

**SIJIL PELAJARAN MALAYSIA
MULAI TAHUN 2021**

**SAINS
(1511)**

CONTOH ITEM

1511/1 - SAINS KERTAS 1



KERTAS 1

- 1 Which of the following substance can be disposed into the sink?

Apakah bahan yang boleh dibuang terus ke dalam singki?

- A Weak acid
Asid lemah
- B Solid waste
Sisa pepejal
- C Organic waste
Sisa organik
- D Organic solvent
Pelarut organik

- 2 Which of the following action is true about CPR?

Antara tindakan berikut yang manakah benar tentang CPR?

- A After the chest compression technique is performed, if there is no breathing, pitch the victim's nose, suck in the victim breath
Setelah diberikan tekanan dada, jika mangsa belum bernafas, picit hidungnya dan sedut nafas mangsa
- B If the victim is breathing but still unconscious, continue with the breath rescue
Jika mangsa sudah bernafas tetapi masih belum sedar, teruskan beri bantuan pernafasan
- C Ensure that the victim is lying on his side before giving CPR
Pastikan badan mangsa dalam keadaan mengiring sebelum memberi CPR
- D Do chest compressions for 30 times followed by mouth-to-mouth resuscitation
Tekan dada mangsa sebanyak 30 kali diikuti dengan hembusan mulut ke mulut

- 3 Diagram 1 shows a part of thermometer.

Rajah 1 menunjukkan bahagian pada sebuah termometer.

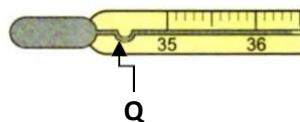


Diagram 1

Rajah 1

What is the function of part Q?

Apakah fungsi bahagian Q?

- A So the thermometer can last long.

Supaya termometer lebih tahan haba.

- B So the mercury does not expand too fast.

Agar merkuri tidak berkembang dengan sangat cepat.

- C So the size of the thermometer becomes shorter and shows the reading above 35°C.

Supaya saiz termometer kecil dan tunjukkan bacaan 35°C ke atas sahaja.

- D So the reading can be read accurately even when removed from the measured section

Supaya bacaan dapat diambil dengan tepat walaupun dikeluarkan daripada bahagian yang diukur.

- 4 Which inherited disease is related to chromosome mutation?

Penyakit baka yang manakah berkaitan dengan mutasi kromosom?

- A Hemophilia

Hemofilia

- B Colour blindness

Buta warna

- C Albinism

Albinisme

- D Down's syndrome

Sindrom Down

- 5 Diagram 2 shows a cell undergoes cell division.

Rajah 2 menunjukkan suatu sel yang mengalami pembahagian sel.

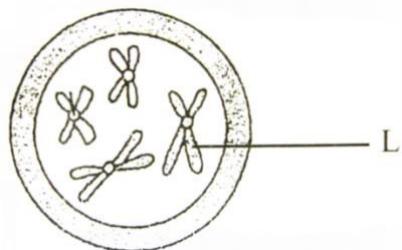


Diagram 2
Rajah 2

What is structure L?

Apakah struktur L?

- A Nucleus
Nukleus
- B Cytoplasm
Sitoplasma
- C Chromosome
Kromosom
- D Cell membrane
Membran sel

- 6 Diagram 3 shows a cross breeding between two plants, a purple flower and a yellow flower.

Rajah 3 menunjukkan kacukan antara dua pokok, bunga berwarna ungu dengan bunga berwarna kuning.

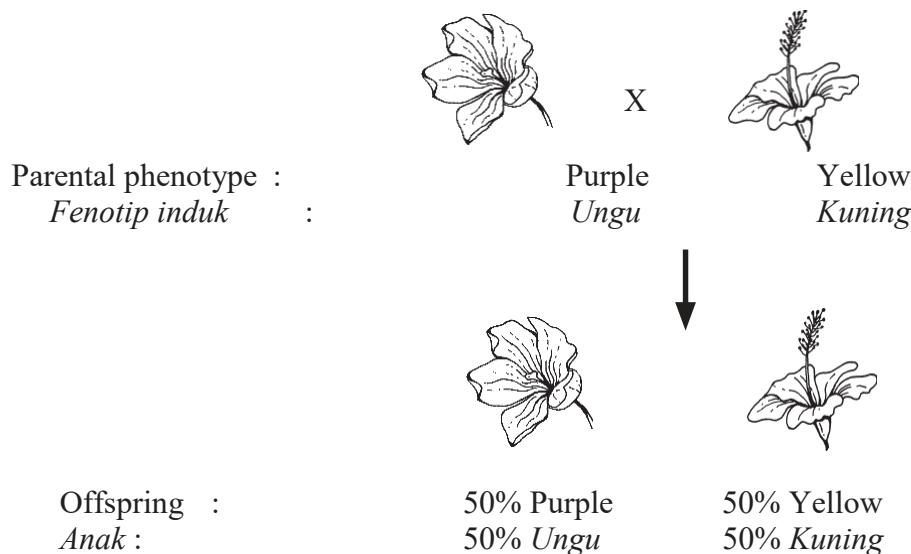


Diagram 3
Rajah 3

If **P** represents the dominant gene of purple flower and **p** represents the recessive gene of yellow flower, what is the genotype of the parents?

Jika P mewakili gen dominan bagi bunga ungu dan p mewakili gen resesif bagi bunga kuning, apakah genotip kedua-dua induk tersebut?

- A pp x PP
- B PP x pp
- C Pp x pp
- D Pp x Pp

- 7 Diagram 4 shows an endocrine gland.

Rajah 4 menunjukkan suatu kelenjar endokrin.

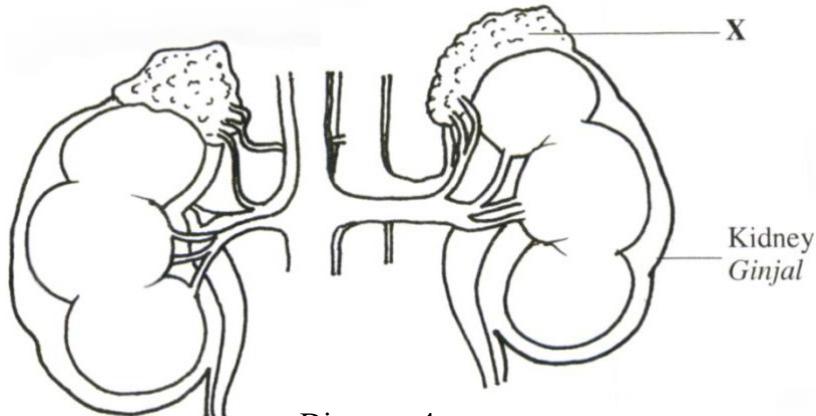


Diagram 4

Rajah 4

What is X?

Apakah X?

- A Pancreas gland
Kelenjar pankreas
- B Adrenal gland
Kelenjar adrenal
- C Thyroid gland
Kelenjar tiroid
- D Pituitary gland
Kelenjar pituitari

- 8 Diagram 5 shows a woman's endocrine system who suffered cancer at gland X.
Rajah 5 menunjukkan sistem endokrin seorang wanita yang telah menghidap penyakit kanser di kelenjar X.

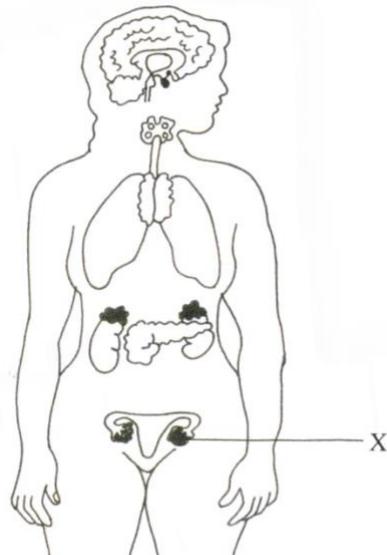


Diagram 5

Rajah 5

What is the possibility that will happen to the women?

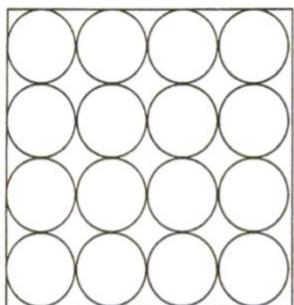
Apakah kemungkinan yang akan berlaku pada wanita tersebut?

- A Increased blood glucose level
Aras glukosa darah meningkat
- B Higher metabolism rate
Kadar metabolisme lebih tinggi
- C Stunted growth
Pertumbuhan terbantut
- D Menstrual cycle affected
Kitar haid terganggu

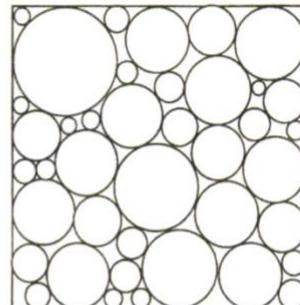
- 9 Which substance **A**, **B**, **C** or **D** is made of ion?

Antara bahan **A**, **B**, **C** dan **D**, yang manakah terdiri daripada ion?

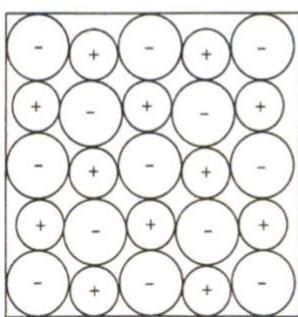
A



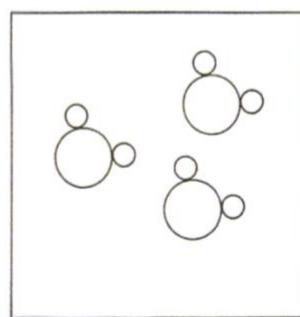
B



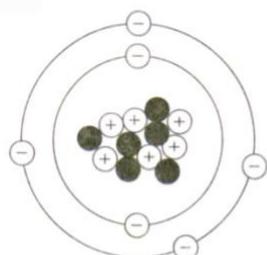
C



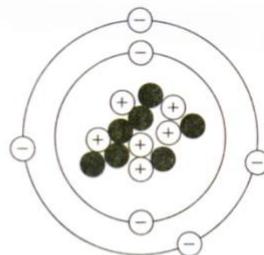
D



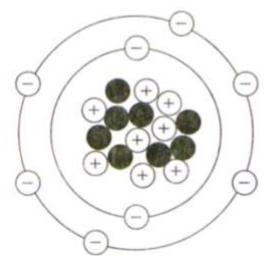
- 10** Diagram 6 shows the structure of atom P, Q, R, and S.
Rajah 6 menunjukkan struktur atom P, Q, R, dan S.



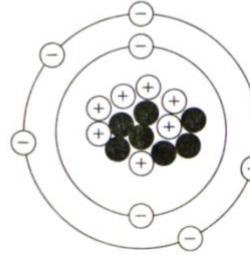
P



Q



R



S

Diagram 6

Rajah 6

Which atoms are isotopes?

Atom manakah adalah isotop?

A P and Q

P dan Q

B P and S

P dan S

C Q and R

Q dan R

D R and S

R dan S

- 11 The number of neutron of an atom is 10 and the nucleon number is 19.

What is the number of proton of the atom?

Bilangan neutron suatu atom ialah 10 dan nombor nukleonnya ialah 19.

Berapakah bilangan proton bagi atom itu?

- A 9
- B 10
- C 19
- D 29

- 12 An aircraft can carry many passengers at one time. For the safety of the passengers, the body of aircraft needs to be built with strong material. Steel is a type of alloy which is very strong and used widely to build the frame of vehicles.

Kapal terbang boleh membawa bilangan penumpang yang ramai pada satu-satu masa. Untuk keselamatan penumpang, badan kapal terbang perlu dibina dengan bahan yang kuat. Keluli adalah sejenis aloi yang sangat kuat dan banyak digunakan untuk membina rangka kenderaan.

Why steel cannot be used to build the body of an aircraft?

Mengapakah keluli tidak boleh digunakan untuk membina badan kapal terbang?

- A High in mass
Jisim yang besar
- B Not malleable
Sukar ditempa
- C High in cost
Kos yang tinggi
- D Easily corrode
Mudah terkakis

- 13 Diagram 7 shows the effect of substance R on latex.
Rajah 7 menunjukkan kesan bahan R terhadap lateks.

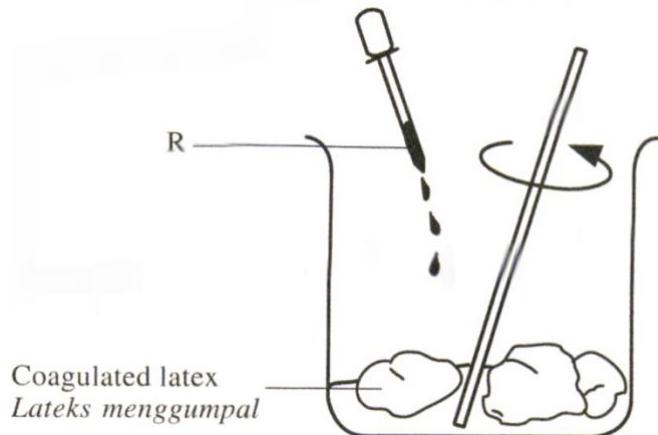


Diagram 7
Rajah 7

What is R?

Apakah R?

- A Sulphur monoxide
Sulfur monoksida
- B Etanoic acid
Asid etanoik
- C Ammonia solution
Larutan ammonia
- D Sodium hydroxide
Natrium hidroksida

- 14 A student takes 0.5 hour to cycle from his house to the town.

If his average speed is 15 km h^{-1} , what is the distance from his house to the town?

$$\left[\begin{array}{l} \text{Speed} = \frac{\text{Distance}}{\text{Time}} \end{array} \right]$$

Seorang murid mengambil masa 0.5 jam mengayuh basikal dari rumahnya ke bandar. Jika laju puratanya ialah 15 km j^{-1} , berapakah jarak antara rumahnya ke bandar?

$$\left[\begin{array}{l} \text{Laju} = \frac{\text{Jarak}}{\text{masa}} \end{array} \right]$$

- A 2.0 km
- B 4.5 km
- C 7.5 km
- D 15.0 km

- 15 Diagram 8 shows a woman is drying her umbrella.

Rajah 8 menunjukkan seorang perempuan sedang mengeringkan payungnya.



Diagram 8
Rajah 8

What is the concept used by the woman when she twists her umbrella repeatedly?

Apakah konsep yang digunakan oleh perempuan tersebut apabila dia memutarkan payung itu berulang kali?

- A Inertia
Inersia
- B Pressure
Tekaan
- C Momentum
Momentum
- D Acceleration
Pecutan

- 16 Diagram 9 shows a lorry skidded on a road.

Rajah 9 menunjukkan sebuah lori yang terbabas di atas jalan.

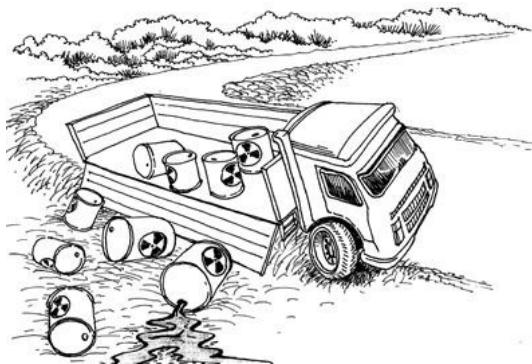


Diagram 9
Rajah 9

If you are passing through the road, what is the best step you should do?

Jika anda melalui jalan tersebut, apakah langkah terbaik yang perlu anda lakukan?

- A Keep a distance from the accident area
Menjauhi kawasan kemalangan
- B Viral through social media
Menularkan melalui media sosial
- C Approach the accident area
Menghampiri kawasan kemalangan
- D Help to clean up the spill
Membantu membersihkan tumpahan tersebut

- 17 Diagram 10 shows the use of radioactive substance in industry.
Rajah 10 menunjukkan kegunaan bahan radioaktif dalam industri.

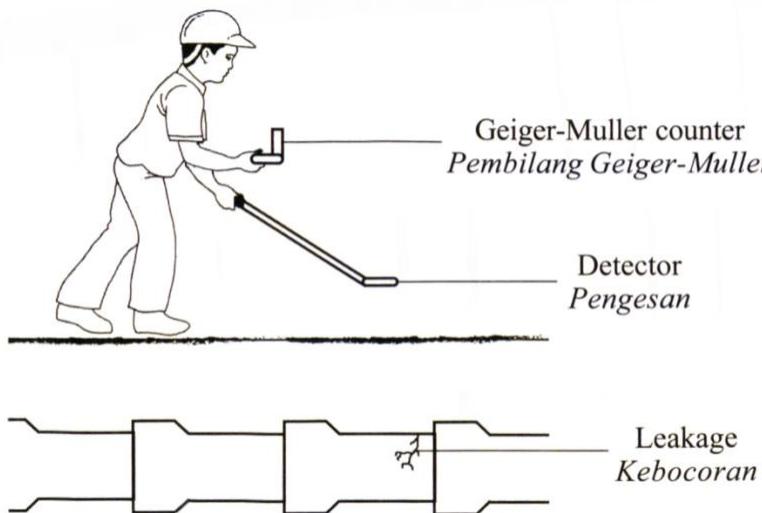


Diagram 10
Rajah 10

Which radiation is most suitable to be used in Diagram 10?
Sinaran manakah yang paling sesuai digunakan dalam Rajah 10?

- A Ultraviolet
Ultraungu
- B X-ray
Sinar-X
- C Alpha ray
Sinar alfa
- D Gamma ray
Sinar gama

- 18 Diagram 11 shows an experiment to study factors that affect the growth of bacteria.
Rajah 11 menunjukkan eksperimen untuk mengkaji faktor-faktor yang mempengaruhi pertumbuhan bakteria.

Nutrient agar Agar-agar nutrien +		Nutrient agar Agar-agar nutrien +	
Bacteria culture Kultur bakteria		Bacteria culture Kultur bakteria	
Petri dish P <i>Piring petri P</i>	Placed on the edge of the window <i>Diletakkan di tepi tingkap</i>	Petri dish Q <i>Piring petri Q</i>	Placed in the dark cupboard <i>Diletakkan di dalam almari gelap.</i>
Petri dish R <i>Piring petri R</i>	Placed under the light bulb. <i>Diletakkan di bawah cahaya mentol.</i>	Petri dish S <i>Piring petri S</i>	Placed in the refrigerator. <i>Diletakkan di dalam peti sejuk.</i>

Diagram 11
Rajah 11

All the petri dishes are kept for three days.
Semua piring petri disimpan selama tiga hari.

Which A, B, C or D is the most appropriate bacterial growth expectation?
Antara A, B, C dan D yang manakah jangkaan pertumbuhan bakteria yang paling tepat?

Bacteria growth Pertumbuhan bakteria			
	None <i>Tiada</i>	Less <i>Kurang</i>	More <i>Banyak</i>
A	S	Q	R
B	S	P	Q
C	Q	R	P
D	P	S	R

- 19** Which disease is caused by virus?

Penyakit manakah yang disebabkan oleh virus?

- A Tinea
Panau
- B Dengue
Denggi
- C Cholera
Taun
- D Gonorrhea
Gonorea

- 20** Diagram 12 shows the result of an experiment to study the effect of an antibiotic on the growth of bacteria.

Rajah 12 menunjukkan keputusan eksperimen untuk mengkaji kesan antibiotik terhadap pertumbuhan bakteria.

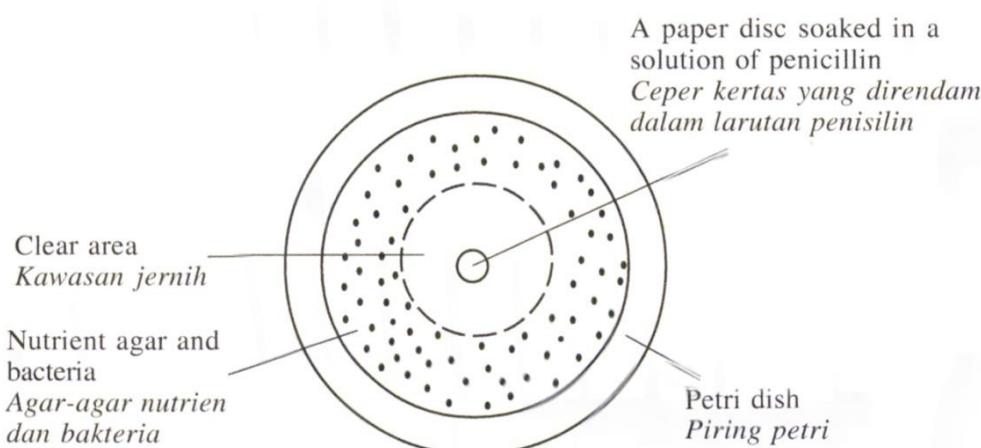


Diagram 12

Rajah 12

Which of the following statements explains the clear area?

Antara pernyataan berikut, yang manakah menerangkan kawasan jernih?

- A Area where bacteria does not grow
Kawasan yang tidak ditumbuhgi oleh bakteria
- B Area where bacteria is not placed
Kawasan yang tidak diletakkan bakteria
- C The reaction area of penicillin disc
Kawasan tindakan ceper penisilin
- D Area without nutrient
Kawasan yang tiada nutrient

- 21** In nitrogen cycle the dead animal is converted into ammonium compound through process Q.
Dalam kitar nitrogen haiwan mati ditukarkan kepada sebatian ammonia melalui proses Q

What is process Q?

Apakah proses Q?

- A** Nitrification
Penitritan
- B** Decomposition
Penguraian
- C** Denitrification
Pendenitritan
- D** Nitrogen fixation
Pengikatan nitrogen

- 22 Table 1 shows the relationship between mass and calorie intake for males in Malaysia.
Jadual 1 menunjukkan hubungan di antara jisim dengan keperluan kalori bagi lelaki di Malaysia.

Mass (kg) <i>Jisim (kg)</i>	Calorie requirement (kJ) <i>Keperluan kalori (kJ)</i>
60	2480
65	2620
70	2760
75	2900

Table 1
Jadual 1

The following information shows the calorie intake by two men in a day.
Maklumat berikut menunjukkan pengambilan kalori oleh dua orang lelaki dalam masa sehari.

Man A <i>Lelaki A</i>	Man B <i>Lelaki B</i>
Mass = 60kg <i>Jisim</i>	Mass = 75kg <i>Jisim</i>
Calorie intake = 2900kJ <i>Pengambilan kalori</i>	Calorie intake = 2480kJ <i>Pengambilan kalori</i>

Based on Table 1, which match is correct about the calorie intake for both men?
Berdasarkan Jadual 1, padanan manakah yang betul tentang pengambilan kalori bagi kedua-dua lelaki tersebut?

	Calorie intake for man A <i>Pengambilan kalori lelaki A</i>	Calorie intake for man B <i>Pengambilan kalori lelaki B</i>
A	Sufficient <i>Mencukupi</i>	Sufficient <i>Mencukupi</i>
B	Less <i>Kurang</i>	Sufficient <i>Mencukupi</i>
C	Excessive <i>Berlebihan</i>	Less <i>Kurang</i>
D	Excessive <i>Berlebihan</i>	Excessive <i>Berlebihan</i>

- 23** Which method is the most suitable to maintain the freshness of fresh milk?
Kaedah manakah yang paling sesuai digunakan untuk mengekalkan kesegaran susu segar?
- A Canning
Pengetinan
- B Irradiation
Penyinaran
- C Pasteurisation
Pempasteuran
- D Vacuum packaging
Pembungkusan vakum

- 24** Table 2 shows the menu of breakfast taken by two students, P and Q.
Jadual 2 menunjukkan menu sarapan pagi bagi dua orang pelajar P dan pelajar Q.

Student <i>Pelajar</i>	Menu <i>Menu</i>	Calories content (kJ) <i>Kandungan kalori (kJ)</i>
P	250g Nasi lemak <i>Nasi lemak</i>	635
	200g Orange juice <i>Jus oren</i>	200
Q	300g Fried rice <i>Nasi goreng</i>	400
	200g Milk <i>Susu</i>	170

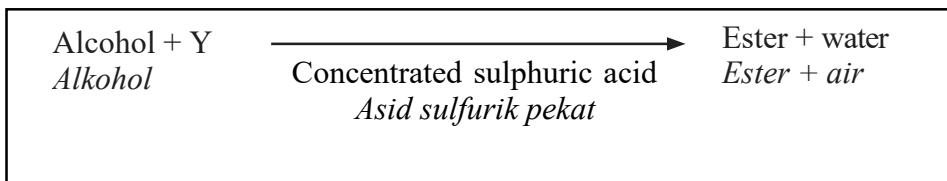
Table 2
Jadual 2

Calculate the calories difference taken by the students.
Kirakan perbezaan kalori yang diambil oleh pelajar-pelajar itu.

- A 30 kJ
- B 235 kJ
- C 265 kJ
- D 1405 kJ

- 25** The following word equation shows a chemical reaction.

Persamaan perkataan berikut menunjukkan suatu tindak balas kimia.



What is Y?

Apakah Y?

- A Salt
Garam
- B Alkali
Alkali
- C Organic acid
Asid organik
- D Inorganic acid
Asid tak organic

- 26** A colourless solution spilled on the hand of a student. He felt cold on the area and the liquid instantly dried.

Sejenis cecair tak berwarna telah tumpah ke atas tangan seorang pelajar. Dia berasa sejuk pada kawasan tumpahan dan cecair itu kering dengan cepat.

What is the liquid?

Apakah cecair tersebut?

- A Ethanol
Etanol
- B Distilled water
Air suling
- C Vinegar
Cuka
- D Salt solution
Larutan garam

- 27 Diagram 13 shows an electrolysis set-up.

Which part, A, B, C or D is an anode?

Rajah 13 menunjukkan satu susunan radas elektrolisis.

Antara bahagian A, B, C dan D, yang manakah anod?

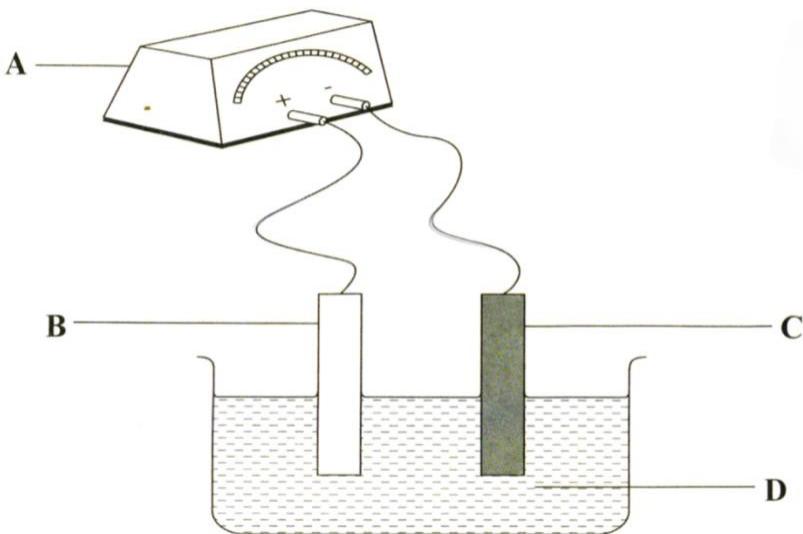


Diagram 13

Rajah 13

- 28 Diagram 14 shows the apparatus set-up used in the electroplating of an iron spoon with copper.

Rajah 14 menunjukkan susunan radas digunakan dalam penyaduran elektrik sudu besi dengan kuprum.

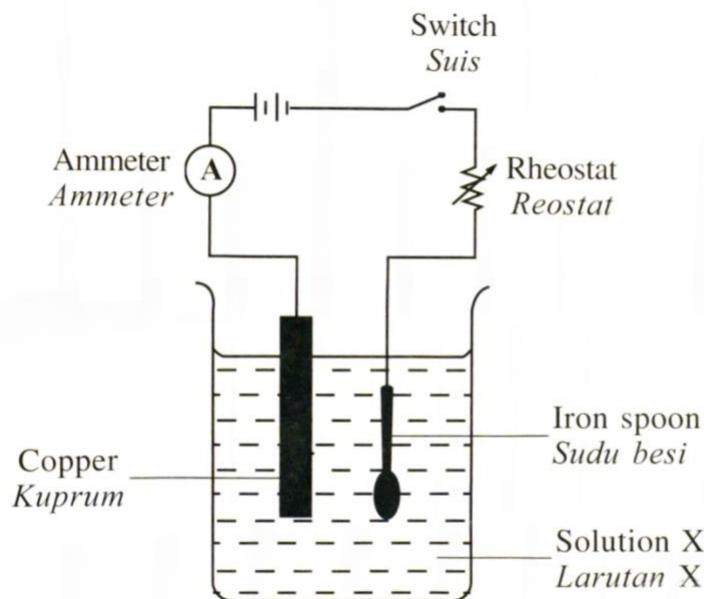


Diagram 14
Rajah 14

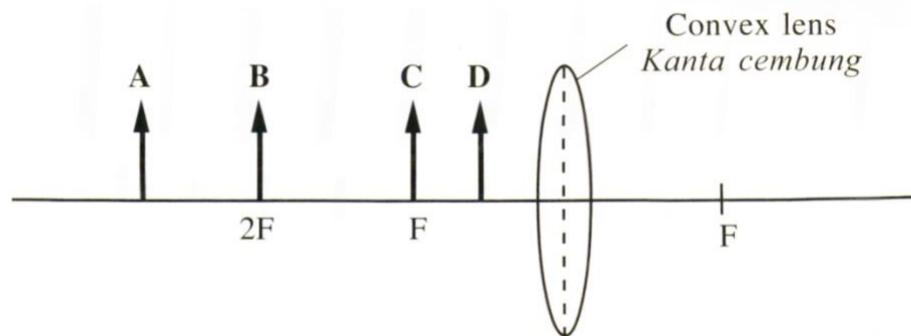
What are the anode and solution X?

Apakah anod dan larutan X?

	Anode <i>Anod</i>	Solution X <i>Larutan X</i>
A	Copper <i>Kuprum</i>	Copper(II) sulphate <i>Kuprum(II) sulfat</i>
B	Copper <i>Kuprum</i>	Silver nitrate <i>Argentum nitrat</i>
C	Iron spoon <i>Sudu besi</i>	Silver nitrate <i>Argentum nitrat</i>
D	Iron spoon <i>Sudu besi</i>	Copper(II) sulphate <i>Kuprum (II)sulfat</i>

- 29 A student has a problem to read the small text. His teacher gives him a convex lens.
Seorang murid mempunyai masalah membaca tulisan yang kecil. Gurunya telah memberikan sebuah kanta cembung.

At which position of the object **A**, **B**, **C** or **D** will produce larger size of text?
*Antara kedudukan objek di **A**, **B**, **C** dan **D**, yang manakah akan menghasilkan tulisan yang saiznya lebih besar?*



- 30 Diagram 16 shows an experiment to show Bernoulli's Principle.

Rajah 16 menunjukkan satu eksperimen mengenai Prinsip Bernoulli.

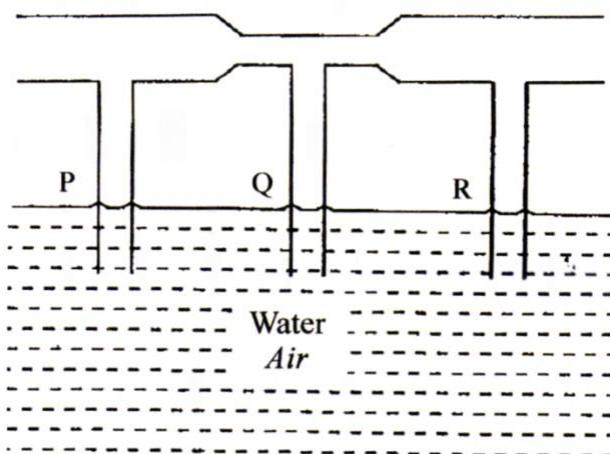
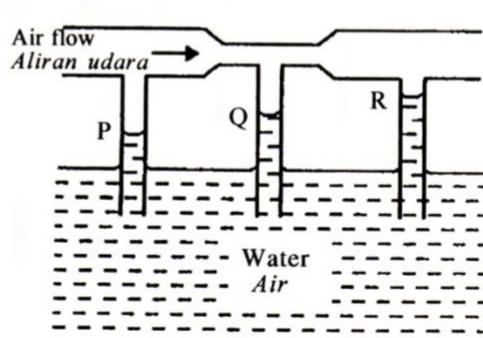
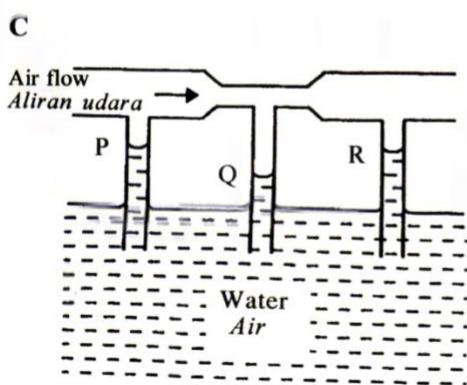
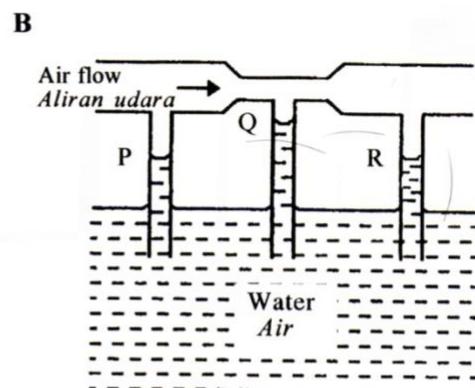
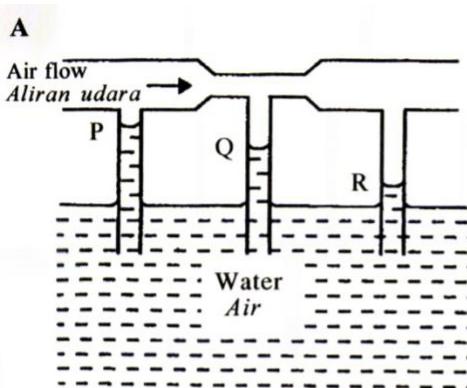


Diagram 16
Rajah 16

Which of the following water levels P, Q and R are correct?

Antara aras air P, Q dan R berikut, yang manakah betul?

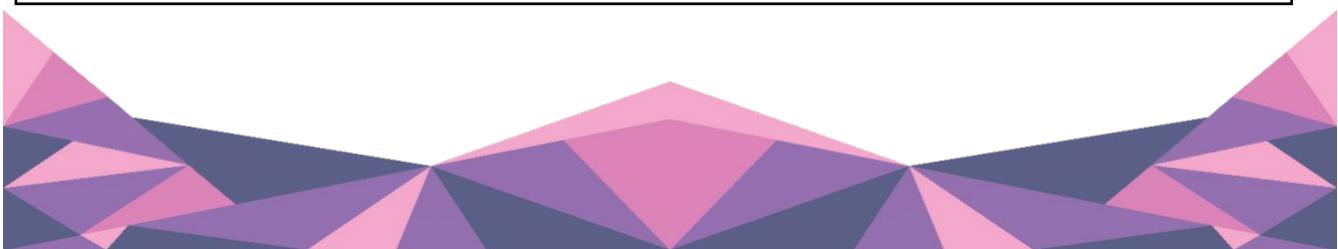


**SIJIL PELAJARAN MALAYSIA
MULAI TAHUN 2021**

**SAINS
(1511)**

CONTOH ITEM

1511/2 - SAINS KERTAS 2



Section A
Bahagian A

- 1 Diagram 1.1 and Diagram 1.2 show the apparatus set-up of experiment to study the hardness of different materials by hitting them with a hammer.

Rajah 1.1 dan Rajah 1.2 menunjukkan susunan radas bagi satu eksperimen untuk mengkaji kekerasan bahan yang berbeza dengan mengetuk bahan tersebut menggunakan penukul.

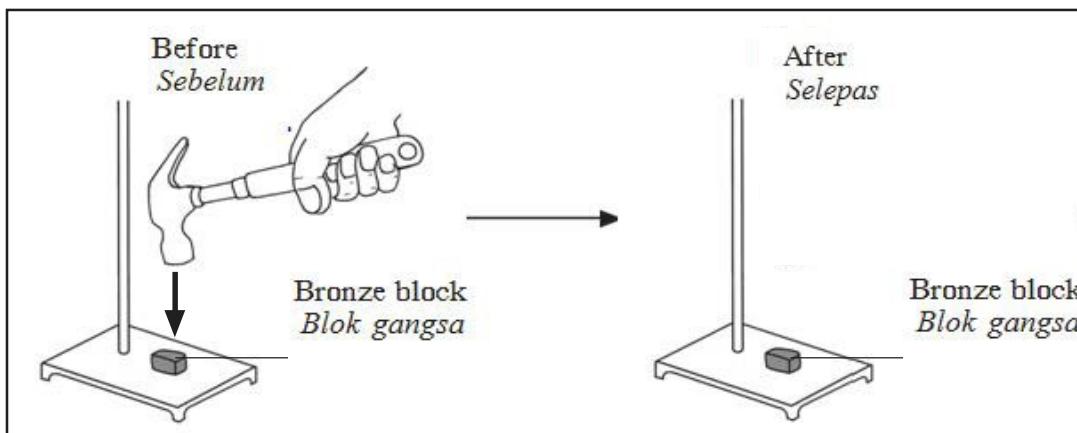


Diagram 1.1
Rajah 1.1

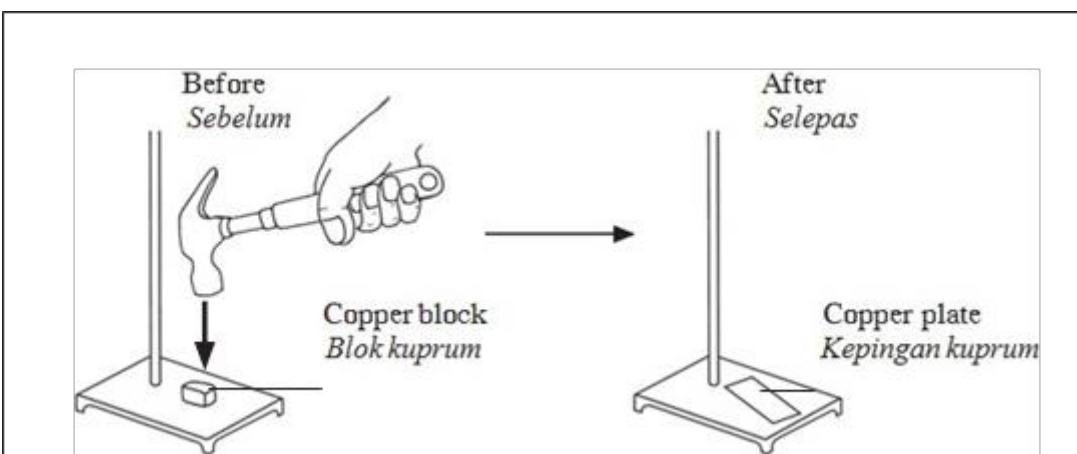


Diagram 1.2
Rajah 1.2

(a) Based on Diagram 1.1,
Berdasarkan Rajah 1.1,

- (i) State one observation for the experiment.
Nyatakan satu pemerhatian dalam eksperimen ini.

.....

[1 mark]

[1 markah]

- (ii) State one inference for your answer in 1(a)(i).
Nyatakan satu inferensi bagi jawapan anda di 1(a)(i).

.....

[1 mark]

[1 markah]

(b) State the manipulated variable in this experiment.
Nyatakan pemboleh ubah dimanipulasikan dalam eksperimen ini.

.....

[1 mark]

[1 markah]

(c) Bronze is an alloy. Based on this experiment, state the operational definition of alloy.

Gangsa ialah aloi. Berdasarkan eksperimen ini, nyatakan definisi secara operasi bagi aloi.

.....

.....

[1 mark]

[1 markah]

- (d) Diagram 1.3 shows an object.
Rajah 1.3 menunjukkan suatu objek.



Diagram 1.3
Rajah 1.3

In your opinion why the object in Diagram 1.3 is made of bronze?
Pada pendapat anda mengapa objek dalam Rajah 1.3 diperbuat daripada gangsa?

.....

.....

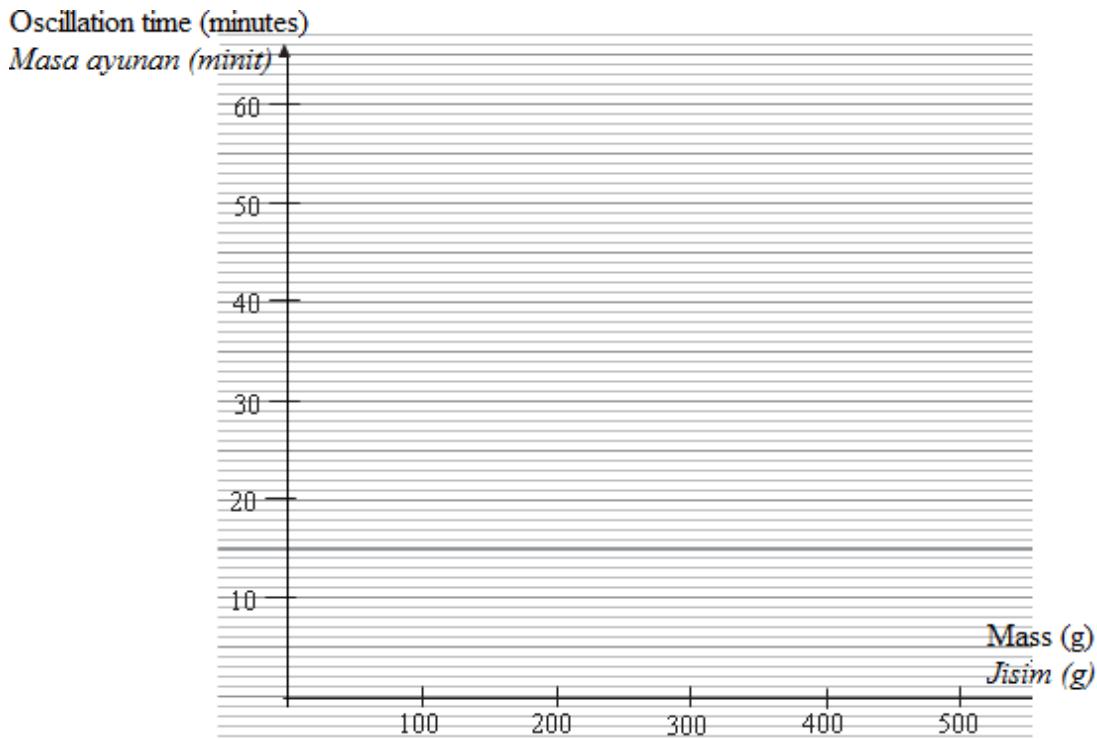
[1 mark]
[1 markah]

- 2 A student conducted an experiment to study the relationship between mass and inertia. Inertia is the ability of an object to maintain its stationary or motion state. Inertia is represented by the oscillation time. The result of the experiment is shown in Table 1. *Seorang murid telah menjalankan eksperimen untuk mengkaji hubungan antara jisim dengan inersia. Inersia ialah keupayaan objek untuk mengekalkan keadaan pegun atau gerakannya. Inersia diwakili oleh masa ayunan. Keputusan eksperimen ditunjukkan dalam Jadual 1.*

Mass(g)/ Jisim(g)	Oscillation time (minutes) / Masa ayunan(minit)
100	10
200	20
300	30
400
500	50

Table 1
Jadual 1

- (a) Using the data in Table 1, draw a graph of the oscillation time against mass.
Menggunakan data dalam Jadual 1, lukis graf masa ayunan melawan jisim.



[2 marks]
[2 markah]

- (b) State the hypothesis of this experiment.
Nyatakan hipotesis bagi eksperimen ini.

.....

[1 mark]

[1 markah]

- (c) Based on graph in 2(a), state the oscillation time when the mass used is 400 g in Table 1.

Write down your answer in Table 1.

Berdasarkan graf di 2(a), nyatakan masa ayunan apabila jisim yang digunakan ialah 400 g dalam Jadual 1.

Tuliskan jawapan anda pada Jadual 1.

[1mark]

[1markah]

- (d) When the moving ceiling fan is switched off, it keeps spinning until it stopped. Explain how the concept of inertia is applied in this situation.

Apabila suis kipas siling yang sedang bergerak dimatikan, kipas itu terus berputar sehingga ia berhenti.

Terangkan bagaimana konsep inersia diaplikasikan dalam situasi ini.

.....

.....

[1 mark]

[1 markah]

- 3 A student carried out a study to determine the effect of phosphorus on the growth of orchid plants. The student used aeroponic method, by spraying different fertiliser solutions on orchid plant P and orchid plant Q twice a week.

Diagram 2 shows the result after two months.

Seorang murid menjalankan kajian untuk menentukan kesan fosforus ke atas pertumbuhan pokok orkid. Murid tersebut menggunakan kaedah aeroponik dengan menyembur larutan baja yang berbeza pada pokok orkid P dan pokok orkid Q dua kali seminggu.

Rajah 2 menunjukkan keputusan selepas dua bulan.

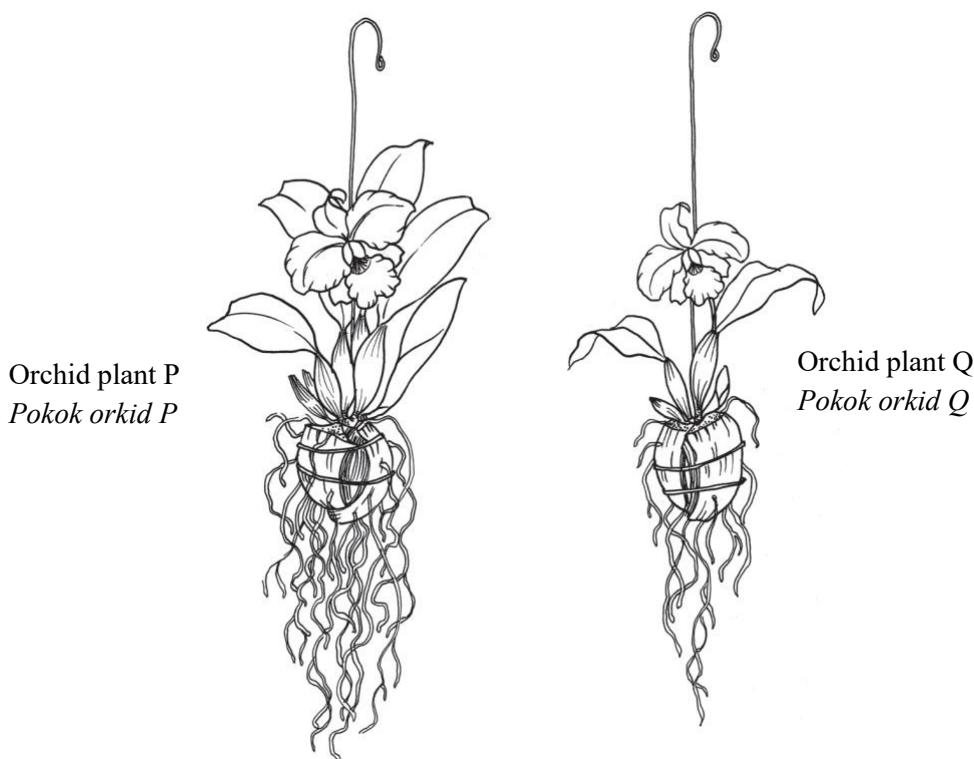


Diagram 2
Rajah 2

- (a) Based on Diagram 2, state one hypothesis for this experiment.
Berdasarkan Rajah 2, nyatakan satu hipotesis bagi eksperimen ini.

.....
.....

[1 mark]
[1 markah]

- (b) What is the factor that being fixed in this experiment?
Apakah faktor yang ditetapkan dalam eksperimen ini?

.....
[1 mark]
[1 markah]

- (c) The following information shows three elements.
Maklumat berikut menunjukkan tiga unsur.

Nitrogen <i>Nitrogen</i>	Molybdenum <i>Molibdenum</i>	Boron <i>Boron</i>
-----------------------------	---------------------------------	-----------------------

Which element is in the same group as phosphorous?
Unsur manakah yang berada dalam kumpulan sama dengan fosforus?

.....
[1 mark]
[1 markah]

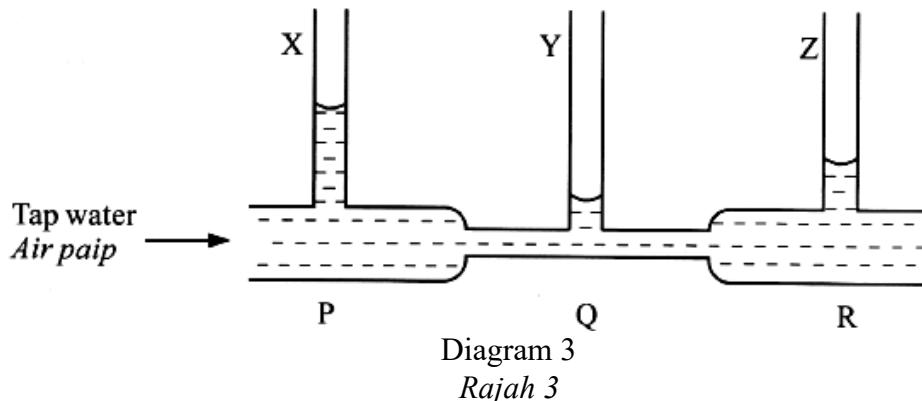
- (d) Predict what will happen to the orchid plant P, if the student replaces the fertiliser solution with tap water for three months.
Ramalkan apakah yang akan berlaku kepada pokok orkid P jika murid tersebut menggantikan larutan baja dengan air paip selama tiga bulan.

.....
[1 mark]
[1 markah]

- (e) You are living at an apartment without land to plant vegetable. Name another method to plant vegetable without soil.
Anda tinggal di sebuah pangsapuri tanpa kawasan bertanah untuk menanam sayur-sayuran. Namakan satu kaedah lain untuk menanam sayur-sayuran tanpa tanah.

.....
[1 mark]
[1 markah]

- 4 Diagram 3 shows an experiment to study Bernoulli's Principle.
Rajah 3 menunjukkan satu eksperimen untuk mengkaji Prinsip Bernoulli.



- (a) Measure the highest water level in Diagram 3.
Ukur aras air tertinggi dalam Rajah 3.

.....cm

[1 mark]
[1 markah]

- (b) State one inference for this experiment.
Nyatakan satu inferens bagi eksperimen ini.

.....

.....

[1 mark]
[1 markah]

- (c) State the responding variable in this experiment.
Nyatakan pemboleh ubah yang bergerak balas dalam eksperimen ini.

.....

[1 mark]
[1 markah]

- (d) Based on this experiment, state the operational definition for Bernoulli's Principle.

Berdasarkan eksperimen ini, nyatakan definisi secara operasi bagi Prinsip Bernoulli.

.....

[1 mark]

[1 markah]

- (e) Bernoulli's Principle enable to lift up an aeroplane in the air. Which part of the aeroplane this principle is applied?

Prinsip Bernoulli membolehkan kapal terbang terangkat ke udara. Di bahagian manakah prinsip ini diaplikasikan pada kapal terbang?

.....

[1 mark]

[1 markah]

Section B
Bahagian B

- 5 Diagram 4 shows a schematic diagram for the inheritance of mice's fur colour.
Rajah 4 menunjukkan rajah skema bagi pewarisan warna bulu tikus.

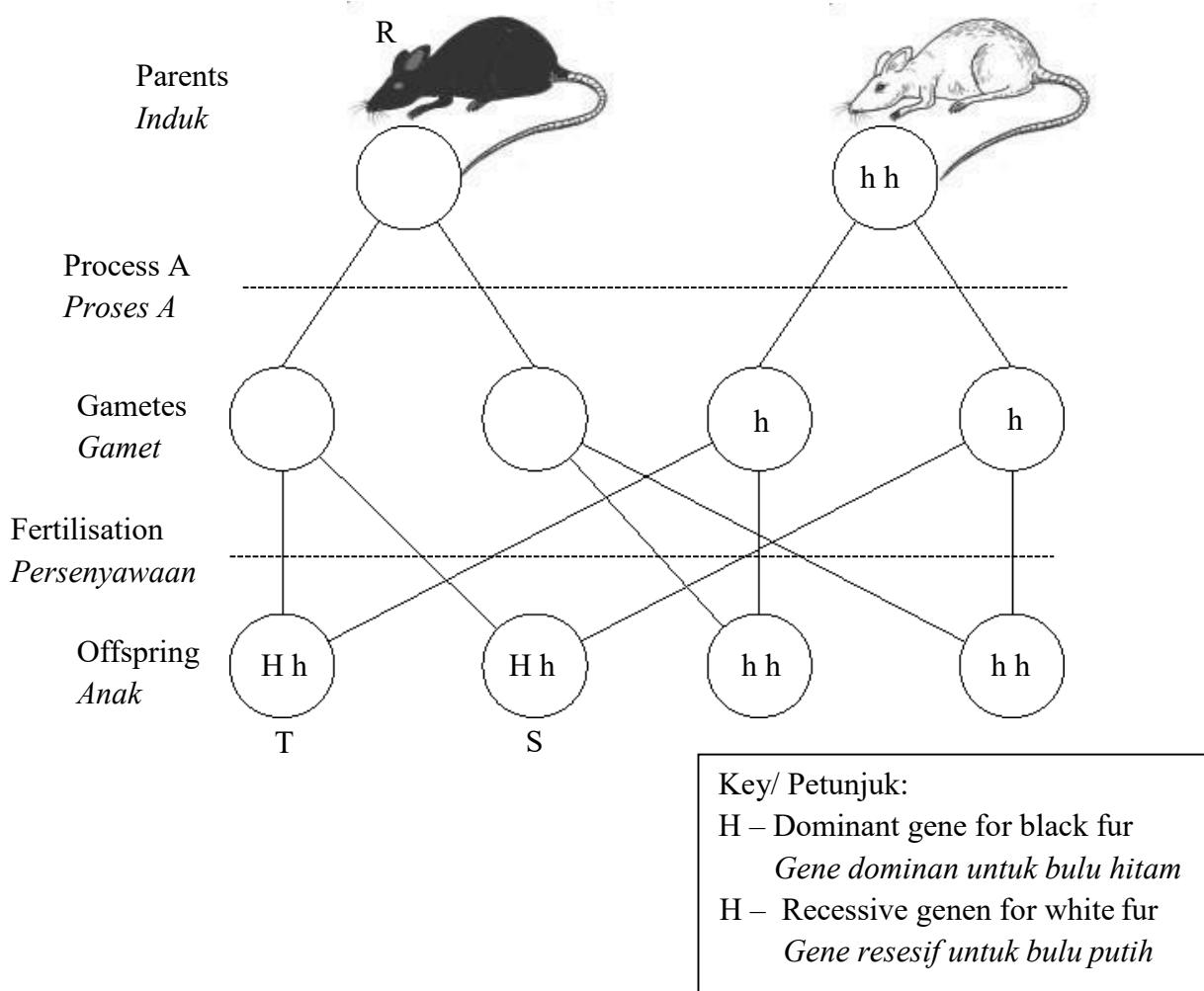


Diagram 4
Rajah 4

- (a) In Diagram 4, complete the genotype of parent R.
Dalam Rajah 4, lengkapkan genotip bagi induk R.

[1 mark]
[1 markah]

- (b) Name process A.
Namakan proses A.

.....
.....
.....

[1 mark]
[1 markah]

- (c) Based on Diagram 4,
Berdasarkan Rajah 4,
(i) What is the phenotype of offspring S?
Apakah fenotip bagi anak S?

.....
.....
.....

[1 mark]
[1 markah]

- (ii) State the ratio of black fur mice to white fur mice of the offsprings.
Nyatakan nisbah anak tikus berbulu hitam kepada anak tikus berbulu putih.

.....
.....
.....

[1 mark]
[1 markah]

- (d) If offspring T and S in Diagram 4 is crossed, what is the percentage of black fur mice produced?

Draw schematic diagram in the space provided below.

Jika anak T dan anak S dalam Rajah 4 dikacukkan, apakah peratus tikus berbulu hitam dihasilkan?

Lukiskan rajah skema dalam ruang yang disediakan di bawah.

Percentage %
Peratus

[2 marks]
[2 markah]

- 6 Diagram 5 shows the position of the elements Q, R, S, T, U, V and W in the Periodic Table. The letters used do not represent the actual symbol of the elements.
Rajah 5 menunjukkan kedudukan unsur Q, R, S, T, U, V dan W dalam Jadual berkala. Huruf yang digunakan tidak mewakili simbol sebenar bagi unsur tersebut.

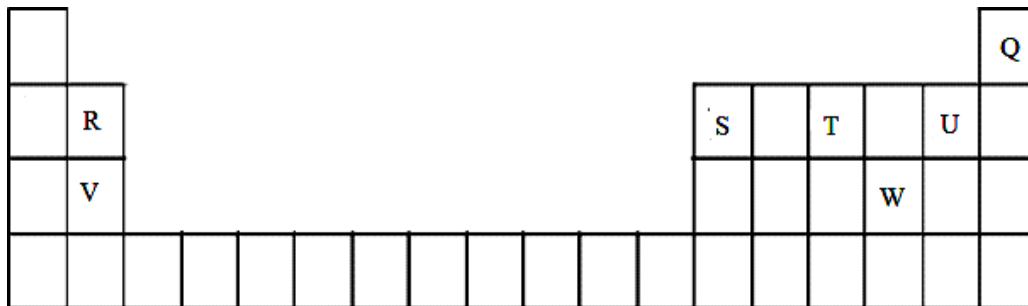


Diagram 5
Rajah 5

- (a) How the elements in the Periodic Table are arranged?
Bagaimanakah unsur-unsur dalam Jadual Berkala disusun?

.....
[1 mark]
[1 markah]

- (b) Based on Diagram 5,
Berdasarkan Rajah 5,

- (i) Which element has the biggest proton number?
Unsur manakah yang mempunyai nombor proton paling besar?

.....
[1 mark]
[1 markah]

- (ii) Which elements have the same chemical properties?
Unsur-unsur manakah yang mempunyai sifat kimia yang sama?

.....
[1 mark]
[1 markah]

- (iii) Element S has nucleon number of 11, calculate its number of neutron.
Unsur S mempunyai nombor nukleon 11, hitung bilangan neutronnya.

.....

[1 mark]
[1 markah]

- (c) A balloon accidentally detached from a child's hand grip was floating in the air.
What is the gas filled in the balloon?
Give one reason for your answer.
Sebiji belon terlepas daripada genggaman tangan seorang kanak-kanak telah terapung di udara.
Apakah gas yang diisi dalam belon itu? Berikan satu alasan bagi jawapan anda.

.....

.....

[2 marks]
[2 markah]

7

Diagram 6 shows an emergency situation.
Rajah 6 menunjukkan satu situasi cemas.

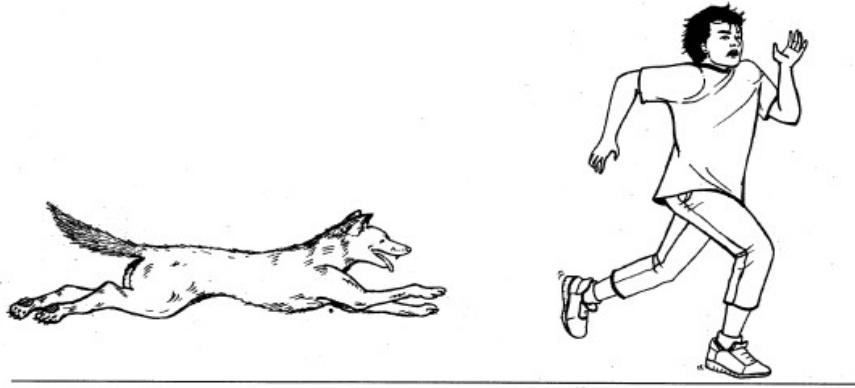


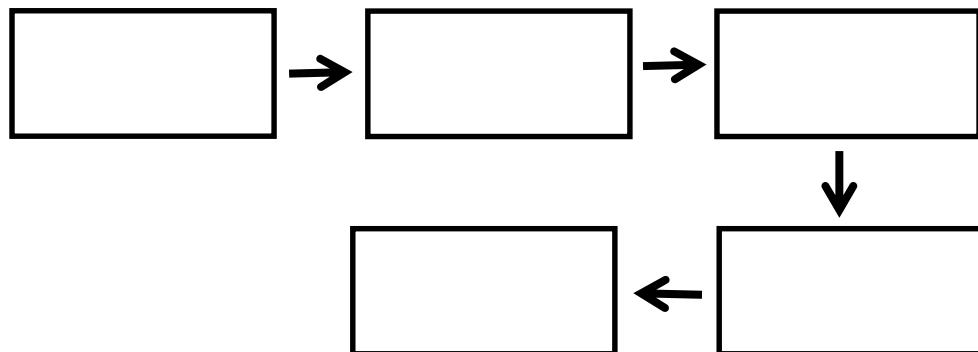
Diagram 6
Rajah 6

- (a) Based on Diagram 6,
Berdasarkan Rajah 6,

- (i) State one body coordination system in human involved.
Nyatakan satu sistem koordinasi badan manusia yang terlibat.

.....
[1 mark]
[1 markah]

- (ii) Construct an impulse pathway starting from the receptor until response.
Bina satu laluan impuls bermula dari reseptor hingga gerak balas.



[2marks]
[2 markah]

- (b) The volume of water in the man's body decreases below normal level when too much sweat comes out after running from the dog.

What is the suitable way for the man to restore the volume of body water back to normal level?

Isipadu air dalam badan lelaki tersebut menurun ke bawah paras normal apabila terlalu banyak peluh yang keluar selepas berlari dikejar anjing. Apakah cara yang sesuai bagi lelaki tersebut untuk mengembalikan isipadu air ke paras normal?

[1 mark]
[1 markah]

- (c) A Non Government Organisation (NGO) has launched a campaign ‘Don’t Drink Under Alcohol Influence’ to raise the awareness of alcohol abuse. If this campaign is underestimated, what are the effects?

Suatu Badan Bukan Kerajaan (NGO) telah melancarkan kempen ‘Jangan Memandu di bawah Pengaruh Alkohol’ bagi memberi kesedaran tentang kesan penyalahgunaan alkohol. Jika kempen ini dipandang remeh, apakah kesannya?

[2 marks]
[2 markah]

8

Improper disposal of plastic waste will cause the environmental pollution problem. Diagram 7.1 shows one of the suitable methods to dispose plastic waste.

Pelupusan sisa plastik yang tidak terancang akan menyebabkan masalah pencemaran alam sekitar. Rajah 7.1 menunjukkan salah satu kaedah pelupusan bahan buangan plastik yang sesuai.



Diagram 7.1
Rajah 7.1

- (a) Name the method shown in Diagram 7.1.

Namakan kaedah yang ditunjukkan dalam Rajah 7.1.

.....
[1 mark]
[1 markah]

- (b) State two advantages of using the method in 8(a).

Nyatakan dua kelebihan menggunakan kaedah 8(a).

1.

2.

[2 marks]
[2 markah]

- (c) Diagram 7.2 shows a sticker pasted at the food counter.
Rajah 7.2 menunjukkan satu pelekat yang ditampal pada kaunter makanan.

Straw are not provided

Penyedut minuman tidak disediakan

Diagram 7.2
Rajah 7.2

What is the purpose of this campaign towards environment?
Apakah tujuan kempen ini terhadap alam sekitar?

.....

[1 mark]
[1 markah]

- (d) A Town Council decides to build an incinerator which can dispose plastic waste near to your residential area.

Do you agree? Justify your answer.

Majlis Perbandaran bercadang untuk membina sebuah insinerasi untuk melupuskan bahan buangan plastik berhampiran kawasan perumahan anda. Adakah anda bersetuju? Wajarkan jawapan anda.

.....

.....

.....

[2 marks]
[2 markah]

9

Diagram 8 shows the apparatus set-up used for electroplating process.

Rajah 8 menunjukkan susunan radas yang digunakan untuk proses penyaduran elektrik.

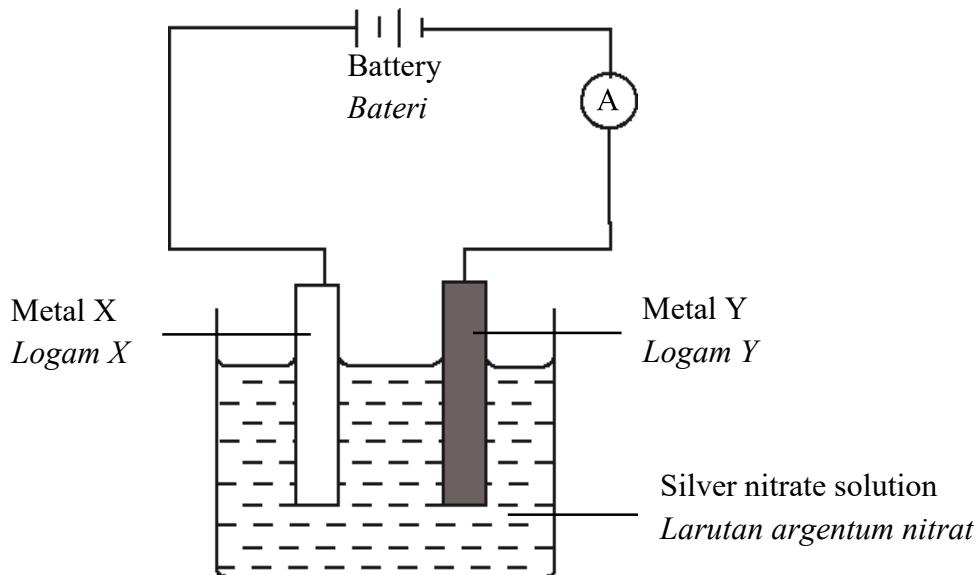


Diagram 8

Rajah 8

- (a) Based on Diagram 8, which metal has the function of cathode?

Berdasarkan Rajah 8, logam manakah berfungsi sebagai katod?

.....
[1 mark]
[1 markah]

- (b) If metal X is replaced by silver plate and metal Y is replaced by iron spoon, what will happen at the iron spoon?

Jika logam X digantikan dengan kepingan argentum dan logam Y digantikan dengan sudu besi, apakah yang berlaku pada sudu besi?

.....
[1 mark]
[1 markah]

- (c) Your bicycle's key that made of iron has rusted. What is the suitable scientific method to overcome the problem?

Justify your answer.

Kunci basikal anda yang diperbuat daripada besi telah berkarat. Apakah kaedah saintifik yang sesuai untuk mengatasi masalah tersebut?

Wajarkan jawapan anda?

.....

.....

[2 marks]

[2 markah]

- (d) Electrical energy is produced by chemical reaction.

You are provided with an iron nail, a piece of zinc plate, wires, a bulb and an orange. Design a simple cell using those items to light up the bulb in the space provided below. Label your diagram.

Tenaga elektrik boleh dihasilkan daripada tindak balas kimia.

Anda dibekalkan dengan sebatang paku besi, kepingan zink, dawai, sebiji mentol dan sebiji buah oren.

Reka bentuk sel ringkas menggunakan bahan-bahan tersebut untuk menyalakan mentol dalam ruang yang disediakan di bawah. Labelkan rajah anda.



[3 marks]

[3 markah]

- 10** Diagram 9 shows a ray diagram.

Rajah 9 menunjukkan suatu gambar rajah sinar.

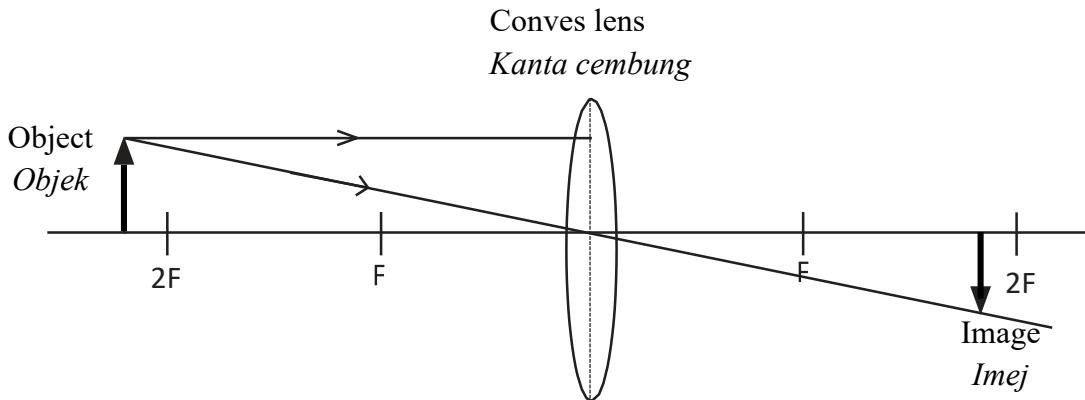


Diagram 9
Rajah 9

- (a) Complete the ray diagram in Diagram 9.

Lengkapkan gambar rajah sinar pada Rajah 9.

[1 mark]
[1 markah]

- (b) If the object is moved at position $2F$, what happens to the size of image compared to the size of the object?

Sekiranya objek digerakkan pada kedudukan $2F$, apakah yang berlaku kepada saiz imej berbanding saiz objek?

.....

[1 mark]
[1 markah]

- (c) Which object position is most suitable for the convex lens in Diagram 9 to be used as magnifying glass. Give reason.

Kedudukan objek yang manakah lebih sesuai untuk kanta cembung pada Rajah 9 digunakan sebagai kanta pembesar. Berikan alasan.

.....

.....

[2 marks]
[2 markah]

- (d) Convex lenses are used in optical instruments such as telescope.

You have to draw the design of a simple telescope by using two convex lenses of different thickness, two sheets of black paper and cellophane tape in the space provided below. Label your diagram.

Kanta cembung digunakan dalam peralatan optik seperti teleskop.

Anda dikehendaki melakarkan reka bentuk sebuah teleskop ringkas dengan menggunakan dua kanta cembung yang berlainan ketebalan, dua keping kertas hitam dan pita selofan dalam ruang yang disediakan di bawah.

Labelkan rajah anda.



[3 marks]
[3 markah]

Section C
Bahagian C

- 11 Study the following information.

Kaji maklumat berikut.

The growth of microorganisms is influenced by several factors such as temperature, pH value, humidity, light and nutrients. Different pH value will affect the growth of bacteria.

Pertumbuhan mikroorganisma dipengaruhi oleh beberapa faktor seperti suhu, nilai pH, kelembapan, cahaya dan nutrien. Nilai pH yang berbeza akan memberi kesan ke atas pertumbuhan bakteria.

- (a) State one problem statement from the above information. [1 mark]
Nyatakan satu pernyataan masalah daripada maklumat di atas. [1 markah]
- (b) Suggest one hypothesis to investigate the above statement. [1 mark]
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas. [1 markah]
- (c) Based on the given statement, design a laboratory experiment to test your hypothesis by using distilled water, sodium hydroxide solution, nutrient broth, bacterial culture and two test tubes.
Berdasarkan pernyataan yang diberi, reka bentuk satu eksperimen makmal untuk menguji hipotesis anda dengan menggunakan air suling, larutan natrium hidroksida, bubur nutrien, kultur bakteria dan dua buah tabung uji.

Your description should include the following criteria:

Huraian anda harus mengandungi aspek berikut:

- (i) Aim of experiment [1 mark]
Tujuan eksperimen [1 markah]
- (ii) Identification of variables [2 marks]
Mengenal pasti boleh ubah [2 markah]
- (iii) Procedure or method [4 marks]
Prosedur atau kaedah [4 markah]
- (iv) Tabulation of data [1 mark]
Penjadualan data [1 markah]

- 12 Nuclear energy produces more beneficial to human when it is properly generated and controlled.

Tenaga nuklear memberikan banyak faedah kepada manusia apabila dijana dan dikawal dengan baik.

- (a) Explain the nuclear fission process to produce nuclear energy. [2 marks]

Terangkan proses pembelahan nukleus untuk menghasilkan tenaga nuklear.

[2 markah]

- (b) Radioactive radiation is used in food technology to increase shelf life of food.

Why the gamma ray is suitable to be used in food processing?

Give reasons to support your opinion. [4 marks]

Sinaran radioaktif digunakan dalam teknologi pemprosesan makanan untuk meningkatkan jangka hayat makanan.

Mengapakah sinar gama sesuai digunakan dalam pemprosesan makanan?

Berikan alasan untuk menyokong pendapat anda. [4 markah]

- (c) Radioactive substance should be handled with proper methods.

What are your suggestions to handle the radioactive substances with proper methods. Justify your answer. [6 marks]

Bahan radioaktif perlu dikendalikan dengan kaedah yang betul.

Apakah cadangan anda untuk mengendalikan bahan radioaktif dengan cara yang betul. Wajarkan jawapan anda. [6 markah]

- 13 There are two types of fats which are saturated fats and unsaturated fats.

Terdapat dua jenis lemak iaitu lemak tepu dan lemak tak tepu.

- (a) What is meant by saturated fats? [2 marks]
Apakah yang dimaksudkan dengan lemak tepu? [2 markah]

- (b) Diagram 10.1 shows three examples of unsaturated fats.
Rajah 10.1 menunjukkan tiga contoh lemak tak tepu.

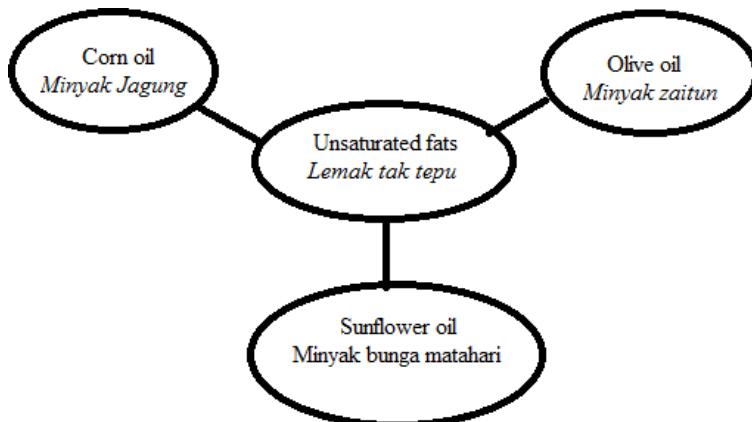


Diagram 10.1

Rajah 10.1

Study the information in Diagram 10.1 and construct the concept of unsaturated fats.

[6 marks]

Kaji maklumat pada Rajah 10.1 dan bina konsep lemak tak tepu.

[6 markah]

- (c) Diagram 10.2 shows a few examples of food that have been taken by a person who suffers from the heart disease.

Rajah 10.2 menunjukkan beberapa contoh makanan yang diambil oleh seseorang yang mengalami penyakit jantung.

Cake <i>Kek</i>	Beef burger <i>Burger daging</i>	Ice cream <i>Ais krim</i>
--------------------	-------------------------------------	------------------------------

Diagram 10.2

Rajah 10.2

In your opinion, is the food suitable to be taken by the patient every day?

Justify your answer.

[4 marks]

Pada pendapat anda adakah makanan tersebut sesuai diambil oleh pesakit itu setiap hari? Wajarkan jawapan anda.

[4 markah]