

1511/1
Science
Paper 1
Ogos
2010
1 ¼ hours

**PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA
NEGERI PERAK
2010**

SCIENCE

PAPER 1

Satu jam lima belas minit

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 belakang kertas soalan ini.*

Kertas ini mengandungi 20 halaman bercetak.

- 1 Diagram 1 shows a simplified nitrogen cycle chart.
Rajah 1 menunjukkan suatu kitar nitrogen.

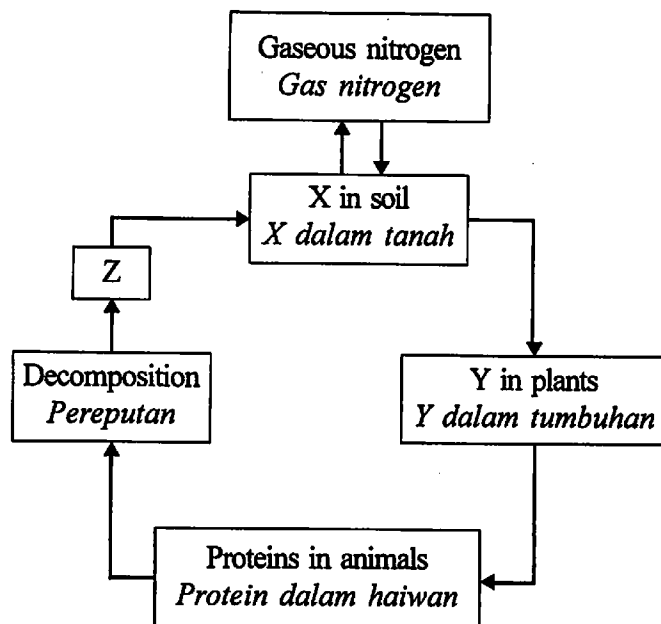


Diagram 1
Rajah 1

What are represented by X, Y and Z?
Apakah yang diwakili oleh X, Y dan Z?

	X	Y	Z
A	Ammonia <i>Ammonia</i>	Proteins <i>Protein</i>	Nitrates <i>Nitrat</i>
B	Nitrates <i>Nitrat</i>	Proteins <i>Protein</i>	Ammonium compounds <i>Sebatian Ammonia</i>
C	Nitrates <i>Nitrat</i>	Ammonia <i>Ammonia</i>	Nitrites <i>Nitrit</i>
D	Nitrites <i>Nitrit</i>	Nitrates <i>Nitrat</i>	Nitrogen <i>Nitrogen</i>

- 2 Which one is **not** a part of a neuron?
Manakah antara berikut **bukan** bahagian neuron?

- A Dendrite
- B Cell body
- C Axon
- D Gray matter

- 3 Diagram 2 shows a human brain.
Rajah 2 menunjukkan otak manusia.

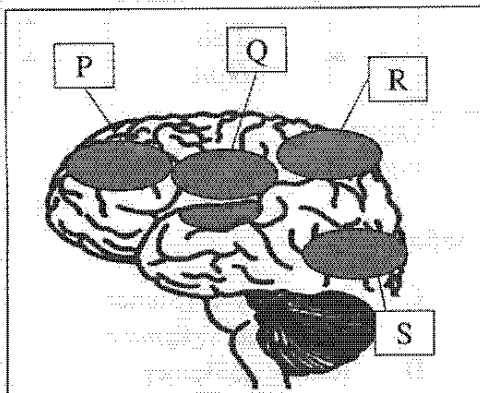


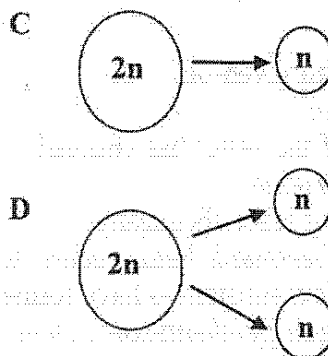
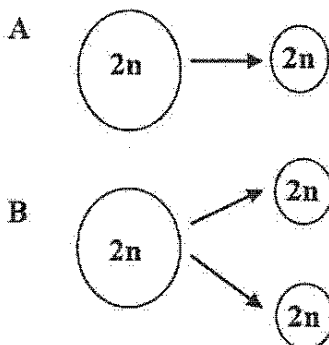
Diagram 2
Rajah 2

Which part will be the cause of deafness if injured?

Bahagian manakah yang menyebabkan kecacatan pendengaran jika tercedera?

- A P
B Q
C R
D S
- 4 The number of chromosomes in a human cell is
Bilangan kromosom dalam sel manusia ialah
- A $22 + X$
B $22 + Y$
C 46
D 23
- 5 The number of autosomes and type of sex chromosome normally present in female gamete (ovum) is
Bilangan autosom dan jenis kromosom seks yang hadir dalam gamet perempuan (ovum) ialah
- A $44 + XY$
B $44 + XX$
C $22 + Y$
D $22 + X$

- 6 Which diagram most correctly represents the process of mitosis?
Rajah manakah paling benar mewakili proses mitosis?



- 7 Diagram 3 shows a food chain.
Rajah 3 menunjukkan suatu rantai makanan.

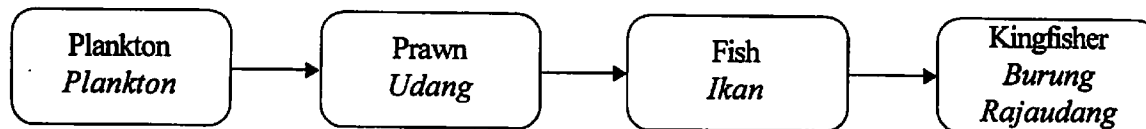


Diagram 3
Rajah 3

The fish in the food chain is known as
Ikan dalam rantai makanan dikenali sebagai

- | | |
|--|--|
| A Producer
<i>Pengeluar</i> | C Secondary consumer
<i>Pengguna sekunder</i> |
| B Primary consumer
<i>Pengguna primer</i> | D Tertiary consumer
<i>Pengguna tertiary</i> |
- 8 Dew collects on a spider web in the early morning. This is an example of
Air embun terkumpul pada jaring lelabah diwaktu awal pagi. Ini adalah contoh
- | | |
|-------------------------------------|--------------------------------------|
| A condensation
<i>kondensasi</i> | C sublimation
<i>pemejalwapan</i> |
| B evaporation
<i>penyejatan</i> | D melting
<i>peleburan</i> |
- 9 Diagram 4 shows a symbol in Periodic Table.
Rajah 4 menunjukkan simbol pada Jadual Berkala.

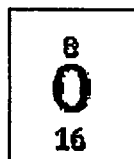


Diagram 4
Rajah 4

The number 16 stands for?
Nombor 16 merujuk kepada?

- | | |
|---|--|
| A Proton number
<i>Nombor proton</i> | C Number of electron
<i>Bilangan elektron</i> |
| B Atomic mass
<i>Jisim atom</i> | D Number of neutron
<i>Bilangan neutron</i> |
- 10 A student watches an ice cube melts into a beaker of water. Has a chemical changes taken place?
Seorang pelajar memerhatikan kiub ais mencair didalam bikar berisi air. Adakah perubahan kimia berlaku?
- | |
|--|
| A Yes, a gas has been given off
<i>Ya, gas dihasilkan</i> |
| B Yes, the colour of the water has changed
<i>Ya, warna air berubah</i> |
| C No, water does not react chemically
<i>Tidak, air tidak bertindak balas secara kimia</i> |
| D No, because no new substances have formed
<i>Tidak, kerana tiada pembentukan bahan baru</i> |

- 11 Diagram 5 shows the electrolysis of copper chloride solution.
Rajah 5 menunjukkan elektrolisis bagi larutan kuprum klorida.

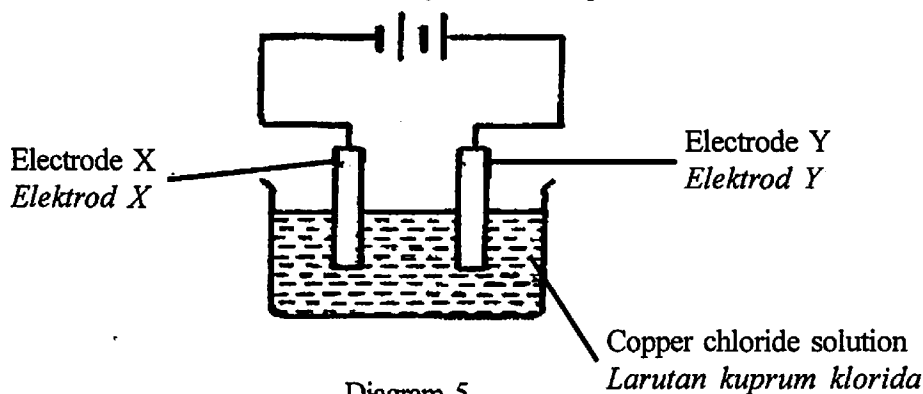


Diagram 5
Rajah 5

What are the products formed at electrode X and electrode Y?
Apakah bahan yang dihasilkan pada elektrod X dan elektrod Y?

	Electrode X <i>Elektrod X</i>	Electrode Y <i>Elektrod Y</i>
A	Hydrogen <i>Hidrogen</i>	Chlorine <i>Klorin</i>
B	Copper <i>Kuprum</i>	Chlorine <i>Klorin</i>
C	Chlorine <i>Klorin</i>	Hydrogen <i>Hidrogen</i>
D	Chlorine <i>Klorin</i>	Copper <i>Kuprum</i>

- 12 Table 1 below shows the result obtained when a thermometer is placed in a mixture of material X and water.

Jadual 1 di bawah menunjukkan keputusan yang diperolehi apabila termometer diletakkan di dalam campuran bahan X dan air.

Thermometer reading <i>Bacaan termometer</i>	Temperature (° C) <i>Suhu (° C)</i>
Initial reading <i>Bacaan awal</i>	30
Final reading <i>Bacaan akhir</i>	22

Table 1
Jadual 1

What is material X?
Apakah bahan X?

- | | |
|---|---|
| A Concentrated sulphuric acid
<i>Asid sulfurik pekat</i> | C Ammonium nitrate
<i>Ammonium nitrat</i> |
| B Copper sulphate
<i>Kuprum sulfat</i> | D Sodium hydroxide
<i>Natrium hidroksida</i> |

- 13 The graph in the Diagram 6 shows the cooling of the liquid naphthalene in relation to time.
 Graf di dalam Rajah 6 menunjukkan kadar penyejukan cecair naftalena berbanding masa.

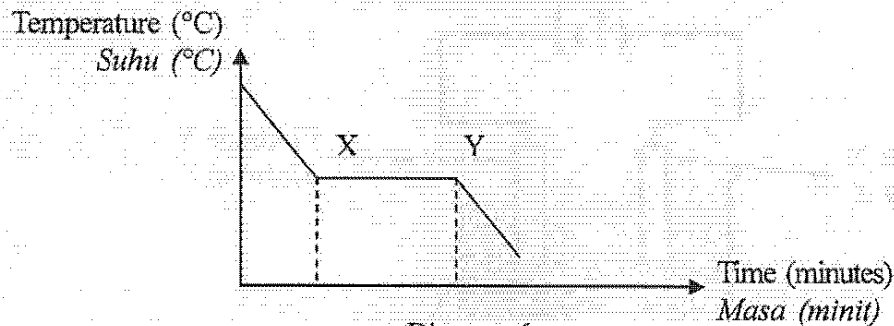


Diagram 6
Rajah 6

What happens during the period of time from X to Y?
 Apakah yang berlaku semasa tempoh antara X dan Y?

- A Heat is absorbed from the surroundings.
Haba diserap dari persekitaran.
 - B The temperature increase dramatically.
Suhu naik secara mendadak.
 - C The movement of particle slows down.
Pergerakan zarah menjadi perlahan.
 - D The particle separate further.
Zarah terpisah jauh.
- 14 Diagram 7 shows a change in the state of matter.
 Rajah 7 menunjukkan perubahan dalam keadaan suatu bahan.

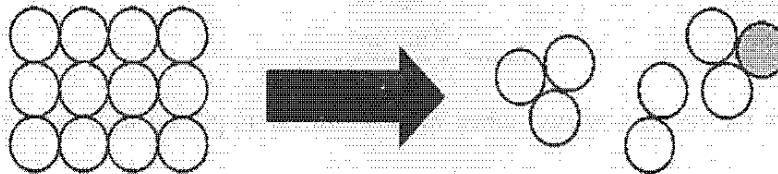


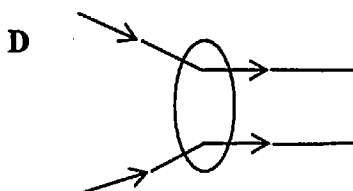
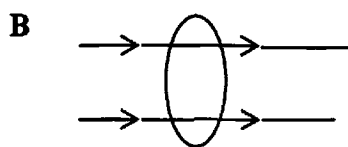
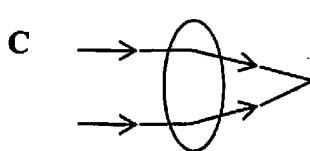
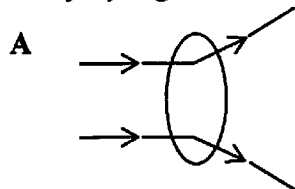
Diagram 7
Rajah 7

Which of the following happens in the change above?
 Antara yang berikut yang manakah menunjukkan perubahan di atas?

- I The particles absorb energy.
Zarah menyerap tenaga.
 - II The force of attraction between the particles is weakened.
Daya tarikan antara zarah menjadi lemah.
 - III The particles are released into the air.
Zarah dibebaskan ke udara.
- A III only.
III sahaja.
 - B I and II only.
I dan II sahaja.
 - C I and III only.
I dan III sahaja.
 - D II and III only.
II dan III sahaja.

- 15 Which of the following diagrams A, B, C or D correctly shows the light rays passing through a convex lens?

Antara rajah A, B, C atau D yang berikut, yang manakah yang betul menunjukkan sinar cahaya yang melalui kanta cembung?



- 16 The secondary colours for coloured lights are
Warna-warna sekunder bagi cahaya berwarna ialah

- A white, yellow, magenta
putih, kuning, magenta
B blue, green, red
biru, hijau, merah
C orange, green, violet
jingga, hijau, ungu
D yellow, cyan, magenta
kuning, sian, magenta

- 17 What is the main use of nuclear energy?
Apakah kegunaan utama tenaga nuklear?

- A To control insect pests.
Untuk mengawal serangga perosak.
B To kill microorganisms.
Untuk membunuh mikroorganisma.
C To kill cancerous cells.
Untuk membunuh sel kanser.
D To generate electricity.
Untuk menjana tenaga elektrik.

- 18 Which of the following particles is used to bombard uranium-235 in a nuclear fission reaction?
 Zarah yang manakah yang digunakan untuk membedil uranium-235 dalam tindakbalas pembelahan nukleus?
- A Proton
Proton
- B Neutron
Neutron
- C Electron
Elektron
- D Alpha
Alfa
- 19 Which mixture of pigments will produce black colour?
 Campuran pigmen yang manakah akan menghasilkan warna hitam?
- A Red and blue
Merah dan biru
- B Red and green
Merah dan hijau
- C Blue and yellow
Biru dan kuning
- D Yellow and magenta
Kuning dan magenta
- 20 Diagram 8 shows the production of colours X, Y and Z from the addition of coloured lights.
 Rajah 8 menunjukkan hasil warna X, Y dan Z dari penambahan cahaya berwarna.

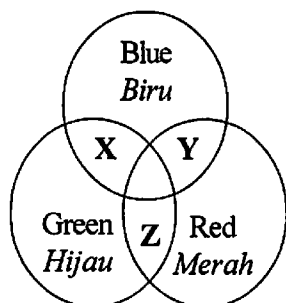


Diagram 8
 Rajah 8

What colours are represented by X, Y and Z?
 Apakah warna yang diwakili oleh X, Y dan Z?

	X	Y	Z
A	Cyan <i>Sian</i>	Magenta <i>Magenta</i>	Yellow <i>Kuning</i>
B	Yellow <i>Kuning</i>	Magenta <i>Magenta</i>	Cyan <i>Sian</i>
C	Magenta <i>Magenta</i>	Cyan <i>Sian</i>	Yellow <i>Kuning</i>
D	Cyan <i>Sian</i>	Yellow <i>Kuning</i>	Magenta <i>Magenta</i>

- 21 Which of the following is an alloy?
 Antara berikut, yang manakah aloi?

A Gold Emas	C Pewter Piuter
B Silver Perak	D Copper Kuprum

- 22 The information below shows the industrial products made from substance Q.
 Maklumat berikut menunjukkan hasil industri yang diperbuat daripada bahan Q.

- | |
|--|
| <ul style="list-style-type: none"> • Nitric acid
Asid nitrik • Cleaning agent
Agen pencuci • Explosives
Bahan letupan |
|--|

What is Q?
 Apakah Q?

A Ethanol Etanol	C Sulphur Sulfur
B Ammonia Ammonia	D Sulphuric acid Asid sulfurik

- 23 Diagram 9 shows a type of microorganism which grows on the surface of bread.
 What group of microorganism is this?
 Rajah 9 menunjukkan sejenis mikroorganisma yang tumbuh pada permukaan roti.
 Apakah kumpulan mikroorganisma ini?

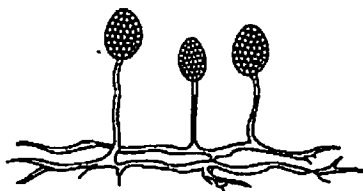
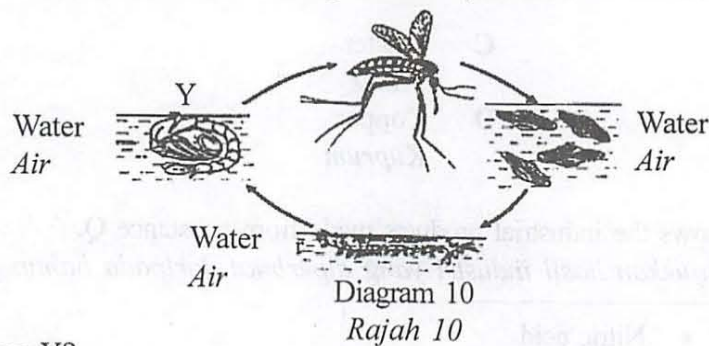


Diagram 9
 Rajah 9

- | | |
|------------------------|------------------|
| A Bacteria
Bakteria | C Algae
Alga |
| B Virus
Virus | D Fungi
Kulat |
- 24 Which disease is caused by virus?
 Penyakit yang manakah yang disebabkan oleh virus?
- | | |
|----------------------|--------------------------------|
| A Dengue
Denggi | C Ringworm
Kurap |
| B Malaria
Malaria | D Tuberculosis
Batuk kering |

- 25 Diagram 10 shows the life cycle of a mosquito.
Rajah 10 menunjukkan kitar hidup seekor nyamuk.

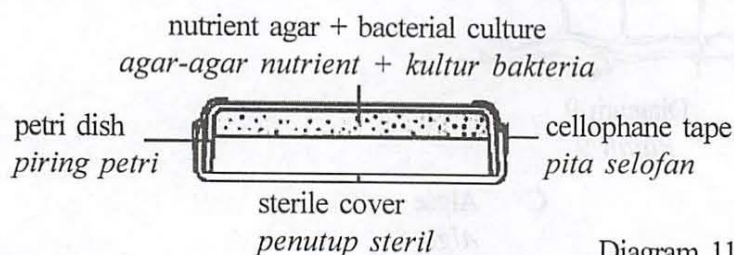


Name stage Y?

Namakan peringkat Y?

- | | |
|-----------------------|-------------------------|
| A Egg
<i>Telur</i> | C Larva
<i>Larva</i> |
| B Pupa
<i>Pupa</i> | D Imago
<i>Imago</i> |
- 26 Which is the best method to sterilise feeding bottle?
Kaedah manakah yang terbaik untuk mensteril botol susu?
- A Wash using antiseptic
Basuh menggunakan antiseptik
- B Wash using disinfectant
Basuh menggunakan disinfektan
- C Immerse in boiling water
Rendam dalam air mendidih
- D Expose to ultraviolet rays
Dedah kepada sinaran ultraungu

- 27 Diagram 11 shows an apparatus set-up to study the growth of microorganisms.
Rajah 11 menunjukkan susunan radas untuk mengkaji pertumbuhan mikroorganisma.

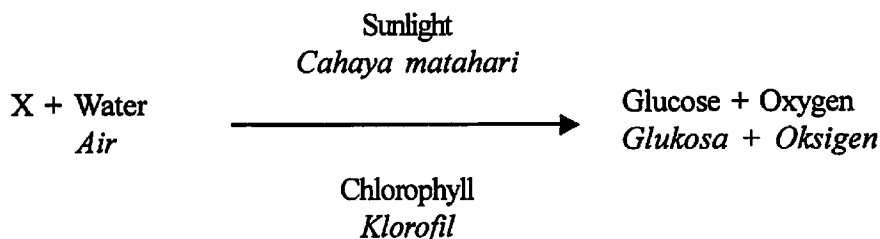


These petri dishes are kept in a cupboard and under the sun respectively.
 What is the factor investigated in this experiment?

Piring-piring petri ini masing-masing diletakkan di dalam almari dan di bawah sinaran matahari. Apakah faktor yang dikaji dalam eksperimen ini?

- | | |
|---------------------------------|------------------------------|
| A Light
<i>Cahaya</i> | C Temperature
<i>Suhu</i> |
| B Humidity
<i>Kelembapan</i> | D pH
<i>pH</i> |

- 28 The following word equation shows a chemical reaction in a plant.
Persamaan perkataan berikut menunjukkan suatu tindak balas kimia dalam tumbuhan.



What is X?

Apakah X?

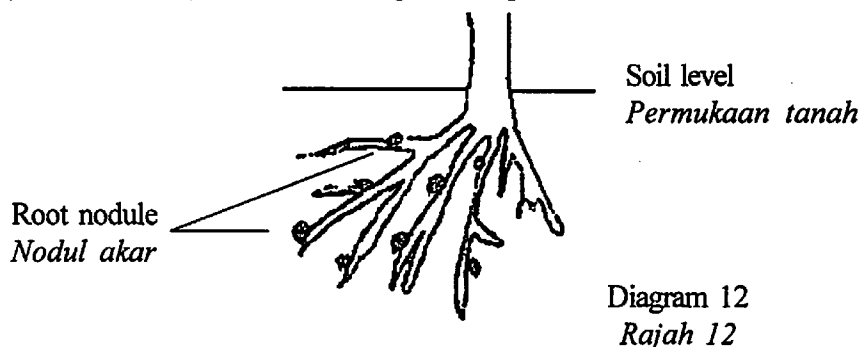
- A Oxygen
 B Nitrogen
 C Hydrogen
 D Carbon dioxide
- 29 The following shows the symptoms of a disease due to lack of nutrient X.
Berikut adalah simptom-simptom suatu penyakit disebabkan oleh kekurangan nutrient X.

- * Swelling and bleeding gums
Gusi bengkak dan berdarah
- * Teeth loosens
Gigi goyang
- * Muscular pain
Sakit otot

What is nutrient X?

Apakah nutrient X?

- A Vitamni B
 B Vitamin C
 C Vitamin D
 D Calcium
- 30 Diagram 12 shows the root of a plant.
Rajah 12 menunjukkan akar bagi suatu pokok.



Name the plant that has this root system.

Namakan tumbuhan yang mempunyai akar sebegini.

- A Maize plant
Pokok jagung
 B Jackfruit plant
Pokok nangka
 C Hibiscus plant
Pokok bunga raya
 D Groundnut plant
Kacang tanah

- 31 Table 2 shows the calorific value of different types of food.

Jadual 2 menunjukkan nilai kalori bagi jenis makanan yang berbeza.

Food <i>Makanan</i>	Quantity <i>Kuantiti</i>	Calorific value <i>Nilai kalori (kJ)</i>
White bread <i>Roti putih</i>	Per piece <i>Sekeping</i>	125
Butter <i>Mentega</i>	Table spoon <i>Sesudu besar</i>	100
Chicken <i>Ayam</i>	Per piece <i>Seketul</i>	220
Fried mee <i>Mee goreng</i>	Per cup <i>Secawan</i>	650

Table 2
Jadual 2

A student takes 1 cup of fried mee, 2 pieces of white bread, 2 table spoon of butter and 2 pieces of chicken for his breakfast. What is the total energy consumed?

Seorang murid mengambil 1 cawan mee goreng, 2 keping roti putih, 2 sudu mentega dan 2 ketul ayam untuk sarapan. Berapakah jumlah tenaga yang diperolehinya?

- A 1950 kJ
 - B 1750 kJ
 - C 1540 kJ
 - D 1340 kJ
- 32 What is the effect of smoke and dust on plants?
Apakah kesan habuk dan asap ke atas tumbuhan?
- A Reduce the rate of absorption of water.
Mengurangkan kadar penyerapan air.
 - B Reduce the rate of photosynthesis.
Mengurangkan kadar fotosintesis.
 - C Increase the intake of oxygen.
Meningkatkan pengambilan oksigen.
 - D Increase the rate of transpiration.
Meningkatkan kadar transpirasi.

- 33 The following information shows the characteristics of substance Z.
Maklumat berikut adalah berkaitan dengan bahan Z.

- Combustible
Mudah terbakar
- Reacts with acids to form esters
Bertindakbalas dengan asid membentuk ester
- Contains Hydrogen, Carbon and Oxygen elements
Mengandungi unsur Hidrogen, Karbon dan Oksigen

What is Z?
Apakah Z?

- A Petrol
Petrol
- B Alcohol
Alkohol
- C Fat
Lemak
- D Natural rubber
Getah asli
- 34 Diagram 13 shows the pattern of the dots printed on a thicker tape for a moving trolley.
Rajah 13 menunjukkan corak pada pita detik bagi gerakan sebuah troli.

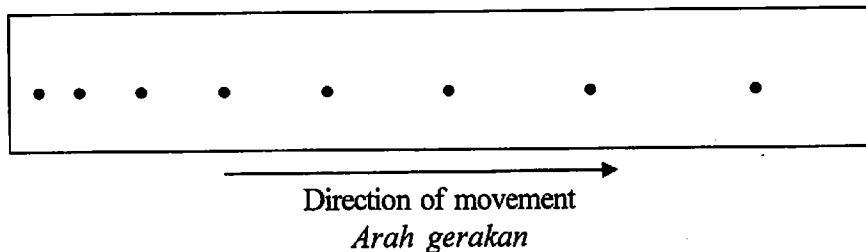
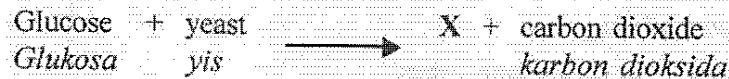


Diagram 13
Rajah 13

Which of the following describes the motion of the trolley?
Pernyataan yang manakah menggambarkan gerakan troli tersebut?

- A Uniform velocity
Halaju sekata
- B Increasing velocity
Halaju semakin bertambah
- C Decreasing velocity
Halaju semakin berkurang
- D Zero velocity
Halaju sifar

- 35 The equation represents a reaction which occurs in a process in which X is one of the products.
Persamaan di bawah mewakili tindakbalas yang berlaku dalam suatu proses di mana X adalah salah satu hasil.



What is the process and product X?

Apakah proses dan hasil X?

	Process <i>Proses</i>	Product X <i>Hasil X</i>
A	Esterification <i>Pengesteran</i>	Ester <i>Ester</i>
B	Fermentation <i>Fermentasi</i>	Alcohol <i>Alkohol</i>
C	Respiration <i>Respirasi</i>	Water <i>Air</i>
D	Photosynthesis <i>Fotosintesis</i>	Oxygen <i>Oksigen</i>

- 36 Diagram 14 below shows a section through an oil palm fruit.
Rajah 14 di bawah menunjukkan keratan rentas buah kelapa sawit.

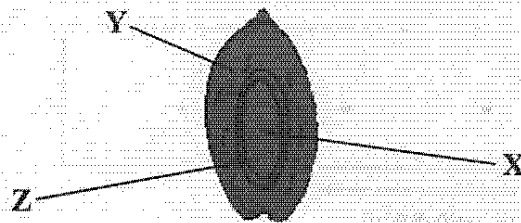


Diagram 14
Rajah 14

Which parts produce oil that can be extracted?

Bahagian manakah yang boleh diekstrak menghasilkan minyak?

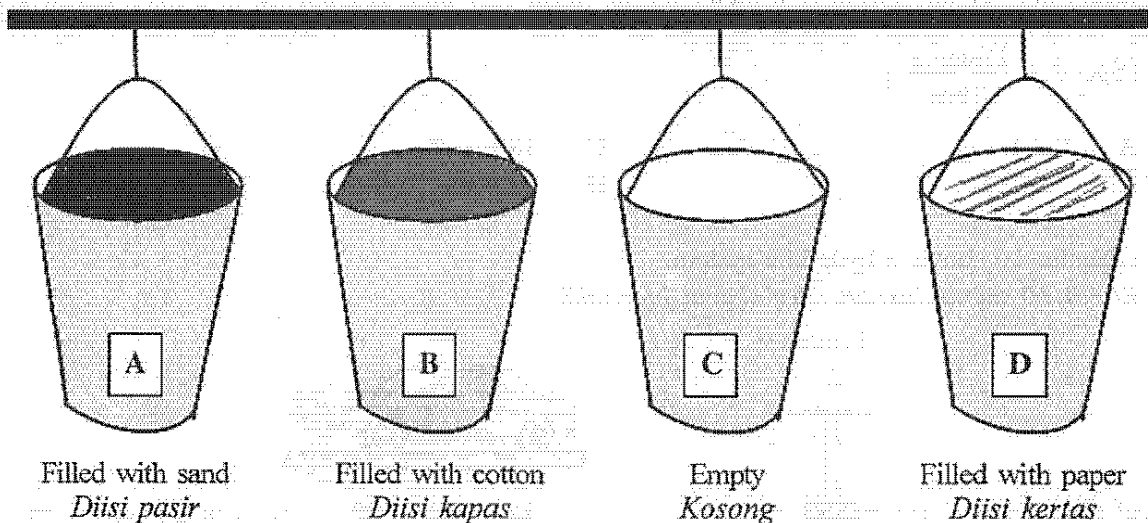
- A Y only
Y sahaja
- B Y and Z only
Y dan Z sahaja
- C Y and X only
Y dan X sahaja
- D X and Z only
X dan Z sahaja

- 37 The purpose of sterilization of the oil palm fruit during the extraction of oil palm is to
 Kegunaan pensterilan ke atas minyak kelapa sawit semasa pengekstrakan adalah

- I kill microorganisms
 membunuh mikroorganisma
 II soften the fruit
 melembutkan buah
 III destroy the enzymes that turn oil to acid
 memusnahkan enzim yang menukarkan minyak kepada asid

- A I and II only
 I dan II sahaja
 B I and III only
 I dan III sahaja
 C II and III only
 II dan III sahaja
 D I, II and III
 I, II dan III

- 38 Which of the following cans possesses the greatest inertia?
 Manakah antara baldi yang berikut mempunyai inertia terbesar?



- 39 A piece of stone weighs 8N in air. When it is immersed in water, it weighs only 6N.
 What is the volume of the water displaced by the stone?
 Seketul batu seberat 8N. Bila direndam di dalam air beratnya hanya 6N.
 Apakah isipadu air yang telah disesarkan?

- A 200 cm³
 B 600 cm³
 C 800 cm³
 D 1400 cm³

- 40 Diagram 15 shows a wooden block with a weight of 150 N.
Rajah 15 menunjukkan blok kayu dengan berat 150 N.

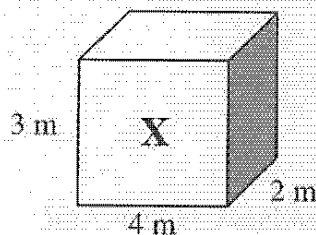


Diagram 15
Rajah 15

How much pressure is exerted on the floor if the wooden block is placed with the surface labeled X in contact with the floor?

Berapakah tekanan yang dikenakan pada lantai jika blok kayu diletakkan dengan permukaan berlabel X bersentuh dengan lantai?

- A 12.5 Nm^{-2}
 B 15.0 Nm^{-2}
 C 18.75 Nm^{-2}
 D 25.0 Nm^{-2}
- 41 Ramli cycles 600 metres in 120 seconds. What is Ramli's speed?
Ramli berbasikal sejauh 600 meter dalam masa 120 saat. Berapakah laju pergerakan Ramli?

$$\left[\text{Speed} = \frac{\text{Distance}}{\text{Time}} \right]$$

- A 0.2 ms^{-1}
 B 5.0 ms^{-1}
 C 480 ms^{-1}
 D 720 ms^{-1}
- 42 Diagram 16 shows a hydraulic system.
Rajah 16 menunjukkan satu sistem hidraulik.

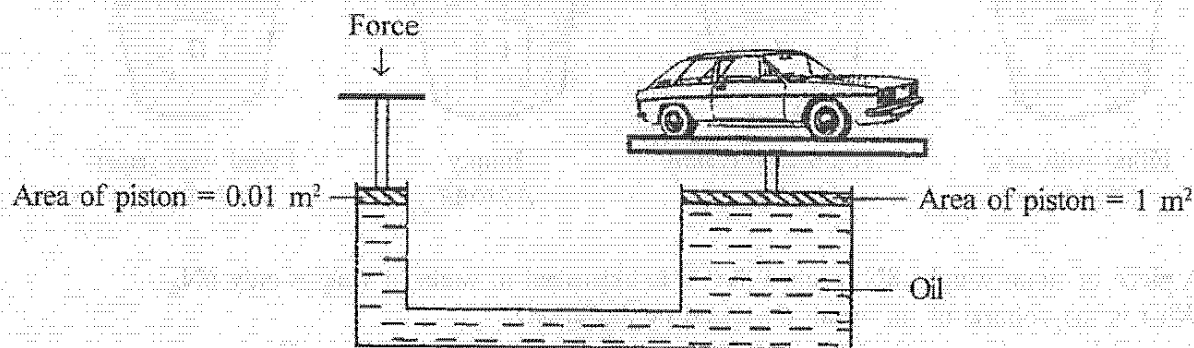


Diagram 16
Rajah 16

How much force is needed to lift a car with a weight of 10 000 N?

Berapakah daya yang diperlukan untuk mengangkat kereta yang mempunyai berat 10 000 N?

$$\text{Pressure} = \frac{\text{Force}}{\text{Surface area}}$$

- A 100 N
 B 1 000 N
 C 10 000 N
 D 100 000 N

- 43 Which of these following is NOT TRUE about the momentum of a lorry with a mass of 2000 kg moving at velocity of 15 ms^{-1} ?
Antara yang berikut, manakah yang TIDAK BENAR mengenai momentum sebuah lori berjisim 2000 kg yang sedang bergerak pada halaju 15 ms^{-1} ?
- A The momentum of the lorry will increase when its velocity increase.
Momentum lori itu akan bertambah jika halajunya bertambah.
 - B The momentum of the lorry increase when being accelerated.
Momentum lori itu bertambah apabila dipecutkan.
 - C The momentum of the lorry on velocity 15 ms^{-1} is 30000 kgms^{-1} .
Momentum lori itu pada halaju 15 ms^{-1} ialah 30000 kgms^{-1} .
 - D The momentum of the lorry decrease when the weight of its load is added.
Momentum lori itu berkurang jika berat beban yang dibawa olehnya ditambahkan.
- 44 Which of the following food preservation methods does NOT destroy its vitamins?
Antara kaedah pengawetan makanan yang berikut, manakah yang TIDAK menyebabkan vitaminnya musnah?
- A Canning
Pengetinan
 - B Bottling
Pembotolan
 - C Pasteurization
Pempasteuran
 - D Dehydration
Pendehidratan
- 45 Which of the following statement is NOT a characteristic of high quality paddy plant?
Antara pernyataan berikut, yang manakah BUKAN sifat pokok padi baka yang bermutu?
- A Taller plant
Pokok yang lebih tinggi
 - B Fast-maturity
Cepat matang
 - C More resistant to diseases
Lebih tahan terhadap serangan penyakit
 - D Produce dense of fruits
Menghasilkan buah yang lebat
- 46 Imbalance between the increase of people with the development of food production technology will cause the people to suffer from
Ketidakseimbangan antara pertambahan penduduk dengan kemajuan teknologi pengeluaran makanan akan menyebabkan manusia mengalami
- A anorexia nervosa
anoreksia nervosa
 - B hepatitis
hepatitis
 - C malnutrition
malnutrisi
 - D food poisoning
keracunan makanan

- 47 What should be done to natural rubber to produce tyres that are harder and more heat resistant?
Apakah yang harus dilakukan ke atas getah asli untuk menghasilkan tayar yang lebih keras dan tahan haba?

- A Add ammonia solution
Mecampurkan larutan ammonia
 B Heat with sulphur
Memaskan dengan sulfur
 C Add ethanoic acid
Menambahkan asid etanoik
 D Add iron wire
Menambahkan dawai besi

- 48 Diagram 17 shows a chemical change.
Rajah 17 di bawah menunjukkan satu perubahan kimia.

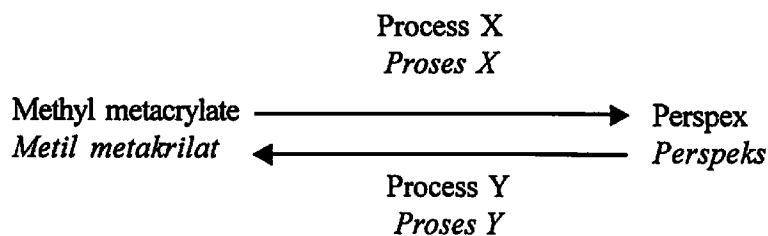
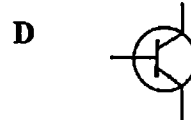
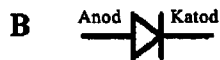


Diagram 17
Rajah 17

What are processes X and Y?
Apakah proses X dan proses Y?

- | Process X
<i>Proses X</i> | Process Y
<i>Proses Y</i> |
|--|--|
| A Depolymerization
<i>Penyahpolimeran</i> | Combustion
<i>Pembakaran</i> |
| B Polymerization
<i>Pempolimeran</i> | Combustion
<i>Pembakaran</i> |
| C Polymerization
<i>Pempolimeran</i> | Depolymerization
<i>Penyahpolimeran</i> |
| D Depolymerization
<i>Penyahpolimeran</i> | Polymerization
<i>Pempolimeran</i> |

- 49 Which of the following electronic component symbols increases electrical signal?
 Antara simbol bagi alat elektronik yang berikut, manakah yang berfungsi menguatkan isyarat elektrik?



- 50 Diagram 18 shows a simple radio receiver system.
 Rajah 18 menunjukkan sistem penerima radio ringkas.

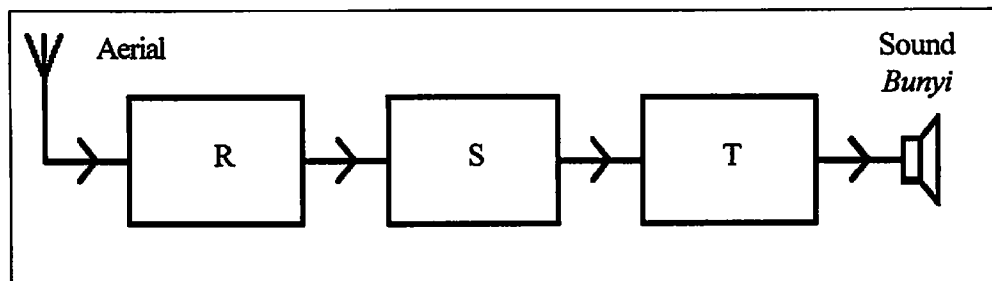


Diagram 18
 Rajah 18

What is the function of part R?
 Apakah fungsi bahagian R?

- A Increases electric signals
 Menguatkan isyarat elektrik
- B Changes electric energy into sound energy
 Menukarkan tenaga elektrik kepada tenaga bunyi
- C Separates audio waves from radio waves
 Mengasingkan gelombang audio daripada gelombang radio
- D Chooses a frequency which is the same as the frequency of the chosen radio waves
 Memilih satu frekuensi yang sepadan dengan frekuensi radio yang dikehendaki

END OF QUESTION PAPER
 KERTAS SOALAN TAMAT

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper consists of **50** questions.
Kertas soalan ini mengandungi 50 soalan.
2. Answer **all** questions.
Jawab semua soalan.
3. Each question is followed by four alternative answers, **A, B, C** or **D**. For each question, choose **one** answer only. Blacken your answer on the objective answer sheet provided.
*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. If you wish to change your answer, erase the blackened mark that you have made. Then blacken the new answer.
Jika anda hendak menukar jawapan, padamkan tanda yang telah dibuat. Kemudian hitamkan jawapan yang baru.
5. The diagrams in the questions provided are not drawn to scale unless stated.
Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
6. You may use a non-programmable scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.

1511/2 NAMA:..... ANGKA GILIRAN:.....

Sains

Kertas 2

Ogos

2010

2 ½ jam

**PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA
NEGERI PERAK
2010**

SCIENCE

PAPER 2

Dua jam tiga puluh minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. Tulis nama dan angka giliran anda pada ruang yang disediakan.
2. Kertas soalan ini adalah dwibahasa.
3. Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu.
4. Calon dibenarkan menjawab keseluruhan atau sebahagian soalan sama ada dalam bahasa Melayu atau bahasa Inggeris.
5. Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini.

<i>Kod Pemeriksa</i>			
Bahagian	Soalan	Markah Penuh	Markah Diperolehi
A	1	5	
	2	5	
	3	5	
	4	5	
B	5	6	
	6	6	
	7	6	
	8	6	
	9	6	
C	10	10	
	11	10	
	12	10	
Jumlah			

Kertas soalan ini mengandungi 20 halaman bercetak.

Section A
Bahagian A
[20 marks]
[20 markah]

Answer all questions in this section.

The time suggested to complete this section is 60 minutes.

Jawab semua soalan dalam bahagian ini.

Masa yang dicadangkan untuk menjawab bahagian ini ialah 60 minit.

- 1 A student has conducted an experiment to determine the freezing point of naphthalene. The temperature of naphthalene was recorded at one minute intervals.
Seorang pelajar telah menjalankan eksperimen untuk menentukan takat beku bagi naftalena. Suhu untuk naftalena dicatatkan setiap satu minit.

Table 1 shows the reading of the thermometer for this experiment.

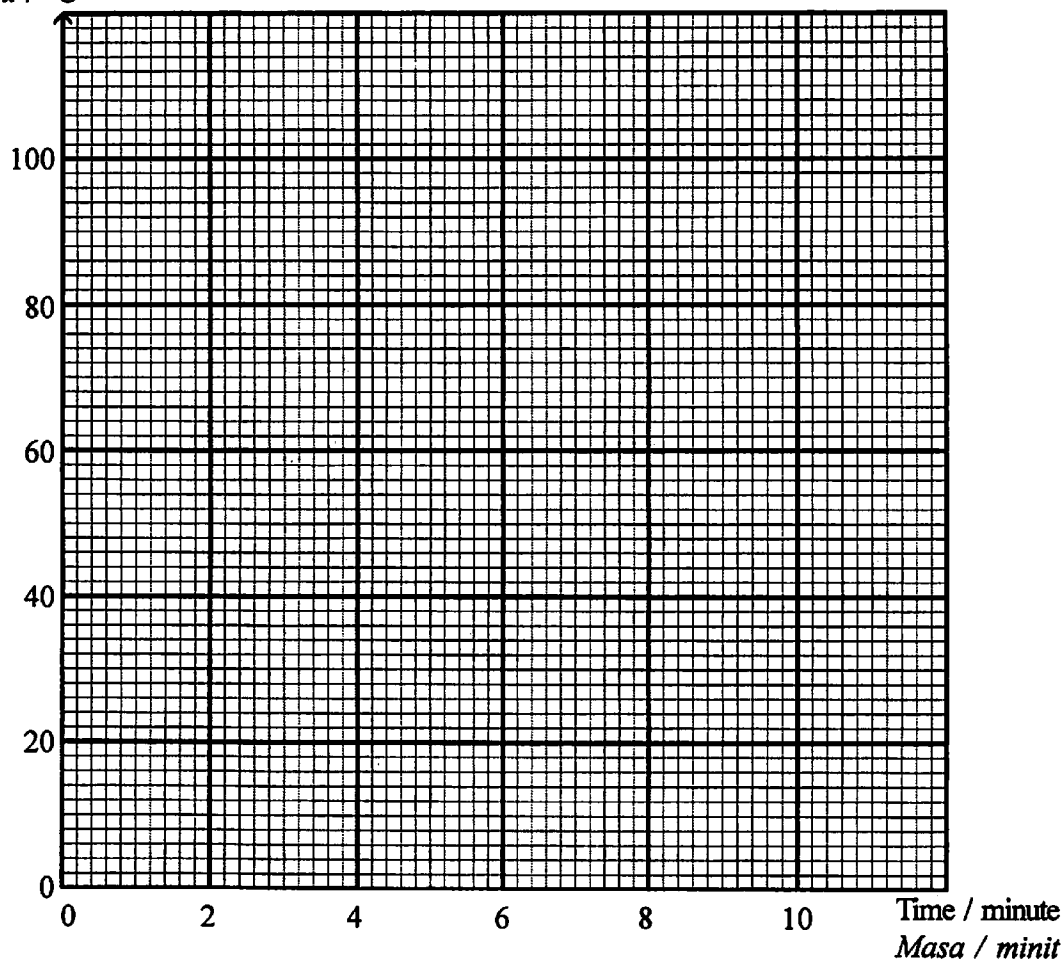
Jadual 1 menunjukkan bacaan termometer untuk eksperimen ini.

Time/minute Masa/minit	0	1	2	3	4	5	6	7	8
Temperature/°C Suhu/ °C	95	89	84	83	83	83	77	70	65

TABLE 1
JADUAL 1

- (a) Based on Table 1, draw a graph of temperature against time.
Berdasarkan Jadual 1, lukis graf suhu melawan masa.

Temperature / °C
Suhu / °C



[2 mark]

[2 markah]

- (b) Based on the graph in 1 (a), state the relationship between temperature and time.
Berdasarkan graf dalam 1 (a), nyatakan hubungan antara suhu dengan masa.

[1 mark]

[1 markah]

- (c) Mark the **freezing point** of naphtalene on the graph in 1 (a)
*Tandakan **takat beku** naftalena pada graf dalam 1 (a)*

[1 mark]

[1 markah]

- (d) Predict the temperature of naphtalene on the 10th minutes.
Ramalkan suhu naftalena pada minit ke -10.

[1 mark]

[1 markah]

- 2 Diagram 2 shows an experiment to study the volume of gas released in the reaction of dilute sulphuric acid and zinc.

Rajah 2 menunjukkan eksperimen untuk mengkaji isipadu gas yang dibebaskan apabila asid sulfurik cair bertindakbalas dengan zink.

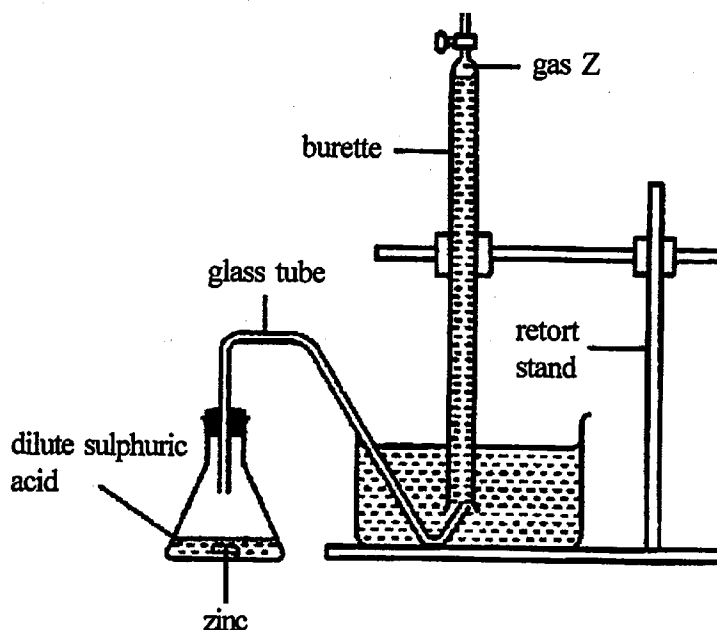


DIAGRAM 2
RAJAH 2

Table 2 shows the volume of gas released in the reaction of dilute sulphuric acid and zinc.

Jadual 2 menunjukkan isipadu gas yang dibebaskan apabila asid sulfurik cair bertindakbalas dengan zink.

Time (minutes) <i>Masa (minit)</i>	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
Burette reading (cm ³) <i>Bacaan buret (cm³)</i>	50	40	35	28	20	16	12	9	7
Volume of gas (cm ³) <i>Isipadu gas (cm³)</i>	0	10	15		30	24		41	43

TABLE 2
JADUAL 2

- (a) Complete Table 2 by writing the volumes of gas released.
Lengkapkan Jadual 2 dengan mengisi isipadu gas yang dibebaskan.

[2 marks]
[2 markah]

- (b) Based on Table 2, state the relationships between the volume of gas Z and time.
Berdasarkan Jadual 2, nyatakan hubungan di antara isipadu gas Z dan masa.

.....
[1 mark]

[1 markah]

- (c) State the variables in this experiment.
Nyatakan pembolehubah dalam eksperimen ini.

- (i) Constant variable.
Pembolehubah dimalarkan.

.....
[1 mark]

[1 markah]

- (ii) Responding variable.
Pembolehubah bergerak balas.

.....
[1 mark]

[1 markah]

- 3 Diagram 3 shows the arrangement of lenses in a telescope. Rays AO and BC originate from a distant object.

Rajah 3 menunjukkan susunan kanta dalam suatu teleskop. Sinar AO dan BC berasal daripada satu objek jauh.

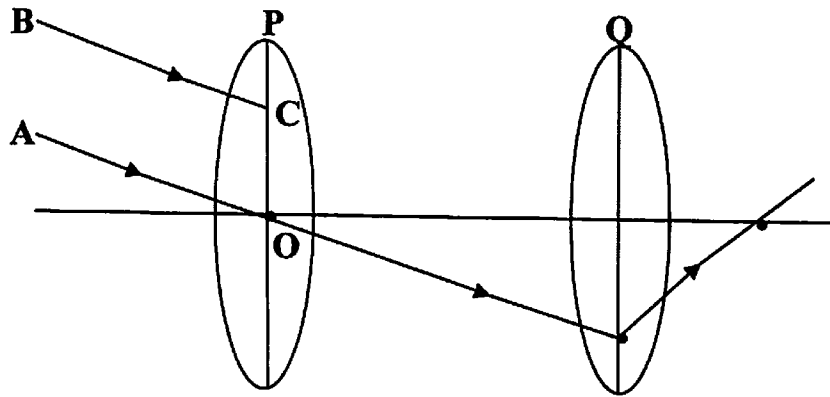


DIAGRAM 3
RAJAH 3

- (a) P and Q are convex lenses. Which is the eyepiece lens?
P dan Q adalah kanta cembung. Manakah kanta mata?

[1 mark]

[1 markah]

- (b) Compare the focal length between lens P and lens Q.
Bandingkan jarak focus kanta P dan kanta Q.

[1 mark]

[1 markah]

- (c) On Diagram 3, draw the image formed by the objective lens.
Menggunakan Rajah 3, lukis imej yang terbentuk oleh kanta objektif.

[2 marks]

[2 markah]

- (d) State the properties of the final imej formed by lens Q.
Nyatakan ciri-ciri imej yang terbentuk oleh kanta Q.

[1 mark]

[1 markah]

- 4 Diagram 4 shows an apparatus set up for experiment to study the growth of bacterial in different condition.

Rajah 4 menunjukkan susunan radas bagi eksperimen untuk mengkaji pertumbuhan bakteria dalam keadaan yang berlainan.

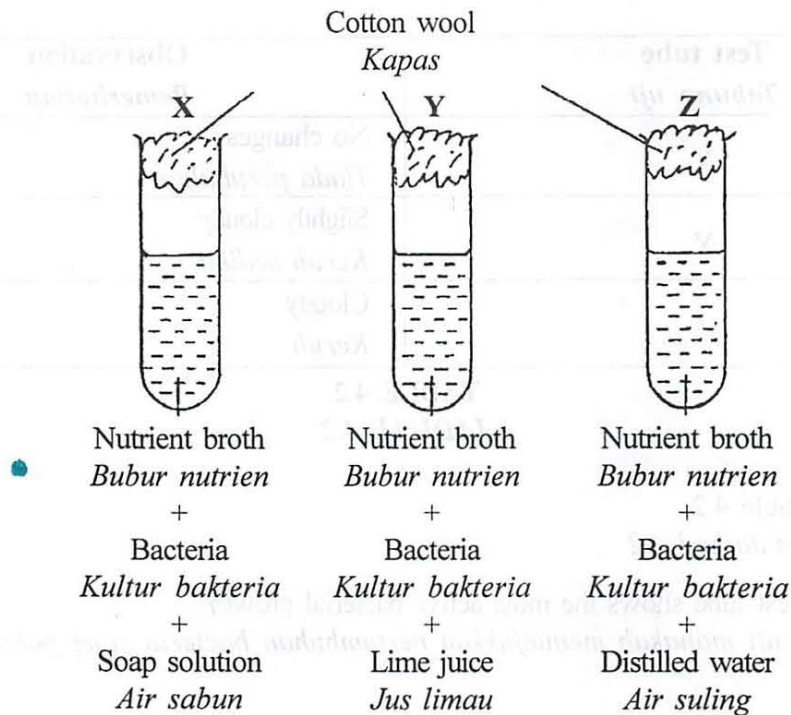


DIAGRAM 4
RAJAH 4

- (a) Mark (✓) on the Table 4.1 to show the solution condition in each test tube.
Tandakan (✓) pada Jadual 4.1 untuk menunjukkan sifat larutan yang terkandung dalam ketiga-tiga tabung uji itu.

Solution condition Sifat larutan	Acidic Asid	Alkaline Alkali	Neutral Neutral
Test tube Tabung uji			
X			
Y			
Z			

TABLE 4.1
JADUAL 4.1

[3 marks]
[3 markah]

The apparatus set up is kept in an incubator at temperature 37°C for two days. Table 4.2 shows observation of the experiment.

Susunan radas itu disimpan dalam inkubator bersuhu 37°C selama dua hari. Jadual 4.2 menunjukkan hasil pemerhatian eksperimen itu.

Test tube <i>Tabung uji</i>	Observation <i>Pemerhatian</i>
X	No changes <i>Tiada perubahan</i>
Y	Slightly cloudy <i>Keruh sedikit</i>
Z	Cloudy <i>Keruh</i>

TABLE 4.2
JADUAL 4.2

(b) Based on Table 4.2.

Berdasarkan Jadual 4.2

(i) Which test tube shows the most active bacterial growth?

Tabung uji manakah menunjukkan pertumbuhan bacteria yang paling aktif?

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

(ii) What is your conclusion on the observation of the experiment?

Apakah kesimpulan yang anda boleh buat daripada hasil pemerhatian eksperimen itu?

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

Section B
Bahagian B
 [30 marks]
 [30 markah]

Answer **all** questions in this section.

The time suggested to complete this section is **50** minutes.

Jawab semua soalan dalam bahagian ini.

Masa yang dicadangkan untuk menjawab bahagian ini ialah 50 minit.

- 5 Diagram 5.1 shows a reflex arc of a reflex action when a person finger is pricked by a sharp needle.

Rajah 5.1 menunjukkan arka refleks bagi suatu tindakan refleks apabila jari seseorang dicucuk jarum tajam.

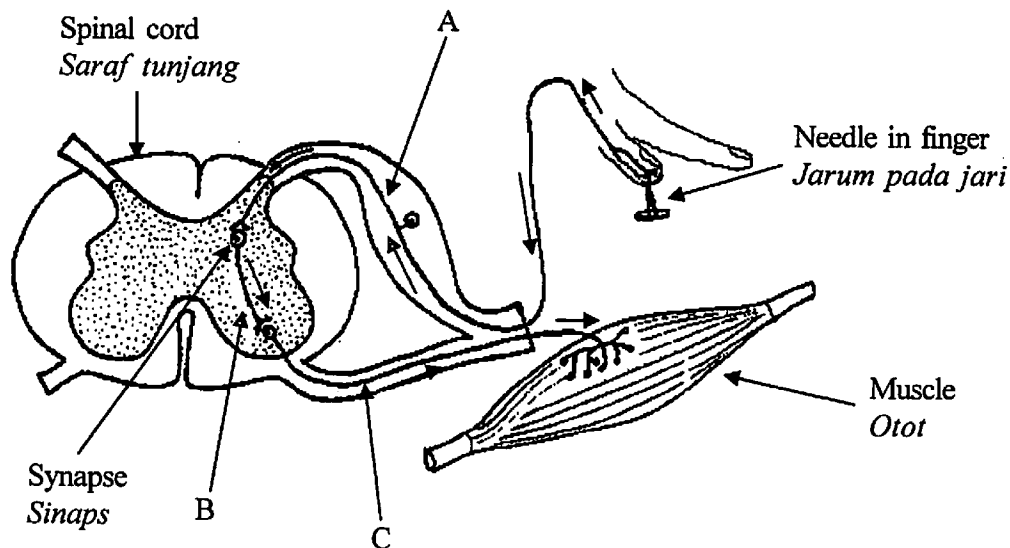


DIAGRAM 5.1
RAJAH 5.1

- (a) (i) Based on Diagram 5.1, Match A, B, and C with neurone types.
Berdasarkan Rajah 5.1, Padankan A, B, dan C dengan jenis neuron.

A
B
C

Relay neurone <i>Neuron perantaraan</i>
Sensory neurone <i>Neuron deria</i>
Motor neurone <i>Neuron motor</i>

[3 marks]
 [3 markah]

- (a) (ii) The reflex arc when our hand is pricked by a sharp needle is different from the reflex arc of the knee-jerking. Based on Diagram 5.2, state the difference
Arka refleks apabila tangan kita dicucuk jarum tajam adalah berbeza dengan arka refleks bagi sentakan lutut. Berdasarkan Rajah 5.2, nyatakan perbedaannya

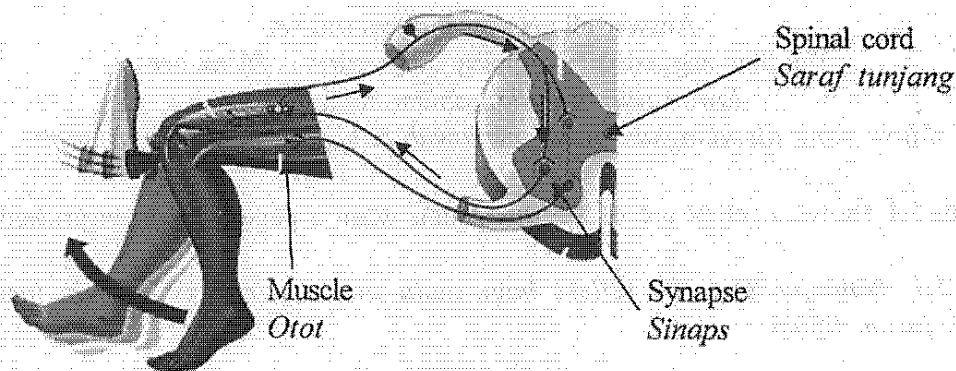


DIAGRAM 5.2
 RAJAH 5.2

Arc reflex of the hand pricked by a sharp needle <i>Arka refleks tangan dicucuk jarum tajam</i>	Arc reflex of the knee-jerking <i>Arka refleks sentakan lutut</i>

[2 marks]
 [2 markah]

- (b) (i) Reflex actions are automatic action without the involvement of thinking or the cerebrum. Voluntary actions are actions we are aware of with the involvement of cerebrum. Give one example of voluntary action.
Tindakan refleks ialah gerak balas badan secara automatik tanpa pemikiran dan penglibatan serebrum. Tindakan terkawal ialah jenis tindakan yang kita sedari dengan penglibatan serebrum. Berikan satu contoh tindakan terkawal.

[1 mark]
 [1 markah]

- 6 Table 6 shows the two Punnett squares for the combination of plants gametes.

JADUAL 6 menunjukkan dua segi empat Punnett bagi percantuman gamet bagi tumbuhan.

Gen	T	t
T		
t		

Punnett square A
Segiempat Punnett A

Gen		
	Tt	tt
	Tt	tt

Punnett square B
Segiempat Punnett B

TABLE 6
JADUAL 6

- (a) Complete the Punnett squares A and B.
Lengkapkan segiempat Punnett A dan B

[2 marks]
[2 markah]

- (b) (i) In the cross between two tall plants shown in Punnett Square A, what is the probability that an offspring will be tall?
Mengikut kacukan antara dua pokok tinggi yang ditunjukkan dalam Segiempat Punnett A, apakah kebarangkalian untuk mendapatkan generasi pokok yang tinggi?

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

- (b) (ii) Mark (✓) for the type of plant parents in the breeding shown in Punnett Square B?
 Tandakan (✓) bagi jenis tumbuhan induk dalam kacukan yang ditunjukkan oleh Segiempat Punnett B?

Tall plant with tall plant <i>Pokok tinggi dengan pokok tinggi</i>	
Tall plant with dwarf plant <i>Pokok tinggi dengan pokok kerdil</i>	
Dwarf plant with dwarf plant <i>Pokok kerdil dengan pokok kerdil</i>	

[1 mark]

[1 markah]

- (c) Fill in the blanks with the correct words based on the provided words.
 Isi tempat kosong dengan perkataan yang betul berdasarkan perkataan yang diberikan.

Phenotype <i>Fenotip</i>	Monohybrid <i>Monohibrid</i>	Dominant <i>Dominan</i>
-----------------------------	---------------------------------	----------------------------

- (i) A one-trait inheritance being studied is called?
 Pewarisan satu sifat sahaja yang dikaji disebut?

.....

[1 mark]

[1 markah]

- (ii) refers to the physical appearance, such as tall or dwarf, which can be seen in an organism

..... merujuk kepada sifat fizikal, seperti tinggi atau rendah yang dapat dilihat pada suatu organisma.

[1 mark]

[1 markah]

- 7 Diagram 7 shows three radioactive rays in an electric field.
Rajah 7 menunjukkan tiga sinar radioaktif dalam suatu medan elektrik.

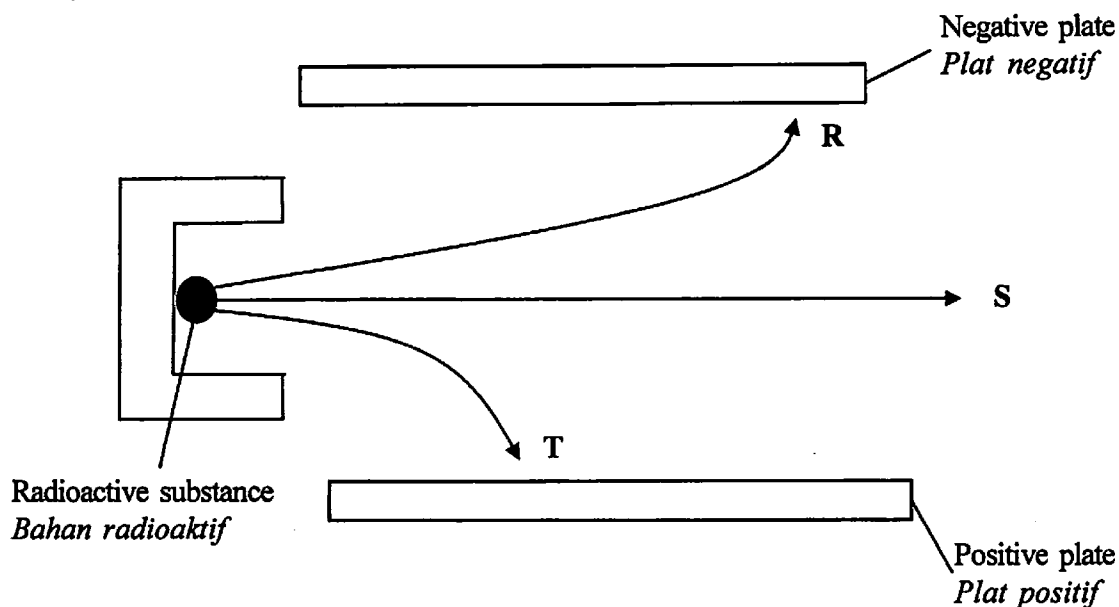


DIAGRAM 7
RAJAH 7

- (a) R, S and T are radioactive rays.
 Name R, S and T.
R, S dan T ialah sinar radioaktif.
Namakan R, S dan T.

R :

S :

T :

[3 marks]

[3 markah]

- (b) What is the type of charge for R ray?
Apakah jenis cas bagi sinar R?

.....

[1 mark]

[1 markah]

- (c) Name **one** industrial use of ray T.
*Namakan **satu** kegunaan sinar T dalam industri.*

.....

[1 mark]

[1 markah]

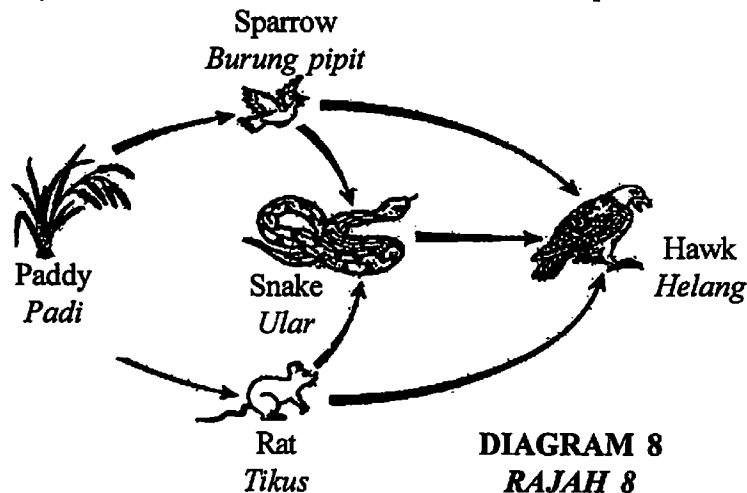
- (d) Mark (✓) the radioisotope used as a tracer to track the uptake of fertilizers in a plant.
Tandakan (✓) radioisotop yang digunakan sebagai alat pengesan untuk menjejaki kadar penyerapan baja di dalam tumbuhan.

Oxygen-14 <i>Oksigen-14</i>	
Iodine-131 <i>Iodine-131</i>	
Phosphorus-32 <i>Fosforus-32</i>	

[1 mark]

[1 markah]

- 8 Diagram 8 shows a food web in a paddy field.
Rajah 8 menunjukkan siratan makanan di sebuah sawah padi.



- (a) Based on Diagram 8, name the following :
Berdasarkan Rajah 8, namakan perkara berikut :

(i) Producer

Pengeluar :

(ii) Secondary consumer

Pengguna sekunder :

[2 marks]

[2 markah]

- (b) Write **one** food chain from the above food web.

Tuliskan satu rantai makanan dari siratan makanan di atas.

.....

.....

[1 mark]

[1 markah]

- (c) What will happen to the paddy and rat if the farmer kills the entire snake in the paddy field?

Apakah yang terjadi kepada pokok padi dan tikus jika petani memusnahkan semua ular yang terdapat di sawah padi itu.

.....

.....

[2 marks]

[2 markah]

- (d) What flows in this food web?

Apakah yang dialirkan dalam siratan makanan ini?

.....

[1 mark]

[1 markah]

- 9 Diagram 9 shows a four stroke petrol engine.
Rajah 9 menunjukkan enjin petrol empat lejang.

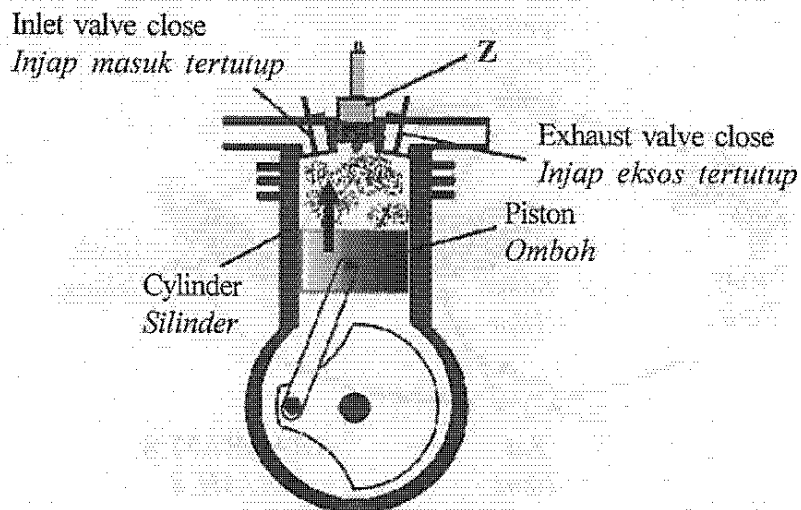


DIAGRAM 9
 RAJAH 9

- (a) (i) Name structure Z.
Namakan struktur Z.

[1 mark]

[1 markah]

- (ii) State the function of Z.
Nyatakan fungsi Z.

[1 mark]

[1 markah]

- (b) Name the fuel used in this engine.
Namakan bahan api yang digunakan dalam enjin ini.

[1 mark]

[1 markah]

- (c) (i) State the stroke of the engine?
Nyatakan lejang bagi enjin tersebut.

[1 mark]

[1 markah]

(ii) What happens to the mixture in the cylinder in (c) (i).

Apakah yang terjadi kepada campuran di dalam silinder pada (c) (i).

.....

.....

[1 mark]

[1 markah]

(d) Mark (✓) the vehicle that using the engine.

Tandakan (✓) kenderaan yang menggunakan enjin ini.

Car <i>Kereta</i>	Motorcycle <i>Motorsikal</i>	Submarine <i>Kapal selam</i>

[1 mark]

[1 markah]

Section C
Bahagian C
[20 marks]
[20 markah]

Answer **Question 10** and either **Question 11** or **Question 12**.

The time suggested to complete this section is **40 minutes**.

Jawab Soalan 10 dan mana-mana Soalan 11 atau Soalan 12.

Masa yang dicadangkan untuk menjawab bahagian ini ialah 40 minit.

10 Study the following statement.

Kaji pernyataan berikut.

Plant needs carbon dioxide to produce oxygen

Tumbuhan memerlukan karbon dioksida untuk menghasilkan oksigen

You are given a water plant, distilled water (contain less carbon dioxide), water contain natrium bicarbonate (contain lots of carbon dioxide), measuring cylinder, beaker, filter funnel.

Anda dibekalkan dengan rumpai air, air suling (mengandungi sedikit karbon dioksida), air yang mengandungi natrium bikarbonat (mengandungi banyak karbon dioksida), silinder penyukat, bikar, corong turas.

(a) Suggest one hypothesis to investigate the above statement.

Cadangkan satu hipotesis untuk menyiasat pernyataan di atas.

[1 mark]

[1 markah]

(b) Describe an experiment to test your hypothesis in 10(a) based on the following criteria.

Huraikan satu eksperimen untuk menguji hipotesis anda di 10(a) berdasarkan criteria berikut.

(i) Aim of the experiment

[1 mark]

Tujuan eksperimen

[1 markah]

(ii) Identification of variables

[2 marks]

Pengenalpastian pembolehubah

[2 markah]

(iii) List of apparatus and materials

[1 mark]

Senarai radas dan bahan

[1 markah]

(iv) Procedure or method

[4 marks]

Prosedur atau kaedah

[4 markah]

(v) Tabulation of data

[1 mark]

Penjadualan data

[1 markah]

- 11 (a) State **one** method of producing rubber from latex and **one** method of preventing latex from coagulating.
Nyatakan satu kaedah penghasilan getah daripada lateks dan satu kaedah mencegah pembekuan lateks dari membeku. [4 marks]
[4 markah]

- (b) Natural rubber is not very strong, hard or elastic. Explain how to overcome the problem. Your answer should include the following:
Getah asli tidak kuat, keras atau kenyal. Terangkan cara-cara penyelesaian masalah tersebut. Jawapan anda mestilah mengandungi perkara-perkara berikut:
- Identify the problem [1 mark]
Mengenal pasti masalah [1 markah]
 - Clarification of the problem [1 mark]
Penjelasan masalah [1 markah]
 - Methods of solving [3 marks]
Kaedah-kaedah penyelesaian [3 markah]
 - Choosing the best method and explaining your choices [1 mark]
Pemilihan kaedah penyelesaian terbaik dan penerangannya [1 markah]

- 12 (a) UHT (Ultra Heat Temperature) milk is prepared by heating it at 132 °C for 2 seconds, followed by immediate cooling. State **two** advantages and disadvantages of food processing.
Susu UHT (Ultra Heat Temperature) disediakan dengan memanaskannya sehingga suhu 132°C selama 2 saat, kemudian disejukkan dengan serta merta. Nyatakan dua kebaikan dan kelemahan bagi pemprosesan makanan. [4 marks]
[4 markah]

- (b) Malaysia need to import agricultural products from other countries to sustain the peoples' needs that are tremendously increasing.
Malaysia terpaksa mengimport hasil pertanian dari negara luar untuk menampung keperluan penduduk yang semakin bertambah.
Explain the need to enhance the quality and quantity of food production.
Terangkan keperluan mempertingkatkan kualiti dan kuantiti pengeluaran makanan.
Your answer should include the following:
Jawapan anda hendaklah berdasarkan aspek berikut:
- Identify the problem [1 mark]
Mengenal pasti masalah [1 markah]
 - Clarification of the problem [1 mark]
Penjelasan masalah [1 markah]
 - Methods of solving [3 marks]
Kaedah-kaedah penyelesaian [3 markah]
 - Choose the best method and explain your choices [1 mark]
Pilih kaedah terbaik dan jelaskan pilihan anda [1 markah]

INFORMATION FOR CANDIDATES**ARAHAN UNTUK CALON**

1. This question paper consists of three sections : **Section A, Section B and Section C.**
Kertas soalan mengandungi tiga bahagian : Bahagian A, Bahagian B dan Bahagian C.
2. Answer all questions in **Section A and Section B.**
Write your answers for section A and B clearly in the spaces provided on the question paper.
Jawab semua soalan dalam Bahagian A dan Bahagian B.
Tulis jawapan bagi Bahagian A dan B dalam ruangan disediakan pada kertas soalan.
3. For **Section C**, answer **Question 10** and choose another from **Question 11** or **Question 12.**
Write your answers for section C on the test pad.
Bagi Bahagian C, jawab Soalan 10 dan mana-mana satu soalan daripada Soalan 11 atau Soalan 12. Tulis jawapan bagi Bahagian C pada 'test pad'.
4. The diagrams in the questions provided are not drawn to scale unless stated.
Rajah yang mengiringi soalan tidak dilukiskan mengikut skala kecuali dinyatakan
5. The marks allocated for each sub-part of a question are shown in brackets .
Markah yang diperuntukkan bagi setiap cераian soalan ditunjukkan dalam kurungan.
6. If you wish to change your answer, neatly cross out the answer that you have done.
Then write down the new answer.
Sekiranya anda hendak menukarkan sesuatu jawapan, buat garisan di atas jawapan itu.
Kemudian tuliskan jawapan yang baru.
7. You may use a non-programmable scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.
8. The time suggested to answer **Section A** is 60 minutes, **Section B** is 50 minutes and **Section C** is 40 minutes.
Masa yang dicadangkan untuk menjawab Bahagian A ialah 60 minit, Bahagian B ialah 50 minit dan Bahagian C ialah 40 minit.
9. Hand in all your answer sheets at the end of the examination.
Serahkan semua kertas jawapan di akhir peperiksaan.

**PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA
2010**

PERATURAN PEMARKAHAN
Paper 1

Paper 1

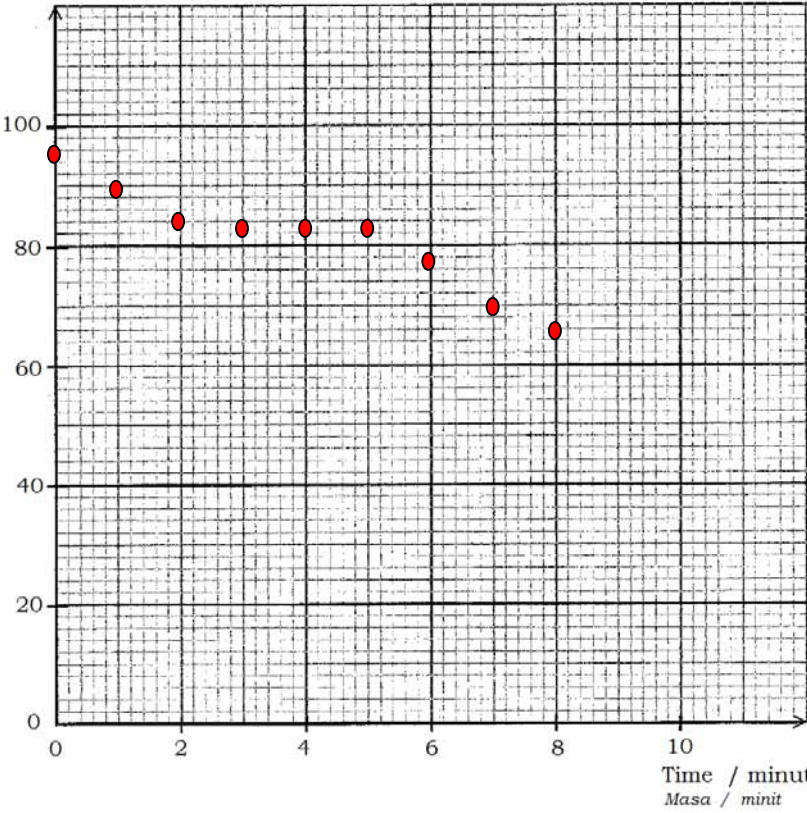
No.Soalan		No.Soalan		No.Soalan		No.Soalan		No.Soalan	
1 B		11 C		21 C		31 C		41 B	
2 D		12 D		22 B		32 B		42 A	
3 B		13 C		23 D		33 B		43 D	
4 C		14 B		24 C		34 B		44 C	
5 D		15 C		25 B		35 B		45 A	
6 B		16 D		26 C		36 C		46 C	
7 B		17 D		27 C		37 A		47 B	
8 A		18 B		28 C		38 A		48 C	
9 B		19 B		29 D		39 B		49 D	
10 B		20 B		30 D		40 A		50 D	

**PEPERIKSAAN PERCUBAAN
SIJIL PELAJARAN MALAYSIA
2010**

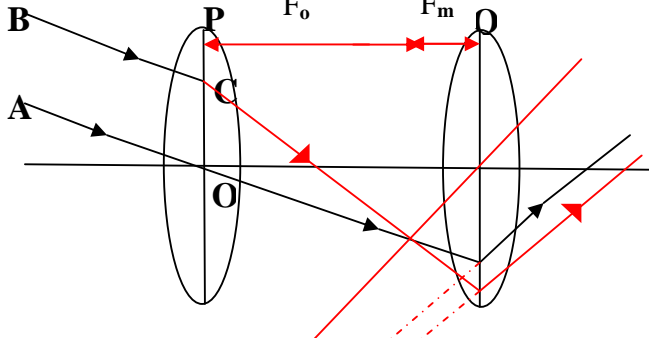
PERATURAN PEMARKAHAN

Paper 2

Section A

Question No	Marking criteria	Mark	Total marks
1	(a) Able to draw a graph	1	
	Graph	1	
	<p>Note: All points are transferred correctly – 1m Smoothness of the graph – 1m Cannot use ruler to joint the points</p> <p>Temperature / °C Suhu / °C</p>  <p>Time / minute Masa / minit</p>		2
	(b) The longer the timer, the lower the temperature// If the time increases, the temperature decreases// As the time increases, the temperature decreases	1	1
	(c) Note: Must mark on the graph Any mark/sign at temperature 83 °C	1	1
	(d) Based on graph- 50/51/52/53/54(°C)		1
		Total	5

Question No	Marking criteria		Mark	Total marks
2	(a)	Able to complete the table correctly <ul style="list-style-type: none"> • 22 • 32 	1 1	2
	(b)	Able to state relationship between the volume of gas and time correctly The volume of gas increase as the time increase// Time increases the volume of gas also increases	1	1
	(c)	(i) Able to state the constant variable correctly (variable) Concentration of dilute sulphuric acid// Mass of zinc	1	1
		(ii) Able to state the responding variable correctly The volume of gas collected	1	1
			Total	5

Question No	Marking criteria		Mark	Total marks
3	(a)	Lens Q // Q	1	1
	(b)	Jarak fokus kanta P/ F_o (Kanta Objek) lebih panjang berbanding jarak fokus kanta Q/ F_m (Kanta Mata).	1	1
	(c)			2
	(d)	Virtual//Inverted//Bigger than object		1
			Total	5

Question	Marking Criteria				Mark	Total Marks
4	(a)	Able to mark correctly to show the solution condition in each test tube.			1+1+1	3
		Solution condition <i>Sifat larutan</i>	Acidic <i>Asid</i>	Alkaline <i>Alkali</i>		
		Test tube <i>Tabung uji</i>				
		X		√		
		Y	√			
		Z				
	(b)	(i) Test tube Z // Z			1	2
		(ii) The most suitable growth of bacteria is at neutral condition.			1	
					Total	5

Section B

Question No	Marking criteria		Mark	Total marks
5	(a)	(i) Able to match the correct type of neurone based on given diagram A: Sensory neurone B: relay neurone C: motor neurone	1 1 1	3
		(ii) Able to state the different between Arc reflex of the hand pricked by a sharp needle and arc reflex of the knee-jerking: State that the arc reflex of the hand pricked by a sharp needle: <u>INVOLVE RELAY NEURONE</u> State that the arc reflex of the knee-jerking: <u>DOES NOT INVOLVE RELAY NEURONE</u>	1 1	2
	(b)	Able to give the example of voluntary action: Writing//speaking//walking//etc	1	1
			Total	6

Question No	Marking criteria		Mark	Total marks						
7	(a)	R : Alpha	1	3						
		S : Gamma	1							
		T : Beta	1							
	(b)	Positive charge	1	1						
	(c)	To control the thickness of the paper/plastic/aluminium/substance //to detect leaking pipes	1	1						
	(d)	<table><tr><td>Oxygen-14 <i>Oksigen-14</i></td><td></td></tr><tr><td>Iodine-131 <i>Iodine-131</i></td><td></td></tr><tr><td>Phosphorus-32 <i>Fosforus-32</i></td><td>√</td></tr></table>	Oxygen-14 <i>Oksigen-14</i>		Iodine-131 <i>Iodine-131</i>		Phosphorus-32 <i>Fosforus-32</i>	√	1	1
Oxygen-14 <i>Oksigen-14</i>										
Iodine-131 <i>Iodine-131</i>										
Phosphorus-32 <i>Fosforus-32</i>	√									
			total	6						

Question No	Marking criteria			Mark	Total marks
8	(a)	(i)	Paddy	1	2
		(ii)	Sparrow // Rat	1	
	(b)	Paddy → Sparrow → Snake → Hawk // Paddy → Rat → Snake → Hawk		1	1
	(c)	(Population) of paddy will decrease		1	2
		(Population) of rat will increase		1	
	(d)	Energy		1	1
			total	6	

Question No	Marking criteria			Mark	Total marks						
9	(a)	(i)	Spark plug	1	2						
		(ii)	To produce spark	1							
	(b)	Petrol		1	1						
	(c)	(i)	Compression stroke	1	2						
		(ii)	Mixture is compressed (at high temperature)	1							
	(d)	<table><tr><td>Car</td><td>Motorcycle</td><td>Submarine</td></tr><tr><td>√</td><td>√</td><td></td></tr></table>		Car	Motorcycle	Submarine	√	√		1	1
Car	Motorcycle	Submarine									
√	√										
				Total	6						

		<i>Larutan ammonia ditambahkan ke lateks bagi mengelakkannya membeku. Ion-ion hidroksil meneutralkan asid yang dihasilkan oleh bakteria seterusnya mengekalkan cas-cas pada mambran.</i>	2	4
	(c)	<ul style="list-style-type: none"> Identify the problem: The problem with natural rubber is that it is not strong, hard or elastic. <i>Mengenal pasti masalah: Getah asli tidak kuat, keras atau elastik.</i> 	1	1
		<ul style="list-style-type: none"> Clarification of the problem: Natural rubber is not strong, hard or elastic because there is no inter-bonding between the molecules. <i>Penjelasan masalah: Getah asli tidak kuat,, keras atau elastik kerana tiada ikatan antara molekul; antara molekul-molekulnya.</i> 	1	1
		<ul style="list-style-type: none"> Methods of solving: <ul style="list-style-type: none"> Natural rubber can be made stronger, harder or more elastic by vulcanization. <i>Kaedah-kaedah penyelesaian:</i> <ul style="list-style-type: none"> <i>Getah asli boleh dikuatkan, dikeraskan dan elastik melalui proses pemvulkanan.</i> 	1	3
		<ul style="list-style-type: none"> In the laboratory, natural rubber is immersed in sulphur monochloride in methyl benzene solution for about 2 minutes. <i>Dalam makmal, getah asli direndam bersama larutan metal klorida dalam larutan benzene selama 2 minit.</i> 	1	
		<ul style="list-style-type: none"> Natural rubber is steamed with sulphur in the smoke house. <i>Getah asli distimkan bersama sulfur di dalam rumah asap.</i> 	1	
		<ul style="list-style-type: none"> Sulphur atoms will form cross-bonding between rubber polymers. This cross-bonding will make the rubber stronger, harder and more elastic. <i>Atom-atom sulfur membentuk ikatan silang antara polimer getah</i> <i>Ikatan ini menyebabkan getah menjadi lebih kuat, lebih keras dan lebih elastik.</i> 	1	
		<ul style="list-style-type: none"> The best method chosen: In the rubber industry, natural rubber is steamed with sulphur in the smoke house to vulcanise natural rubber. It is more economical. 		

		<i>Kaedah dipilih: Bagi industri getah, getah asli distimkan dengan sulfur di dalam rumah asap bagi memvulkan getah asli. Cara ini lebih ekonomik.</i>	1	1
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Question No	Marking criteria		Mark	Total marks										
12	(a)	<table><tr><td colspan="2">Able to state the advantages and disadvantages of food processing.</td></tr><tr><td>Advantage</td><td>Disadvantage</td></tr><tr><td>The taste of food does not change</td><td>Bacterial spores are not destroyed</td></tr><tr><td>Vitamins in the food are not destroyed</td><td>The pasteurized food can be stored for a short time only.</td></tr><tr><td>By pasteurization, microorganisms can be destroyed.</td><td></td></tr></table> <p>[any two]</p>	Able to state the advantages and disadvantages of food processing.		Advantage	Disadvantage	The taste of food does not change	Bacterial spores are not destroyed	Vitamins in the food are not destroyed	The pasteurized food can be stored for a short time only.	By pasteurization, microorganisms can be destroyed.		2+2	4
Able to state the advantages and disadvantages of food processing.														
Advantage	Disadvantage													
The taste of food does not change	Bacterial spores are not destroyed													
Vitamins in the food are not destroyed	The pasteurized food can be stored for a short time only.													
By pasteurization, microorganisms can be destroyed.														
	(b)	<p>Able to indentify the problem</p> <p>Malaysia has to import agricultural products from other countries. / Malaysia does not have enough agricultural products.</p>	1	1										
		<p>Able to clarification the problem</p> <p>The increasing population of people in this country cause the need of food production also increases.</p>	1	1										
		<p>Able to state solving methods.</p> <p>(i) usage of high quality breeds. (ii) usage of modern technology. (iii) education and guidance to farmers. (iv) research and development. (v) optimum usage of land and water catchment areas.</p> <p>[any three]</p>	3	3										
		<p>Able to choose the best methods and explain the choice.</p> <p>(i) usage of high quality breeds. - produce more quality product - short-term / fast-maturity</p>												

		<ul style="list-style-type: none"> - resistant to diseases and extreme weather. <p>(ii) usage of modern technology.</p> <ul style="list-style-type: none"> - help to produce more crops and livestock yield in short-term. - crops and livestock are modified genetically. - the usage of chemical fertilizer. - the usage of pesticides will prevent diseases. - the usage of agricultural machines make the planting, harvesting and production process easier. <p>(iii) education and guidance to farmers.</p> <ul style="list-style-type: none"> - farmers can increase their knowledge and skills. - farmers are exposed to effective agricultural technique. - information on high quality seeds. - usage of quality fertilizer. - ways to produce more poultry foods with high quality. - correct usage of pesticides. <p>(iv) research and development.</p> <ul style="list-style-type: none"> - introduce quality breeds of crops and livestock. - the use of better technique to grow crops and livestock. - to produce variety of foods. - to develop new agricultural lands. <p>(v) optimum usage of land and water catchment areas.</p> <ul style="list-style-type: none"> - abandoned mines are developed into agricultural lands. - barren areas are irrigated to make them more productive. - develop land and water area to rear fish / shrimp. - to fix the suitable crops for lands and water catchment area. <p style="text-align: right;">[any one]</p>	1	1
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