / Diagram 8 shows Haikal trying to erase a writing on a whiteboard using solvent X.



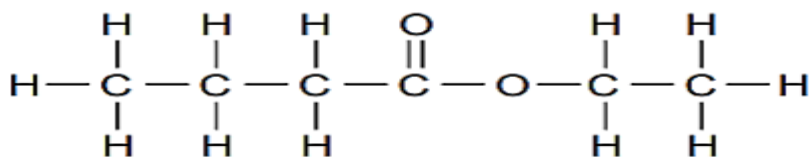
Rajah 5

Apakah pelarut X? / What is solvent X?

- A Kloroform / Chloroform
 B Propanon / Propanone
 C Etanol / Ethanol
 D Air / Water
- 35 X g natrium klorida dilarutkan ke dalam 300 cm³ air suling untuk menghasilkan 0.005 mol dm⁻³ larutan natrium klorida. Berapakah X?
 [Jisim atom relatif : Na = 23, Cl = 35.5]
 X g of sodium chloride is dissolved in 300 cm³ of distilled water and produce 0.005 mol dm⁻³ of sodium chloride solution. What is X?
 [Relative atomic mass : Na = 23, Cl = 35.5]
- A 0.026 g
 B 0.088 g
 C 1.026 g
 D 1.500 g

36 Rajah 6 menunjukkan formula struktur perisa makanan yang diperolehi dalam buah-buahan.

Diagram 6 shows a structure formulae of food flavouring which found in fruits.



Rajah 6

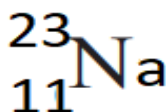
Antara berikut yang manakah boleh digunakan untuk membuat perisa makanan itu?

Which of the following can be used to make the food flavouring?

- A Asid propanoik dan Propanol / *Propanoic acid and Propanol*
- B Asid etanoik dan Etanol / *Ethanoic acid and Ethanol*
- C Asid Butanoik dan Etanol / *Butanoic acid and Ethanol*
- D Asid propanoic dan Etanol / *Propanoic acid and Ethanol*

37 Rajah 7 di bawah menunjukkan perwakilan piawai bagi natrium-23.

Diagram 3 shows the standard represented for sodium-23.



Rajah 7

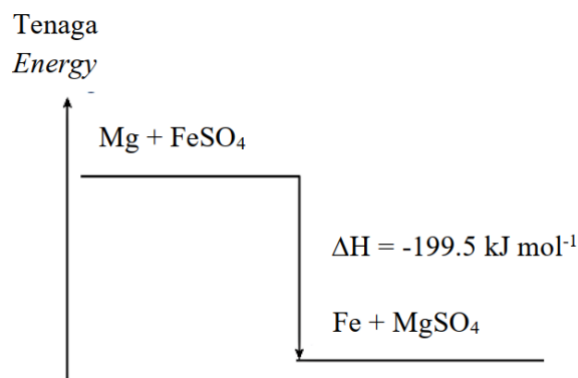
Antara berikut, yang manakah betul bagi ion Na^+ ?

Which of the following statements is correct for Na^+ ion?

	Bilangan proton <i>Number of protons</i>	Bilangan neutron <i>Number of neutrons</i>	Bilangan elektron <i>Number of electrons</i>
A	11	12	11
B	11	12	10
C	10	13	11
D	12	11	10

- 38 Rajah 8 menunjukkan gambar rajah aras tenaga bagi tindak balas antara magnesium dengan larutan ferum(II) sulfat.

Diagram 8 shows the energy level diagram for the reaction between magnesium and iron(II) sulphate solution.



Rajah 8

Apabila serbuk magnesium yang berlebihan ditambahkan kepada 150 cm³ larutan ferum (II) sulfat, suhunya bertambah sebanyak 16 °C. Berapakah jisim magnesium yang terlarut?

[Jisim atom relatif : Mg = 24 ; Muatan haba tentu air = 4.2 J g⁻¹ °C⁻¹]

When excess magnesium powder is added into 150 cm³ of iron(II) sulphate solution, the temperature increases by 16°C. What is the mass of magnesium dissolved?

[Relative atomic mass : Mg = 24; Specific heat of water = 4.2 J g⁻¹ °C⁻¹]

- A $\frac{24 \times 150 \times 4.2}{16 \times 199.5}$
- B $\frac{24 \times 150 \times 4.2 \times 16}{1000 \times 199.5}$
- C $\frac{16 \times 150 \times 4.2}{24 \times 199.5}$
- D $\frac{16 \times 150 \times 4.2}{1000 \times 24 \times 199.5}$

- 39 Dialog dalam rajah 9 di bawah menunjukkan perbincangan antara pekerja-pekerja pengeluaran makanan.

Dialogue in diagram below shows a discussion in a meeting among food manufacturing workers



Rajah 9

Antara bahan-bahan berikut yang manakah paling sesuai digunakan dalam produk makanan baharu tersebut?

Which of the following substances are the most suitable to be used in the new food product?

- A** Tartrazina, lesitin, gelatin
Tartrazine, lecithin, gelatine
- B** Aspartam, asid askorbik, oktil glutamat
Aspartame, ascorbic acid, oktyl glutamate
- C** Pektin, natrium nitrat, mononatrium glutamate
Pectin, sodium nitrate, monosodium glutamate
- D** Sulfur dioksida, natrium benzoat, sebatian trifenil
Sulphur dioxide, sodium benzoate, triphenyl compounds

40

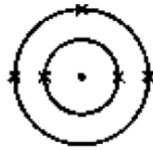
- mempunyai 3 proton
has 3 protons
- reacts with cold water
bertindak balas dengan air sejuk

Maklumat berikut menggambarkan atom Q / *The following information describes atom Q*

Antara atom yang berikut, yang manakah bertindak balas dengan cara yang serupa dengan atom Q?

Which of the following atoms has similar reaction with atom Q?

A



C



B



D



SKEMA JAWAPAN PEPERIKSAAN KIMIA T5

1	B	11	B	21	C	31	C
2	D	12	A	22	B	32	D
3	A	13	C	23	A	33	D
4	B	14	B	24	D	34	A
5	A	15	C	25	B	35	B
6	C	16	B	26	A	36	C
7	B	17	A	27	C	37	B
8	B	18	B	28	D	38	B
9	B	19	D	29	D	39	C
10	C	20	D	30	B	40	D