SULIT
Sains
Kertas 1
September
2011
1 ¼ jam

PEPERIKSAAN PERCUBAAN BERSAMA SIJIL PELAJARAN MALAYSIA 2011

ANJURAN
MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
CAWANGAN PERLIS

SCIENCE

Paper 1

One hour and fifteen minutes

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 2 kertas soalan ini.*

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 answer is followed by four alternative answers, **A**, **B**, **C** and **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 space for the new answer.
Jika anda hendak menukarkan 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 dilukiskan mengikut skala kecuali dinyatakan.

6. You may use a non-programmable scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.

1 Diagram 1 shows a type of neurone.
Rajah 1 menunjukkan sejenis neuron.

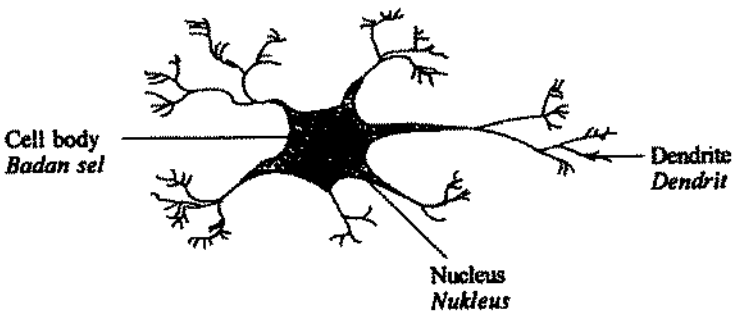


Diagram 1
Rajah 1

Name the neurone.
Namakan neuron ini.

A Motor neurone
Neuron motor
B Sensory neurone
Neuron deria
C Relay neurone
Neuron perantaraan
D Proprioceptors
Reseptor regang

2 Diagram 2 shows the main parts of the human brain.
Rajah 2 menunjukkan bahagian utama otak manusia.

Which parts of the brain is involved in controlling the heart beat?
Bahagian otak yang manakah terlibat dalam mengawal denyutan jantung?

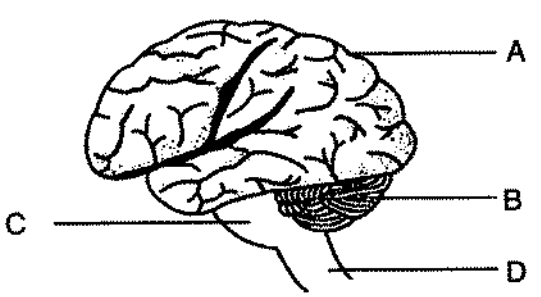


Diagram 2
Rajah 2

3 Diegram 3 shows en endocrine gland.
Rajah 3 menunjukkan kelenjar endokrin.

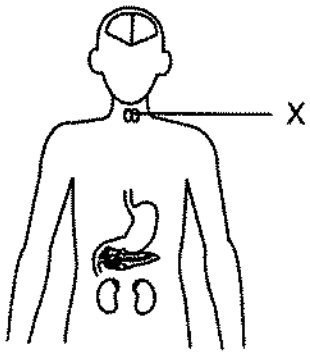


Diagram 3
Rajah 3

State the effect of deficient hormonal secretion by X gland.
Nyatakan kesan kekurangan hormon yang dirembeskan oleh kelenjar X.

A Can cause diabetes
Menyebabkan diabetes
B Muscles become weak
Otot menjadi lemah
C Irregular menstrual cycle
Kitar haid yang tidak tetap
D Metabolism becomes less active
Metabolisma menjadi kurang aktif

4 Diagram 4 shows the cross-breeding between a red flower plant with a white flower plant.
Rajah 4 menunjukkan pembiakbakaan antara tumbuhan berbunga merah dengan tumbuhan berbunga putih.

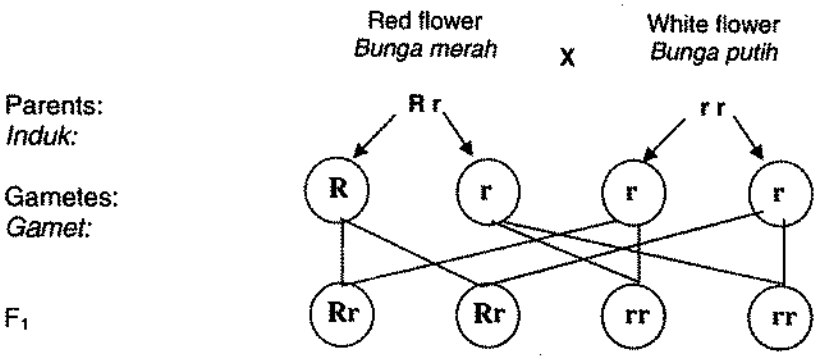


Diagram 4
Rajah 4

What is the phenotype ratio of the red flower plant to the white flower plants in the offspring?
Berapakah nisbah fenotip oleh tumbuhan berbunga merah kepada tumbuhan berbunga putih dalam anak pokok?

A 1 : 1
B 1 : 3
C 3 : 1
D 4 : 0

5 Which of the following is caused by chromosomal mutation?
Antara berikut, manakah disebabkan oleh mutasi kromosom?

A Albinism
Albino
B Colour blindness
Buta warna
C Sickle-cell anemia
Anemia sel sabit
D Klinefelter's syndrome
Sindrom Klinefelter

6 Diagram 5 shows the fertilization of two ova by sperm P and sperm Q.
Rajah 5 menunjukkan persenyawaan dua ovum oleh sperma P dan sperma Q.

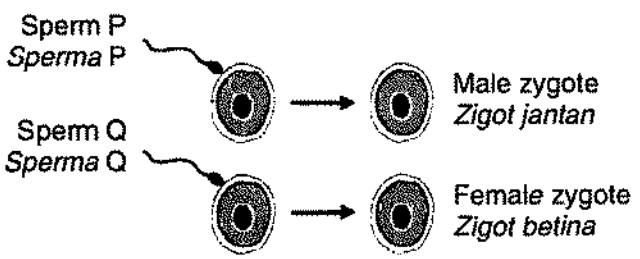


Diagram 5
Rajah 5

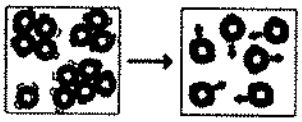
What is the number of chromosomes of sperm P and sperm Q?
Berapakah bilangan kromosom sperma P dan sperma Q?

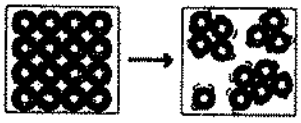
	Sperm P *Sperma P*	Sperm Q *Sperma Q*
A	22 + Y	22 + X
B	22 + X	22 + Y
C	44 + XY	44 + XX
D	44 + XX	44 + XY

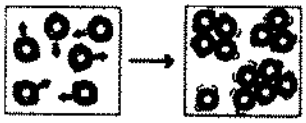
7 The chromosomes present in the female skin cells are
Kromosom yang terdapat dalam sel kulit perempuan ialah

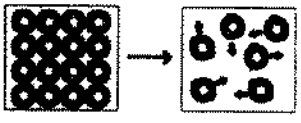
A 22 + Y
B 22 + X
C 44 + XX
D 44 + XY

8 Which of the following represents the condensation process?
Antara berikut, manakah mewakili proses kondensasi?

A 

B 

C 

D 

9 Diagram 6 shows the structure of *an* atom.
Which parts **A, B, C** or **D** is the neutron?

Rajah 6 *menunjukkan struktur untuk satu atom.*
Antara bahagian **A, B, C** *dan* **D** *yang manakah adalah neutron?*

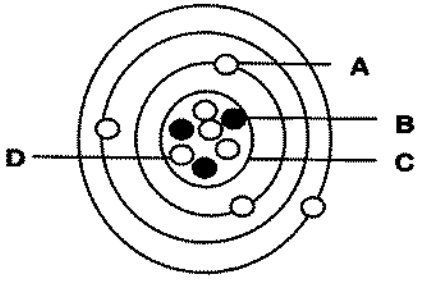
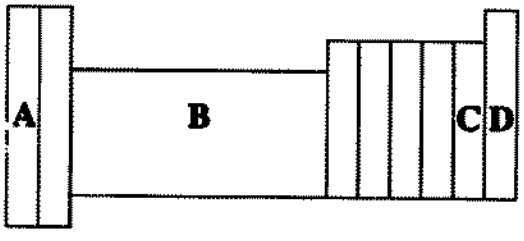


Diagram 6
Rajah 6

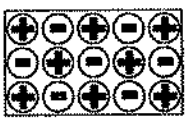
10 Diagram 7 shows a Periodic Table.
Which of the following groups **A, B, C** and **D** are Halogen?

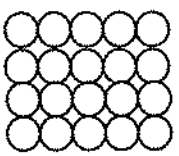
Rajah 7 *menunjukkan Jadual Berkala.*
Antara kumpulan **A, B, C,** *dan* **D** *manakah ialah Halogen?*

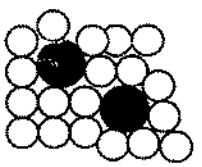


11 Which of the following represents ionic substance?
Antara berikut, manakah mewakili bahan ion?

A 

B 

C 

D 

12 Which of the following is a physical change?
Manakah antara berikut menunjukkan perubahan fizik?

A Boiling of water
Pendidihan air
B Heating of zinc carbonate
Pemanasan zink karbonat
C Heating of iron and sulphur
Pemanasan besi dan sulfur
D Putting a piece of calcium into water
Meletakkan secebis kalsium ke dalam air

13 The following word equation shows a chemical reaction.
Persamaan perkataan berikut menunjukkan suatu tindak balas kimia.

Sodium + water → alkaline solution + gas X
Natrium + air → larutan alkali + gas X

What is gas X?
Apakah gas X?

A Oxygen
Oksigen
B Hydrogen
Hidrogen
C Nitrogen
Nitrogen
D Carbon dioxide
Karbon dioksida

14 Diagram 8 shows *a* simple cell.
Rajah 8 *menunjukkan satu sel ringkas.*

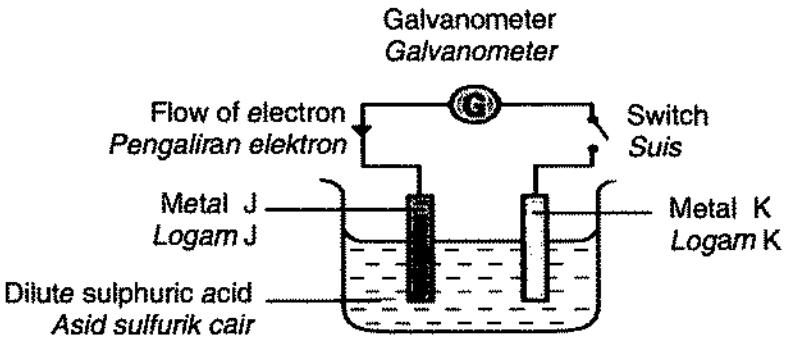


Diagram 8
Rajah 8

Which of the following pairs of metals produce highest voltage?
Antara pasangan logam berikut, manakah menghasilkan voltan paling tinggi?

	Metal J *Logam* J	Metal K *Logam* K
A	Zinc *Zink*	Aluminium *Aluminium*
B	Copper *Kuprum*	Magnesium *Magnesium*
C	Aluminium *Aluminium*	Iron *Besi*
D	Magnesium *Magnesium*	Lead *Plumbum*

15 Diagram 9 shows the sequence of energy transformation which occurs in a nuclear power station.
Rajah 9 menunjukkan urutan perubahan tenaga yang berlaku dalam stesen janakuasa nuklear.

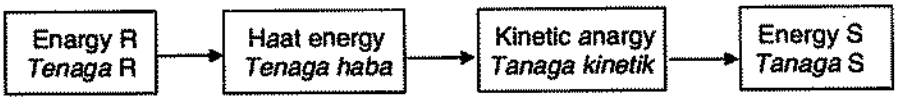


Diagram 9
Rajah 9

What are energies R and S?
Apakah tenaga R dan S?

	Energy R *Tenaga R*	Energy S *Tanaga S*
A	Nuclear energy *Tenaga nuklear*	Electrical energy *Tenaga elektrik*
B	Electrical energy *Tenaga elektrik*	Chemical energy *Tenaga kimia*
C	Chemical energy *Tenaga kimia*	Electrical energy *Tenaga elektrik*
D	Potential energy *Tenaga keupayaan*	Nuclear energy *Tenaga nuklear*

16 Radioisotope X is used to study the process of photosynthesis in a plant.
Radioisotop X digunakan untuk mengkaji proses fotosintesis dalam tumbuhan.

What is X?
Apakah X?

A Cobalt-60
Kobalt-60
B Sodium-24
Natrium-24
C Carbon-14
Karbon-14
D Iodine-131
Iodin-131

17 Which of the following conditions is caused by excessive exposure to radiation?
Antara berikut, yang manakah kesan akibat pendedahan kepada radioaktif yang berlebihan?

A Tetanus
Kancing gigi
B Mutation
Mutasi
C Tuberculosis
Batuk kering
D Night blindness
Rabun malam

[Lihat sebelah

18 Diagram 10 shows the overlapping of the coloured light.
Rajah 10 menunjukkan pertindihan cahaya berwarna.

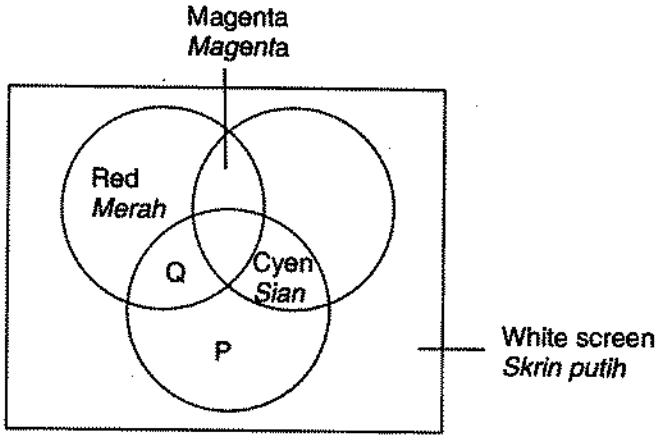


Diagram 10
Rajah 10

What is the colour of light at P and Q?
Apakah warna cahaya pada P dan Q?

	P	Q
A	Blue *Biru*	Yellow *Kuning*
B	Green *Hijau*	Blue *Biru*
C	Yellow *Kuning*	Green *Hijau*
D	Green *Hijau*	Yellow *Kuning*

19 Diagram 11 shows the white light passing through a glass prism. A magenta and blue filter is placed between the prism and the white screen.
Rajah 11 menunjukkan cahaya putih yang dilalukan melalui prisma. Penapis magenta dan biru diletakkan antara prisma kaca dan skrin putih.

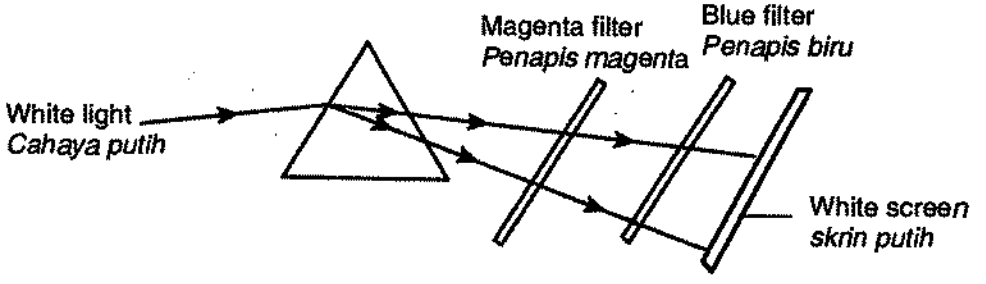


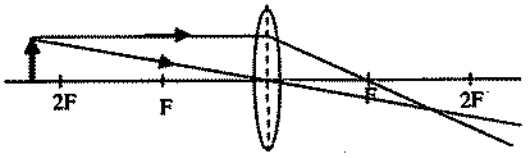
Diagram 11
Rajah 11

Which light colour that can be seen on white screen ?
Manakah warna cahaya yang kelihatan pada skrin putih?

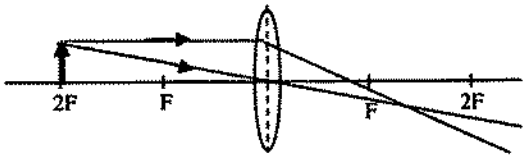
A Red
Merah
B Blue
Biru
C Violet
Ungu
D Magenta
Magenta

20 Which of the following is the **correct** ray diagram of light from object passing through *a* convex lens?
*Antara berikut yang manakah **benar** tentang gambar rajah sinar cahaya dari objek yang melalui kanta cembung?*

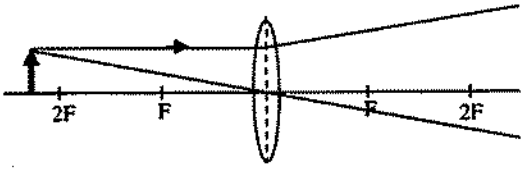
A



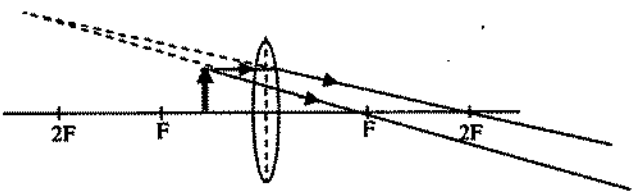
B



C



D



21 Diagram 12 shows a candle placed in front of *a* plane mirror.
Rajah 12 *menunjukkan sebatang lilin yang diletakkan di hadapan sebuah cermin satah.*

Which is the **correct** position of the image of the candle?
Manakah kedudukan yang ***betul*** *bagi imej lilin tersebut?*

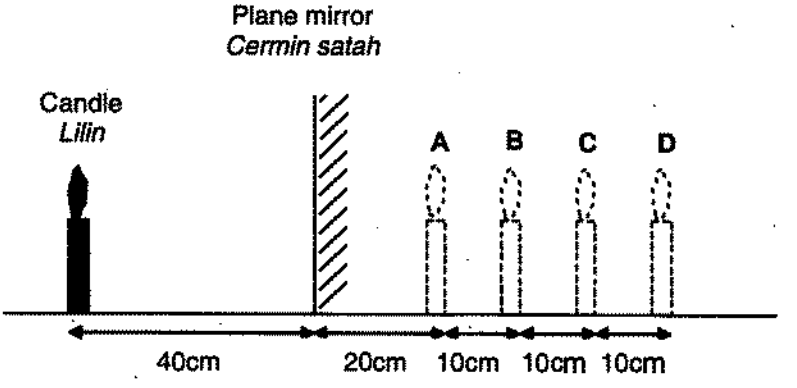


Diagram 12
Rajah 12

22 Diagram 13 shows *a* musical instruments that made of brass.
Rajah 13 *menunjukkan alat muzik yang dibuat daripada loyang.*

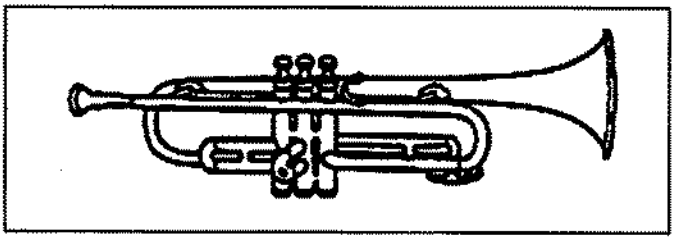


Diagram 13
Rajah 13

What is the main metal used?
Apakah logam utama yang digunakan?

A Tin
Timah
B Zinc
Zink
C Ferum
Besi
D Copper
Kuprum

23 The following word equation shows the formation of ammonia gas.
Persamaan perkataan berikut menunjukkan penghasilan gas ammonia.

Nitrogen	+	Hydrogen	Catalyst Z	Ammonia
Nitrogen	+	*Hidrogen*	*Mangkin Z*	*Ammonia*

What is catalyst Z?
Apakah mangkin Z?

A Ferum
Besi
B Carbon
Karbon
C Sulphur
Sulfur
D Vanadium (V) oxide
Vanadium (V) oksida

24 Fertilizer X is produced through the reaction of ammonia gas and carbon dioxide gas.
Baja X dihasilkan melalui tindak balas di antara gas ammonia dan gas karbon dioksida.

What is X?
Apakah X?

A Urea
Urea
B Ammonium Nitrate
Ammonium Nitrat
C Ammonium Chloride
Ammonium klorida
D Ammonium Carbonate
Ammonium Karbonat

25 Diagram 14 shows a type of microorganism X.
Rajah 14 menunjukkan sejenis mikroorganisma X.

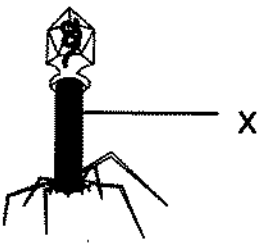
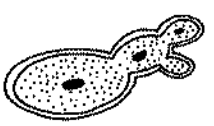


Diagram 14
Rajah 14

Which of the following microorganisms is the same group with microorganism X?
Manakah antara mikroorganisma berikut, merupakan kumpulan yang sama dengan mikroorganisma X?

A

B



C

D

26 Diagram 15 shows the effect of temperature on bacteria growth.
Rajah 15 menunjukkan kesan suhu ke atas pertumbuhan bakteria.

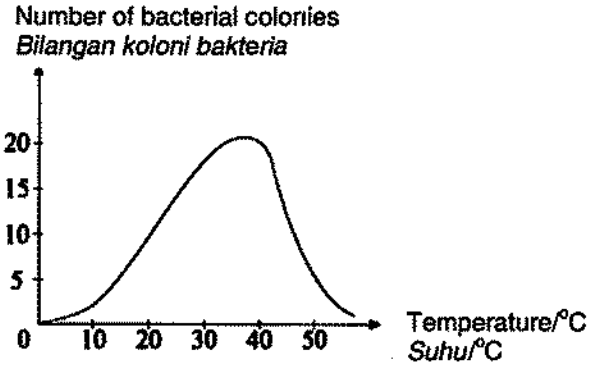


Diagram 15
Rajah 15

What is the optimum temperature for the growth of bacteria?
Apakah suhu optimum untuk pertumbuhan bakteria ?

A 0°C
B 20°C
C 37°C
D 45°C

27 The following information shows symptoms of a disease.
Maklumat berikut menunjukkan gejala sejenis penyakit.

Fever, sore throat, headache and running nose *Demam, sekit kerongkong, sakit kepala dan hidung berair*

What is the disease?
Apekah penyakit itu?

A Syphilis
Sifilis
B Influenza
Selesema
C Gonorrhea
Gonorea
D Tuberculosis
Batuk kering

28 Diagram 16 shows the graph of *a* type of immunity.
Rajah 16 *menunjukkan graf sejenis keimunan.*

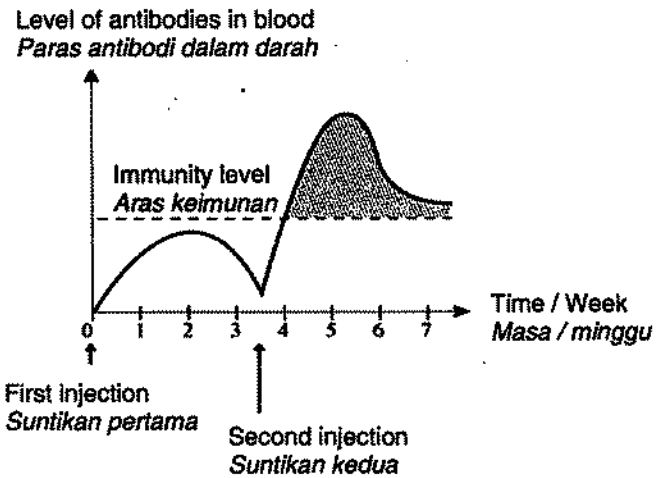


Diagram 16
Rajah 16

What is the type of immunity shown?
Apakah jenis keimunan yang ditunjukkan?

A Natural active immunity
Keimunan aktif semula jadi
B Natural passive immunity
Keimunan pasif semula jadi
C Artificial active immunity
Keimunan aktif buatan
D Artificial passive immunity
Keimunan pasif buatan

29 Deficiency of which class of food causes scurvy?
Kekurangan kelas makanan yang manakah menyebabkan penyakit skurvi?

A Carbohydrate
Karbohidrat
B Vitamin C
Vitamin C
C Protein
Protein
D Fat
Lemak

30 Diagram 17 shows part of nitrogen cycle.
Rajah 17 menunjukkan sebahagian daripada kitar nitrogen.

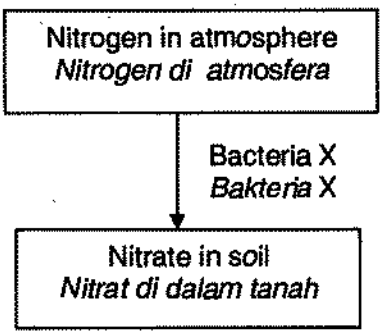


Diagram 17
Rajah 17

What is bacteria X?
Apakah bakteria X?

A Nitrifying bacteria
Bakteria penitritan
B Denitrifying bacteria
Bakteria pendenitritan
C Decomposing bacteria
Bakteria pereputan
D Nitrogen-fixing bacteria
Bakteria pengikat nitrogen

31 Table 1 shows the calorific value for three types of food.
Jadual 1 menunjukkan nilai kalori untuk tiga jenis makanan.

Food *Makanan*	Calorific Value (kJg^{-1}) *Nilai kalori* (kJg^{-1})
Bread *Roti*	10.0
Cheese *Keju*	30.0
Milk *Susu*	3.0

Table 1
Jadual 1

A boy eats 200 g of bread, 5 g of cheese and 50 g of milk for breakfast.
Calculate the calorific value in his food.
Seorang budak lelaki makan 200 g roti, 5 g keju dan 50 g susu untuk sarapan.
Hitung nilai kalori dalam makanannya.

A 2300 kJ
B 320 kJ
C 255 kJ
D 43 kJ

32 Diagram 18 shows the green plants and animals in an environment involved in the carbon cycle.
Rajah 18 menunjukkan tumbuhan hijau dan haiwan yang terlibat dengan kitar karbon dalam suatu persekitaran.

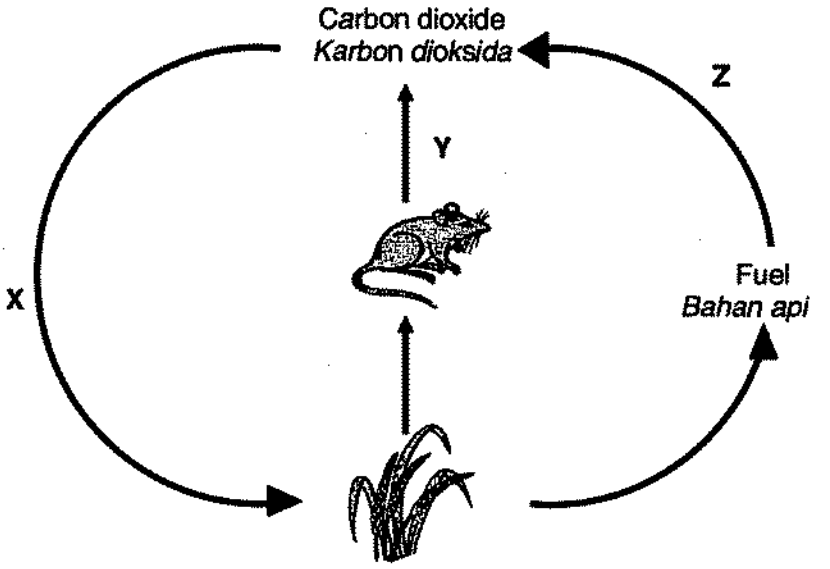


Diagram 18
Rajah 18

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

	X	Y	Z
A	Respiration *Respirasi*	Photosynthesis *Fotosintesis*	Decomposition *Pereputan*
B	Photosynthesis *Fotosintesis*	Respiration *Respirasi*	Transpiration *Pepeluhan*
C	Respiration *Respirasi*	Photosynthesis *Fotosintesis*	Combustion *Pembakaran*
D	Photosynthesis *Fotosintesis*	Respiration *Respirasi*	Combustion *Pembakaran*

33 Diagram 19 shows acid rain phenomenon.
Rajah 19 menunjukkan fenomena hujan asid.

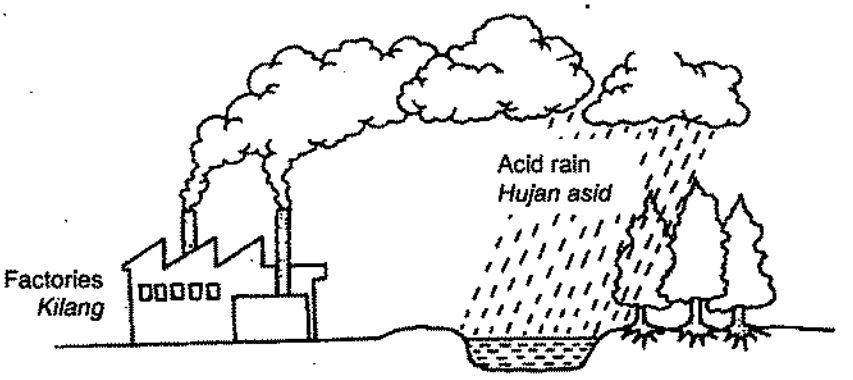


Diagram 19
Rajah 19

Which of the following gases contributes the **most** to the phenomena?
Manakah antara gas berikut, penyumbang ***utama*** *kepada fenomena tersebut?*

A Carbon dioxide
Karbon dioksida
B Sulphur dioxide
Sulfur dioksida
C Carbon monoxide
Karbon monoksida
D Chloroflourocarbon
Kloroflourokarbon

34 Diagram 20 shows *a* food chain.
Rajah 20 menunjukkan satu rantai makanan.

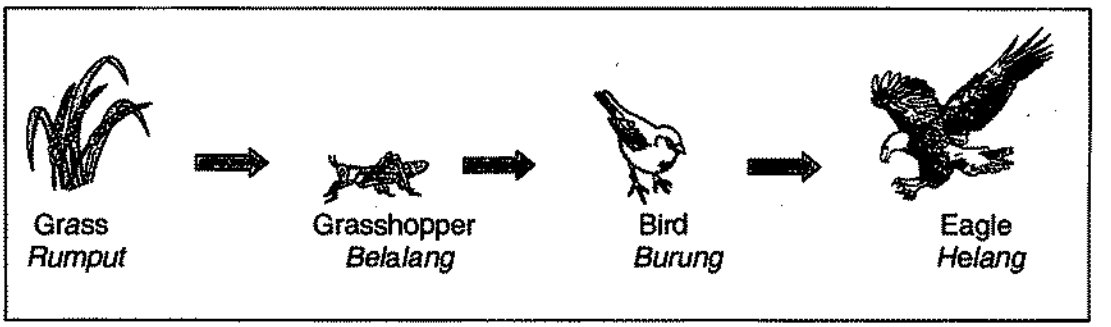


Diagram 20
Rajah 20

What will happen to the grass and bird population if the grasshoppers are eliminated?
Apa yang akan berlaku kepada populasi rumput dan burung apabila belalang berkurangan?

	Grass *Rumput*	Bird *Burung*
A	Increase *Bertambah*	Increase *Bertambah*
B	Increase *Bertambah*	Decrease *Berkurang*
C	Decrease *Berkurang*	Increase *Bertambah*
D	Decrease *Berkurang*	Decrease *Berkurang*

35 The following word equation shows *a* chemical reaction.
Persamaan perkataan berikut menunjukkan suatu tindak balas kimia.

Fat + Z $\xrightarrow{\text{Heated}}$ Soap + Glyserol
Lemak + Z $\xrightarrow{\text{Panaskan}}$ *Sabun* + *Gliserol*

What is Z?
Apakah Z?

A Carbon
Karbon
B Ethanol
Etanol
C Sodium Hydroxide
Natrium Hidroksida
D Calcium Carbonate
Kalsium Karbonat

36 Diagram 21 shows a process in the production of a synthetic material.
Rajah 21 *menunjukkan suatu proses penghasilan bahan sintetik.*

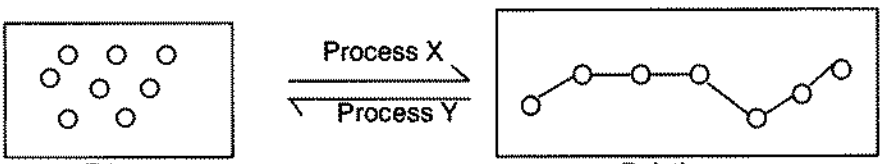


Diagram 21
Rajah 21

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

	Process X	Process Y
A	Polimerization *Pempolimeran*	Combustion *Pembakaran*
B	Polimerization *Pempolimeran*	Depolimerization *Penyahpolimeran*
C	Depolimerization *Penyahpolimeran*	Polimerization *Pempolimeran*
D	Depolimerization *Penyahpolimeran*	Vulcanization *Pemvulkanan*

37 Which of the following substances can prevent coagulate of latex?
Antara bahan berikut yang manakah dapat mencegah pengumpalan lateks?

A Ethanol
Etanol
B Ethanoic acid
Asid etanoik
C Hydrochloric acid
Asid hidroklorik
D Ammonia solution
Larutan ammonia

38 Diagram 22 shows the force acting on an aeroplane when it is in flight.
Rajah 22 menunjukkan daya-daya yang bertindak ke atas sebuah kapal terbang dalam penerbangan.

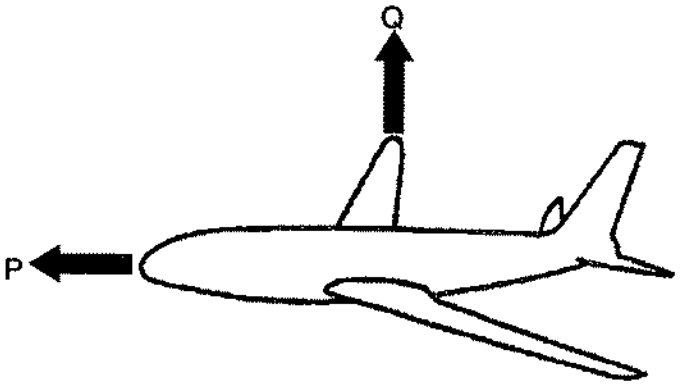


Diagram 22
Rajah 22

Choose the **correct** answer that represent P and Q.
*Pilih jawapan yang **betul** untuk mewakili P dan Q.*

	P	Q
A	Trust *Tujahan*	Lift *Daya angkat*
B	Trust *Tujahan*	Drag *Seretan*
C	Drag *Seretan*	Weight *Berat*
D	Lift *Daya angkat*	Trust *Tujahan*

39 Diagram 23 shows a hydraulic system.
Rajah 23 menunjukkan satu sistem hidraulik.

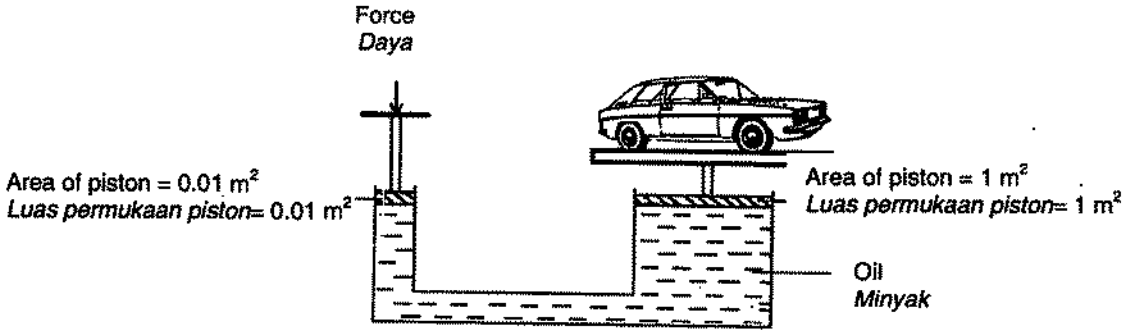


Diagram 23
Rajah 23

How much force is needed to lift a car with a weight of 5000 N?
Berapa banyakkah tenaga yang diperlukan untuk mengangkat kereta yang beratnya 5000 N?

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

$$\textit{Tekanan} = \frac{\textit{Daya}}{\textit{Luas Permukaan}}$$

A 5 N
B 50 N
C 250 N
D 500 N

40 Diagram 24 shows *a* car moving at constant speed on *a* straight road increases its speed from 8.0 ms^{-1} to 20 ms^{-1} in 10 seconds.
Rajah 24 menunjukkan sebuah kereta bergerak pada satu kelajuan malar di satu jalan lurus meningkatkan kelajuannya daripada 8 ms^{-1} *ke* 20 ms^{-1} *dalam masa* 10 *saat.*

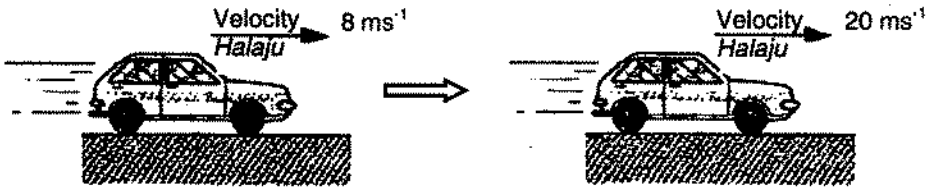


Diagram 24
Rajah 24

Determine the *acceleration* of *a* car.
Tentukan pecutan kereta tersebut.

$$\text{Acceleration} = \frac{\text{change in velocity}}{\text{time taken}} \qquad \textit{Pecutan} = \frac{\textit{perubahan halaju}}{\textit{masa diambil}}$$

A 0.6 ms^{-2}
B 1.2 ms^{-2}
C 1.5 ms^{-2}
D 10.0 ms^{-2}

41 Four vases of the same mass but different shapes *are* placed on *a* table.
Empat buah pasu bunga yang berjisim sama tetapi mempunyai bentuk berbeza diletakkan di atas meja.

Which vase exerts the greatest pressure on the table?
Pasu bunga yang manakah mengenakan tekanan paling tinggi ke atas meja?

42 Bleach is added to food to
Peluntur ditambah kepada makanan untuk

A adds colour to food
menambahkan warna kepada makanan
B makes food tastes better
menjadikan makanan lebih sedap
C improves the texture of the food
memperbaiki tekstur makanan
D removes the natural colour of food
menghilangkan warna semulajadi makanan

43 Farid wishes to import fruits from Thailand.
What are the best method for preserving the freshness of the fruits?

Farid ingin mengimport buah-buahan dari Thailand.
Apakah kaedah yang terbaik untuk mengekalkan kesegaran buah-buahan?

A Canning
Pengetinan
B Refrigeration
Penyejukan
C Deep freezing
Penyejukbekuan
D Vacuum packaging
Pembungkusan vakum

44 The diagram 25 shows an example of *a* food label.
Rajah 25 *menunjukkan contoh label makanan.*

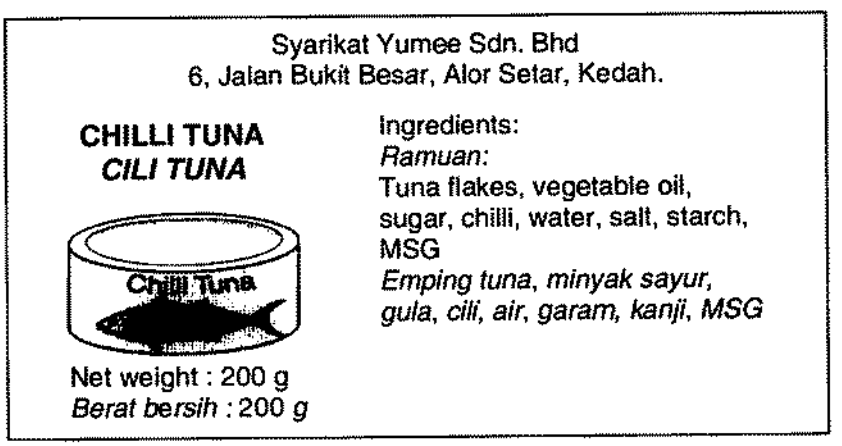


Diagram 25
Rajah 25

Which information **does not found** on the label according to Food Act 1983 and Food Regulation 1985?
Maklumat manakah yang ***tidak terdapat*** *pada label tersebut mengikut Akta Makanan* 1983 *dan Peraturan Makanan* 1985*?*

A Type of food
Jenis makanan
B Expired date
Tarikh luput
C Food contents
Kandungan makanan
D Quantity of food
Kuantiti makanan

45 Which of the following is thermoplastics?
Manakah antara berikut merupakan termoplastik?

A Teflon
Teflon
B Bakelite
Bakelit
C Melamine
Melamina
D Polyvinyl chloride (PVC)
Polivinil klorida (PVC)

46 The following information shows the characteristics of synthetic rubber.
Maklumat berikut menunjukkan ciri-ciri getah sintetik.

- Can withstand heat
  Tahan haba
- Not easily flammable
  Tidak mudah terbakar
- Chemical, oil and water resistant
  Tahan terhadap bahan kimia, minyak dan air

What is the synthetic rubber?
Apakah getah sintetik itu?

A Thlokol
Tiokol
B Neoprene
Neoprena
C Butyl rubber
Getah butil
D Styrene-butadiene
Stirena-butadiena

47 What is the purpose of producing biodegradable plastics?
Apakah tujuan menghasilkan plastik terbiodegradasi?
A Durable
Tahan lasak
B Recyctable
Boleh dikitar semula
C Llightweight
Ringan
D Can decompose naturally
Boleh terurai semulajadi

48 Diagram 26 shows a type of wave.
Rajah 26 menunjukkan sejenis gelombang.

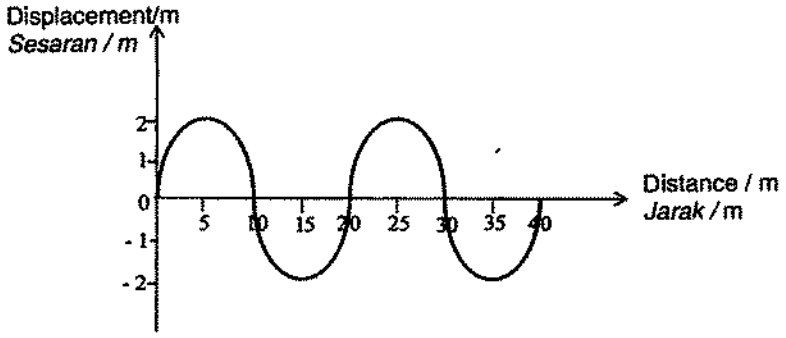


Diagram 26
Rajah 26

What is the velocity of this wave if its frequency is 10 Hz?
Apakah halaju gelombang ini jika frekuensinya adalah 10 Hz?

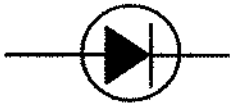
[Velocity = Frequency X wavelength]
[*Halaju = Frekuensi X Jarak gelombang*]

A 10 ms^{-1}
B 100 ms^{-1}
C 200 ms^{-1}
D 300 ms^{-1}

49 Which electronic component is able to amplify the audio frequency signal?
Komponen elektronik manakah boleh menguatkan isyarat frekuensi audio?

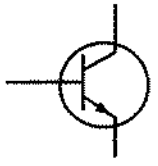
A

B



C

D



50 Diagram 27 shows the position of three communication satellites.
Rajah 27 menunjukkan kedudukan tiga satelit komunikasi.

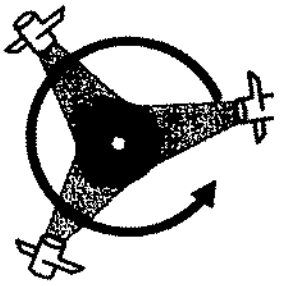


Diagram 27
Rajah 27

How many communication satellites are needed to transmit signals to all over the world?
Berapakah bilangan satelit komunikasi diperlukan untuk penghantaran isyarat ke seluruh dunia?

A 1
B 2
C 3
D 4

END OF QUESTION PAPER

KERTAS SOALAN TAMAT

1511/2
Sains
Kertas 2
September
2011
2½ jam

No. Kad Pengenalan : ..... Angka Giliran : .....

Nama : ..... Tingkatan : .....

PEPERIKSAAN PERCUBAAN BERSAMA SIJIL PELAJARAN MALAYSIA 2011

ANJURAN
MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
CAWANGAN PERLIS

SCIENCE

Paper 2

Two hours and thirty minutes

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Tuliskan nama, nombor kad pengenalan, angka giliran dan tingkatan anda pada ruangan yang disediakan.*
2. *Kertas soalan ini adalah dalam dwibahasa.*
3. *Soalan dalam Bahasa Inggeris mendahului soalan yang sepadan dalam Bahasa Melayu.*
4. *Calon dibenarkan menjawab keseluruhan Bahasa Inggeris atau sebahagian soalan dalam Bahasa Inggeris atau Bahasa Melayu.*
5. *Calon dikehendaki membaca maklumat di halaman 2 kertas soalan ini.*

Untuk Kegunaan Pemeriksa			
Bahagian	Soalan	Markah Penuh	Markah Diperoleh
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 **22** halaman bercetak

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This questions paper consists of three sections : ***Section A, Section B*** and ***Section C***.
Kertas soalan ini 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 **Section B** in the spaces provided in this questions paper.
Jawab semua soalan dalam ***Bahagian A*** *dan* ***Bahagian B***.
Jawapan anda bagi ***Bahagian A*** *dan* ***Bahagian B*** *hendaklah ditulis pada ruang yang disediakan dalam kertas soalan ini.*

3. For **Section C**, answer **Question 10** and either **Question 11** or **Question 12**.
Write your answers for **Section C** on the "helaian tambahan" provided by the invigilators.
You may use equations, diagrams, tables, graphs and other suitable methods to explain your answers.
Bagi ***Bahagian C****, jawab* ***Soalan 10*** *dan sama ada* ***Soalan 11*** *atau* ***Soalan 12***.
Jawapan anda bagi ***Bahagian C*** *hendaklah ditulis dalam helaian tambahan yang dibekalkan oleh pengawas peperiksaan.*

4. The diagrams in the questions provided are not drawn to scale unless stated.
Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.

5. The marks allocated for each sub-part of a questions are shown in brackets.
Markah yang diperuntukkan bagi setiap ceraian soalan ditunjukkan dalam kurungan.

6. If you wish to change your answer, cross out the answer that you have done. Then write down the new answer.
Jika anda hendak menukar jawapan, batalkan jawapan yang telah dibuat. Kemudian tulis jawapan yang baru.

7. You may use a non-programmable scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram.

8. You are advised to spend 60 minutes to answer questions in **Section A**, 50 minutes for **Section B** and 40 minutes for **Section C**.
Anda dinasihati supaya mengambil masa 60 minit untuk menjawab soalan dalam ***Bahagian A****, 50 minit untuk* ***Bahagian B*** *dan 40 minit untuk* ***Bahagian C***.

9. Detach **Section C** from this question paper. Tie the "helaian tambahan" together with this question paper and hand in to the invigilator at the end of the examination.
Ceraikan ***Bahagian C*** *daripada kertas soalan ini. Ikat helaian tambahan bersama-sama kertas soalan ini dan serahkan kepada pengawas peperiksaan pada akhir peperiksaan.*

Section A
Bahagian A

[20 marks]
[20 markah]

Answer all the questions in this section.
Jawab semua soalan dalam bahagian ini.

For Examiner's Use

1 Diagram 1.1 and Diagram 1.2 show an experiment to study the electrical conductivity of Lead (II) Bromide.
Rajah 1.1 *dan Rajah* 1.2 *menunjukkan eksperimen untuk mengkaji kekonduksian elektrik Plumbum*(II) *Bromida.*

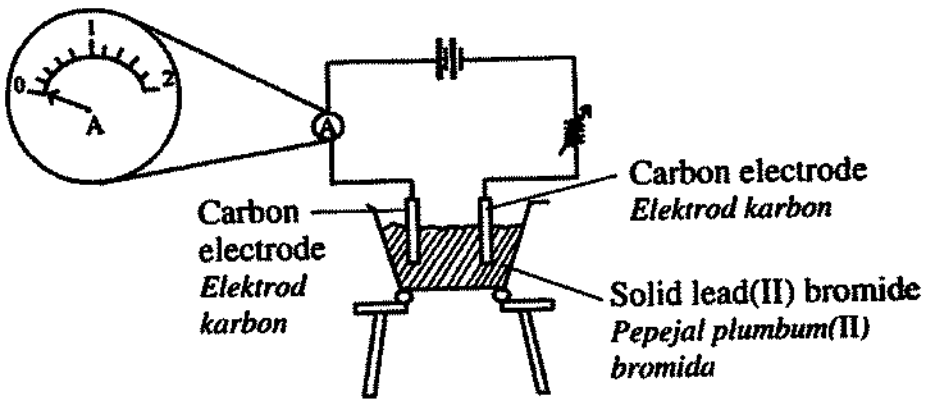


Diagram 1.1
Rajah 1.1

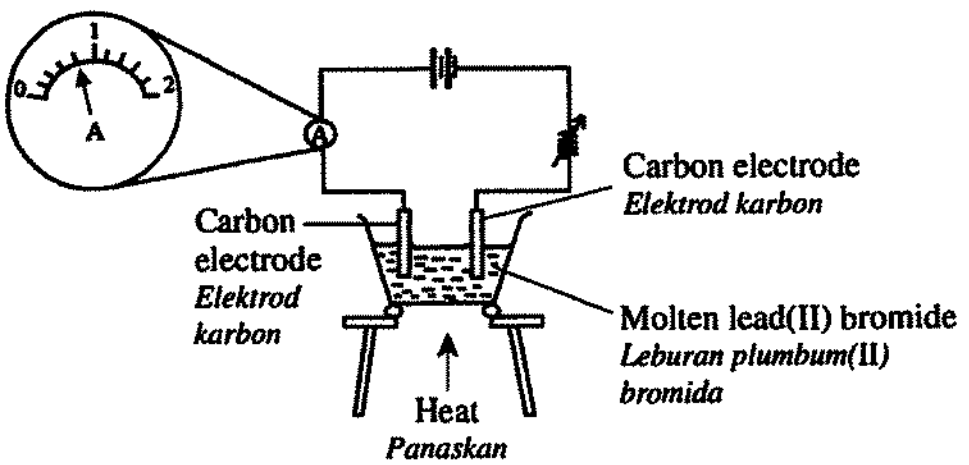


Diagram 1.2
Rajah 1.2

(a) What is the reading of the ammeter in Diagram 1.2?
Apakah bacaan ammeter pada Rajah 1.2?

.....A

[1 *mark*]
[1 *markah*]

1(a) 1

(b) (i) Based on Diagram 1.2, what is your observation on the needle of the ammeter?
Berdasarkan Rajah 1.2, apakah pemerhatian anda pada jarum ammeter?

.....

1(b)(i) 1

(ii) State **one** inference for this experiment.
Nyatakan **satu** *inferens bagi eksperimen ini.*

.....

[2 *marks*]
[2 *markah*]

1(b)(ii) 1

(c) Tick (√) in the box the *manipulated* variable.
Tandakan (√) dalam kotak pembolehubah dimanipulasi.

Reading of the *ammeter* *Bacaan ammeter*	
The state of the Lead(II) Bromide *Keadaan Plumbum(II) Bromida*	
The volume of Lead(II) Bromide *Isipadu Plumbum(II) Bromida*	

[1 *mark*]
[1 *markah*]

1(c) 1

(d) Predict the reading of the *ammeter* in Diagram 1.2 if *molten* Lead(II) Bromide is replaced with Napthalene.
Ramalkan bacaan ammeter dalam Rajah 1.2 jika leburan Plumbum(II) Bromida diganti dengan Naftalena.

.....

[1 *mark*]
[1 *markah*]

1(d) 1

Total A1 5

2 Diagram 2.1 and Diagram 2.2 shows the experiment to study the relationship between the thickness of the lens and its focal length.
Rajah 2.1 *dan Rajah* 2.2 *menunjukkan satu eksperimen untuk mengkaji hubungan antara ketebalan kanta dengan jarak fokusnya.*

Lens A
Kanta A

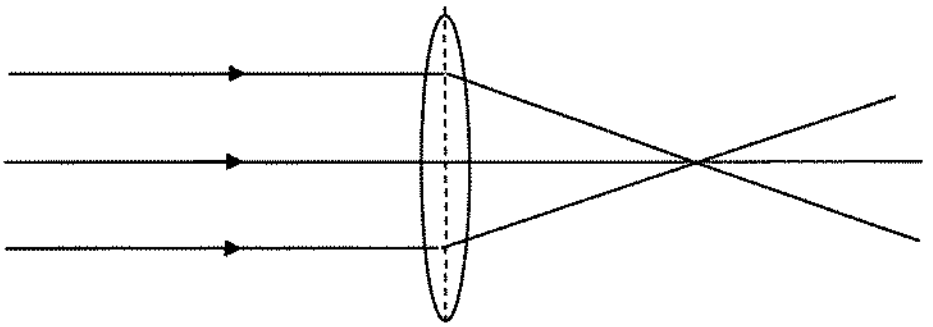


Diagram 2.1
Rajah 2.1

Lens B
Kanta B

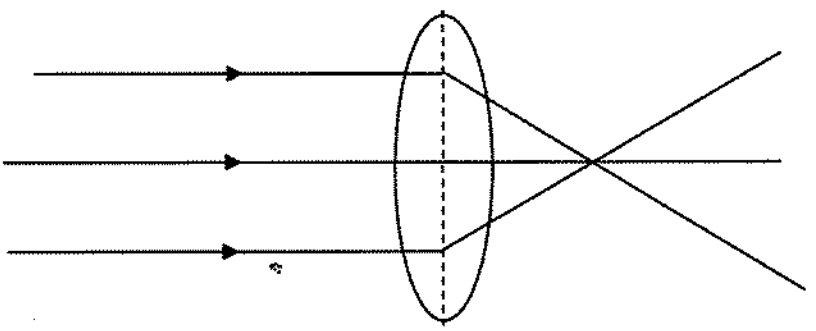


Diagram 2.2
Rajah 2.2

2(a)

1

(a) Based on Diagram 2.2, measure and write down the focal length of lens B.
Berdasarkan Rajah 2.2, *ukur dan catatkan jarak fokus kanta* B.

.....cm

[1 mark]
[1 *markah*]

(b) Observed Diagram 2.1 and Diagram 2.2.
State an observation of this experiment.
Perhatikan Rajah 2.1 dan Rajah 2.2.
Nyatakan pemerhatian dalam eksperimen ini.

.....

[1 mark]
[1 *markah*]

2(b) 1

(c) State the hypothesis for this experiment.
Nyatakan hipotesis bagi eksperimen ini.

.....

[1 mark]
[1 *markah*]

2(c) 1

(d) Draw ray diagram for concave lens in Diagram 2.3.
Lukis gambar rajah sinar bagi kanta cekung pada Rajah 2.3.

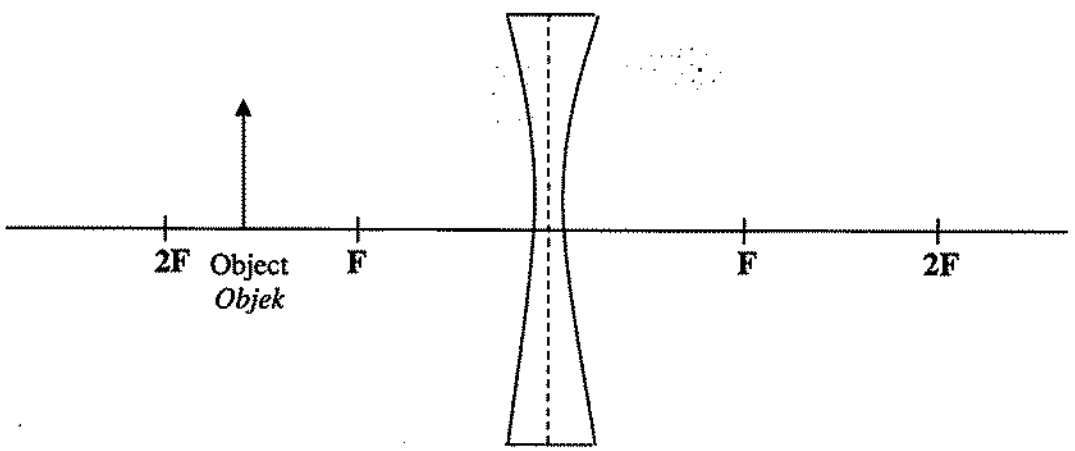


Diagram 2.3
Rajah 2.3

2(d) 2

[2 marks]
[2 *markah*]

Total A2 5

3 Diagram 3 shows an experiment to study the effect of different concentration of an antibiotic **P,Q,R,S** and **T** on bacterial growth.
Rajah 3 menunjukkan eksperimen untuk mengkaji kesan antibiotik **P,Q,R,S** *dan* **T** *yang mempunyai kepekatan berbeza ke atas pertumbuhan bakteria.*

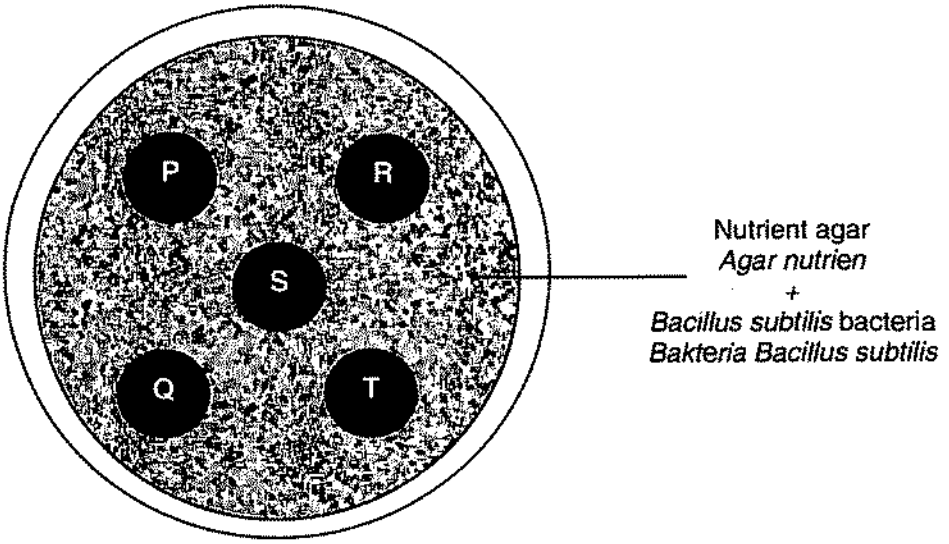


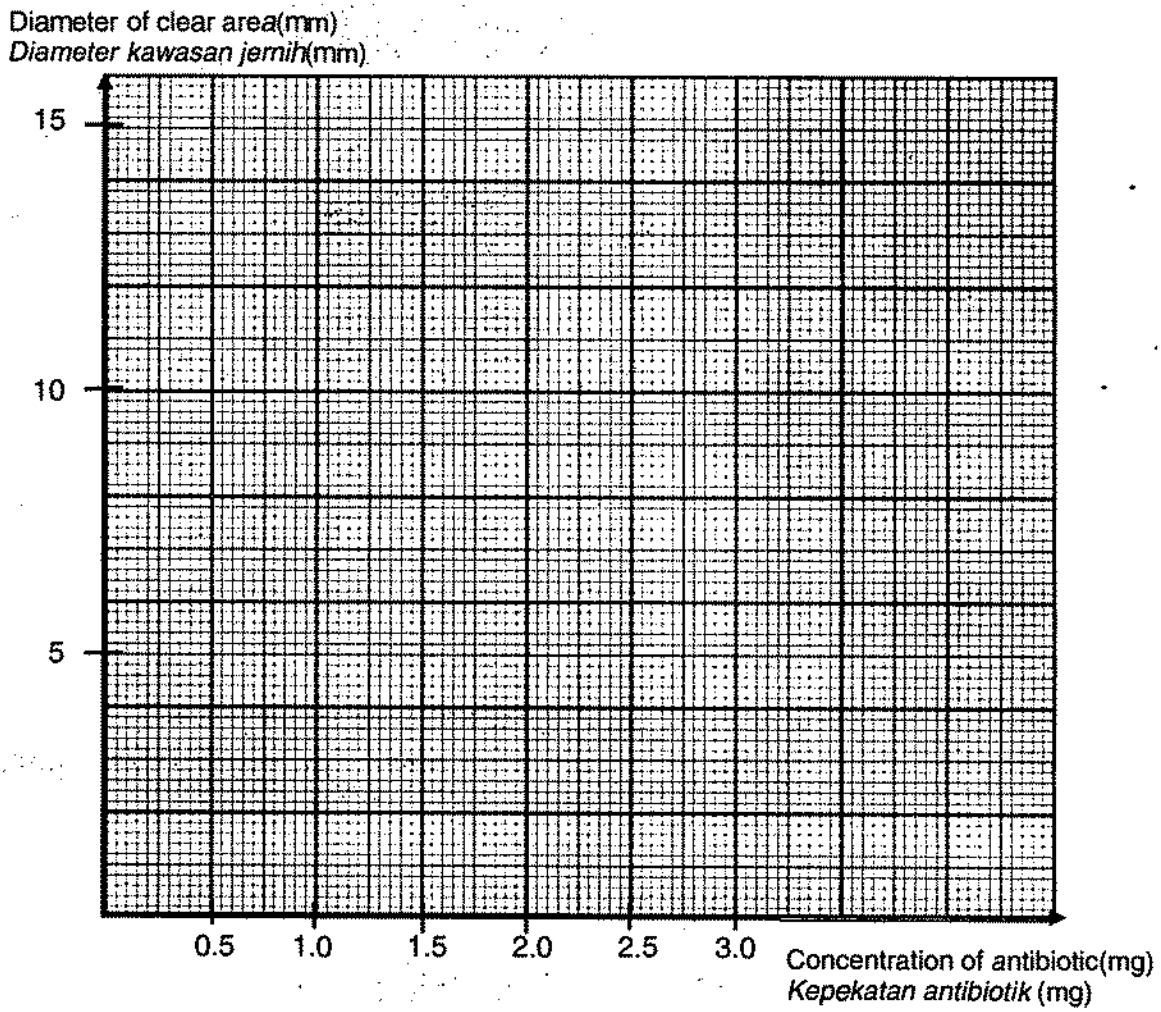
Diagram 3
Rajah 3

The diameter of clear area was measured after 2 days. The result of the experiment is shown in Table 3.
Diameter kawasan jernih diukur selepas 2 hari. Keputusan eksperimen ditunjukkan dalam Jadual 3.

Antibiotic *Antibiotik*	Concentration of an antibiotic/mg *Kepekatan antibiotik/mg*	Diameter of the clear area/mm *Diameter kawasan jernih /mm*
P	0.5	3.0
Q	1.0	6.0
R	1.5	.....
S	2.0	12.0
T	2.5	15.0

Table 3
Jadual 3

(a) Based on Table 3, draw *a* graph to show the diameter of clear area against the concentration of antibiotic.
Berdasarkan Jadual 3, *lukis graf diameter kawasan jernih melawan kepekatan antibiotik.*



[2 marks]
[2 markah]

3(a) 2

(b) Based on the graph in (*a*), determine the diameter of the clear area for an antibiotic R in Table 3.
Berdasarkan graf di (a), *tentukan diameter kawasan jernih bagi antibiotik* R *dalam Jadual* 3.

.....mm

[1 mark]
[1 *markah*]

3(b) 1

(c) What is the relationship between the diameter of clear area and the concentration of an antibiotic.
Apakah hubungan antara diameter kawasan jernih dengan kepekatan antibiotik.

.....

.....

[1 mark]
[1 *markah*]

3(c) 1

(d) Based on the experiment, state the operational definition of an antibiotic.
Berdasarkan eksperimen, nyatakan definisi secara operasi bagi antibiotik.

.....

[1 mark]
[1 *markah*]

3(d) 1

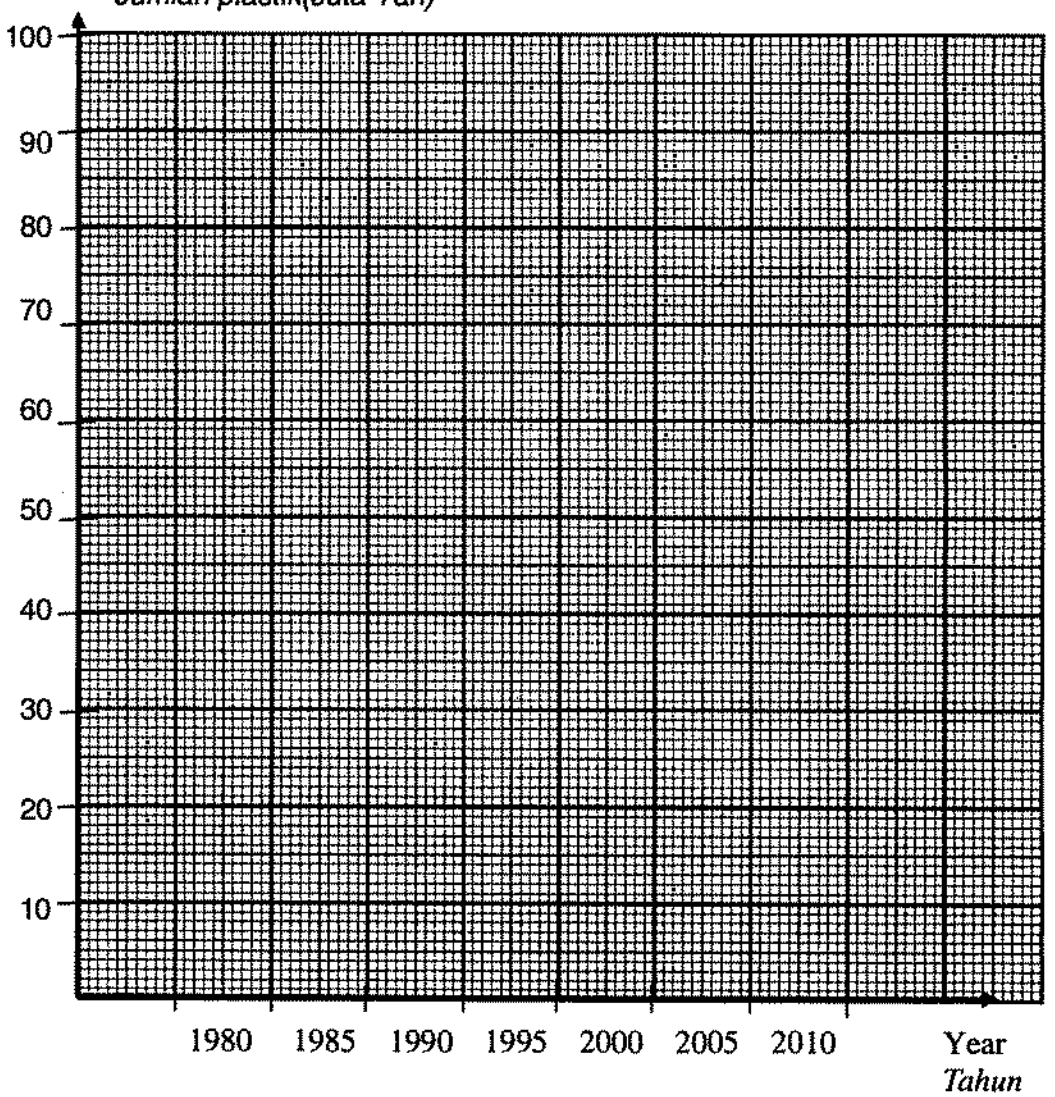
Total A3 5

4 Table 4 shows the estimated amounts of plastics used on Earth from 1980 to 2010.
Jadual 4 menunjukkan anggaran jumlah plastik yang digunakan di bumi dari tahun 1980 ke 2010.

Year *Tahun*	Amount of Plastic used((Millon Tons) *Jumlah Plastik yang digunakan (Juta Tan)*
1980	12
1985	20
1990	29
1995	40
2000	55
2005	
2010	100

Table 4
Jadual 4

(a) Based on Table 4, plot a bar chart to show the estimated amounts of plastics used from 1980 to 2010.
Berdasarkan Jadual 4, plotkan carta palang untuk menunjukkan anggaran jumlah plastik yang digunakan dari tahun 1980 ke 2010.



[2 marks]
[2 *markah*]

4(a) 2

(b) Based on the graph, what is the relationship between the amount of plastics used and year.
Berdasarkan graf, apakah hubungan antara jumlah plastik yang digunakan dengan tahun.

.....

.....

[1 mark]
[1 *markah*]

4(b) 1

(c) Predict the estimated amount of plastics that will be used in 2005.
Ramalkan anggaran jumlah plastik yang digunakan pada tahun 2005.

.....

[1 mark]
[1 *markah*]

4(c) 1

(d) Mark (√) in the boxes provided the examples of plastics.
Tandakan (√) *pada petak yang disediakan contoh-contoh plastik.*

Melamine *Melamina*	Teflon *Teflon*	Neoprene *Neoprena*	Polistyrene *Polistirena*

[1 mark]
[1 *markah*]

4(d) 1

Total
A4 5

Section B
Bahagian B

[30 marks]
[30 *markah*]

Answer **all** questions in this section.
Jawab **semua** *soalan dalam bahagian ini.*

For Examiner's Use

5 Diagram 5 shows the reflex action of knee jerk.
Rajah 5 menunjukkan tindakan refleks bagi sentakan lutut.

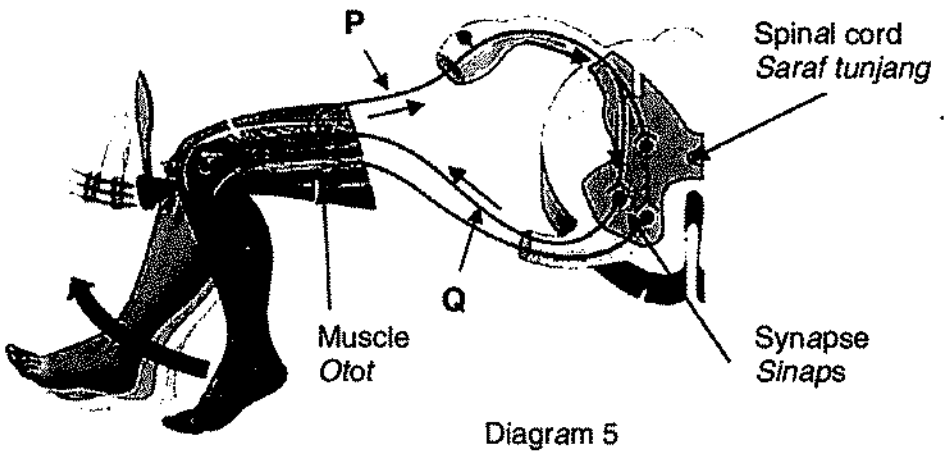


Diagram 5
Rajah 5

(a) (i) Name neurone P.
Namakan neuron P.

.....

[1 mark]
[1 *markah*]

5(a)(i) 1

(ii) What is the function of the neurone P?
Apakah fungsi neuron P*?*

.....

[1 mark]
[1 *markah*]

5(a)(ii) 1

(b) Tick (✓) the part that control this action.
Tandakan (✓) bahagian yang mengawal tindakan ini.

Cerebellum *Serebelum*	Spinal cord *Saraf tunjang*	Medulla oblongata *Medula oblongata*

[1 mark]
[1 *markah*]

5(b) 1

(c) Give **one** example of a reflex action.
Berikan **satu** *contoh lain bagi tindakan refleks.*

.....

[1 mark]
[1 *markah*]

5(c) 1

(d) Which neurone **does not** take part in knee jerk?
Neuron manakah yang ***tidak terlibat*** *dalam sentakan lutut?*

.....

[1 mark]
[1 *markah*]

5(d) 1

(e) What is the importance of reflex action in humans?
Apakah kepentingan tindakan refleks bagi manusia?

.....

[1 mark]
[1 *markah*]

5(e) 1

Total B5 6

6 Diagram 6 shows the penetration power of radioactive rays.
Rajah 6 *menunjukkan kuasa penembusan sinaran radioaktif.*

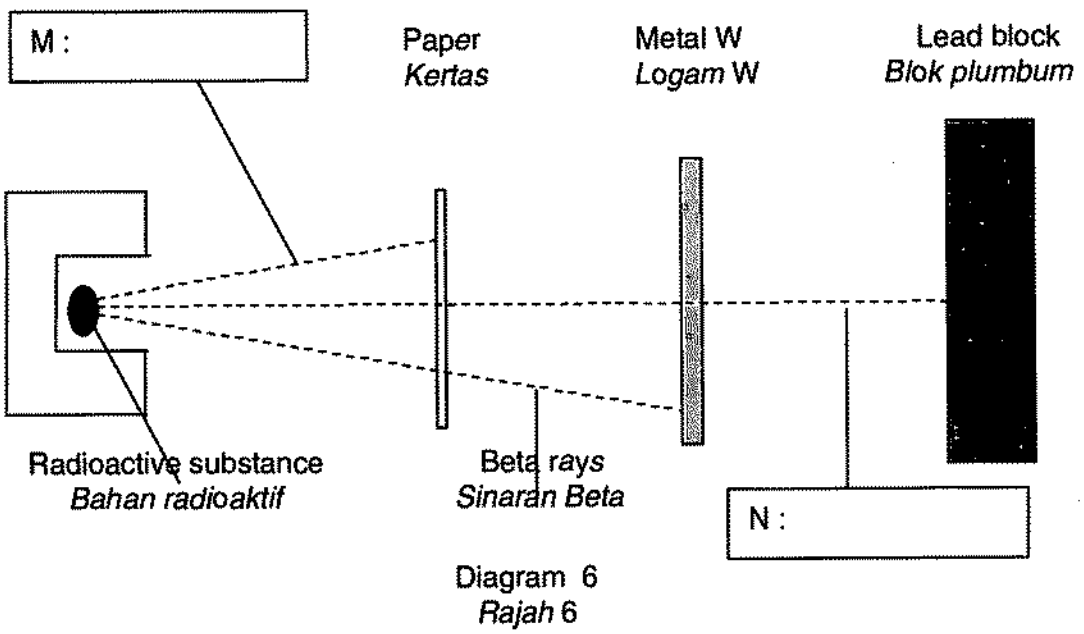


Diagram 6
Rajah 6

(a) Name the radioactive rays labelled as M and N in the box provided.
Namakan sinar radioaktif berlabel M *dan* N *dalam kotak yang disediakan.*

[2 marks]
[2 *markah*]

6(a) 2

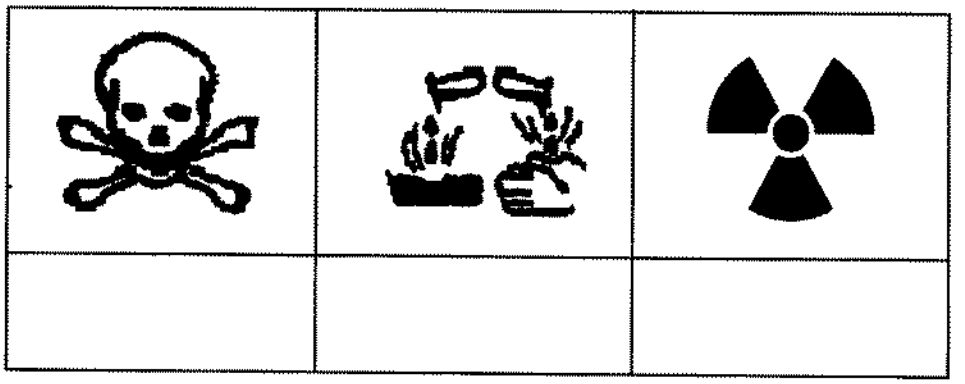
(b) Based on Diagram 6, name metal W.
Berdasarkan pada Rajah 6, namakan logam W.

.....

[1 mark]
[1 *markah*]

6(b) 1

(c) Mark (✓) the symbol for radioactive rays.
Tandakan (✓) simbol untuk bahan radioaktif.



[1mark]
[1 *markah*]

6(c) 1

(d) State **one** usage of ray N in medical field.
Nyatakan ***satu*** *kegunaan sinaran* N *dalam bidang perubatan.*

.....

[1 mark]
[1 *markah*]

6(d) 1

(e) Radioactive waste products are kept in lead container and than buried.
Suggest the safest place to bury the lead container.
Sisa bahan radioaktif disimpan ke dalam bekas plumbum sebelum ditanam.
Cadangkan tempat yang paling sesuai untuk menanam bekas plumbum tersebut.

.....

[1 mark]
[1 *markah*]

6(e) 1

Total B6 6

7 Diagram 7 shows the set up of apparatus in an experiment.
Rajah 7 menunjukkan susunan radas dalam satu eksperimen.

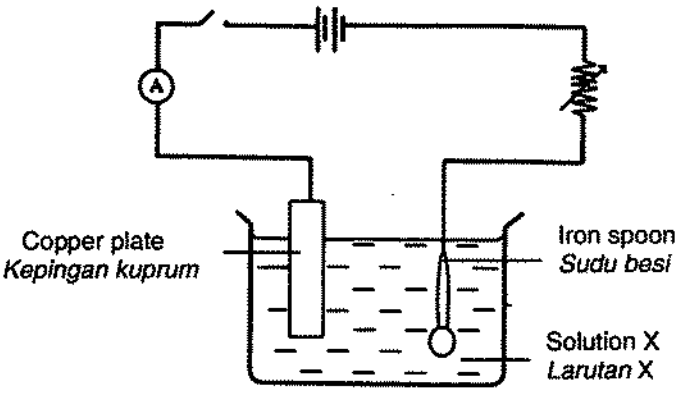


Diagram 7
Rajah 7

(a) Name the process in Diagram 7.
Namakan proses dalam Rajah 7.

.....

[1 mark]
[1 *markah*]

7(a) 1

(b) State
Nyatakan

(i) anode:
anod : .....

(ii) solution X :
larutan X: .....

[2 marks]
[2 *markah*]

7(b) 2

(c) What happens to copper plate at the end of the experiment?
Apakah yang berlaku pada kepingan kuprum di akhir eksperimen?

.....

[1 mark]
[1 *markah*]

7(c) 1

(d) State **one** method to get a good result?
Nyatakan **satu** *cara untuk mendapatkan keputusan yang baik?*

.....

[1 mark]
[1 *markah*]

7(d) 1

(e) State the energy change in this experiment ?
Nyatakan perubahan tenaga yang berlaku dalam eksperimen ini?

.....

[1 mark]
[1 *markah*]

7(e)

1

Total B7

6

8 Diagram 8 shows the layer X in the Earth's atmosphere.
Rajah 8 *menunjukkan lapisan* X *pada atmosfera bumi.*

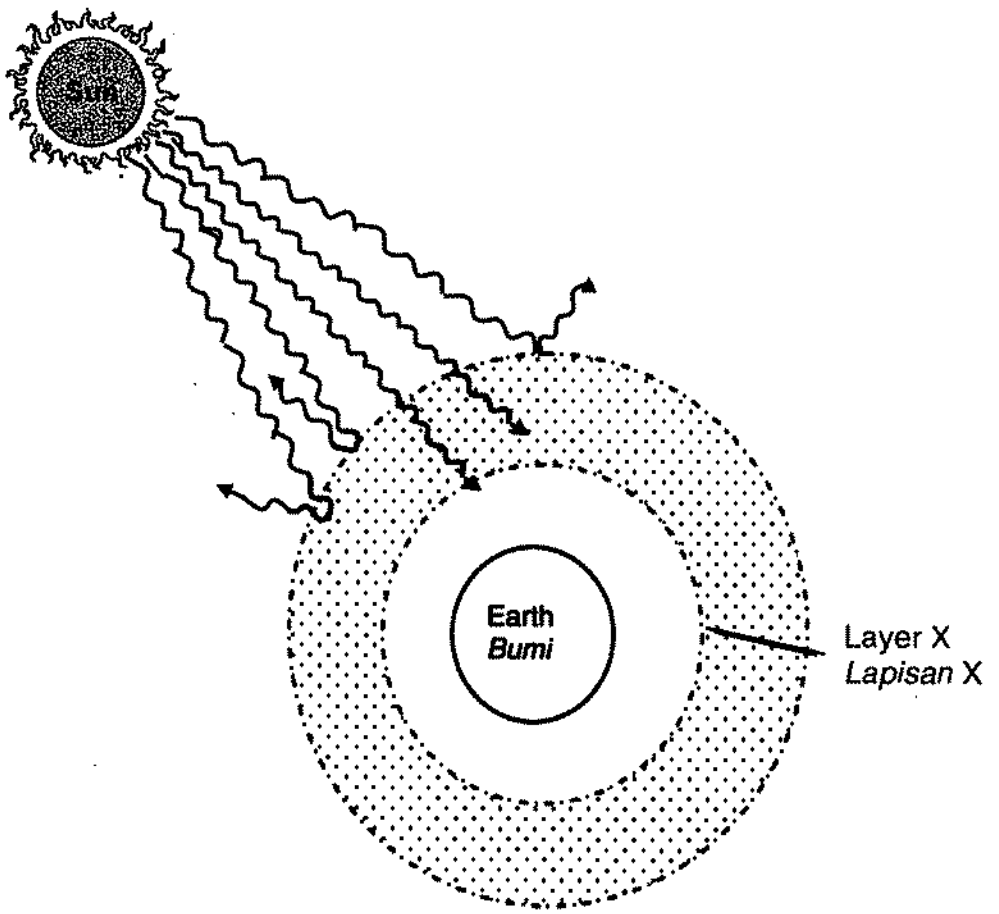


Diagram 8
Rajah 8

(a) What is Layer X?
Apakah lapisan X*?*

.....

[1 mark]
[1 *markah*]

8(a)

1

(b) State the importance of Layer X.
Nyatakan kepentingan lapisan X.

.....

[1 mark]
[1 *markah*]

8(b) 1

(c) Scientists discovered that the layer X is thinning. What is the main cause for the thinning of the layer X?
Ahli sains mendapati bahawa lapisan X *kian menipis. Apakah punca utama penipisan lapisan* X*?*

.....

[1 mark]
[1 *markah*]

8(c) 1

(d) Give **two** effect that cause by this phenomenon to:
Berikan **dua** *kesan yang disebabkan oleh fenomena ini kepada:*

i) Human beings :
Manusia : .....

ii) Plants :
Tumbuhan : .....

[2 marks]
[2 *markah*]

8(d) 2

(e) Suggest **one** way to reduce the damage of layer X.
Cadangkan **satu** *usaha untuk mengurangkan kemusnahan lapisan* X.

.....

[1 mark]
[1 *markah*]

8(e) 1

Total B8 6

9 Table 9 shows the various components of the electromagnetic spectrum.
Jadual 9 menunjukkan pelbagai komponen spektrum elektromagnet.

P	Microwaves *Gelombang mikro*	Infrared *Inframerah*	Visible light *Cahaya nampak*	Ultraviolet light *Cahaya ultraungu*	X-rays *Sinar X*	Q

Table 9
Jadual 9

(a) Name component.
Namakan komponen.

P : .....

Q: .....

[2 marks]
[2 *markah*]

9(a) 2

(b) Diagram 9.1 shows a wave form.
Rajah 9.1 menunjukkan satu bentuk gelombang.

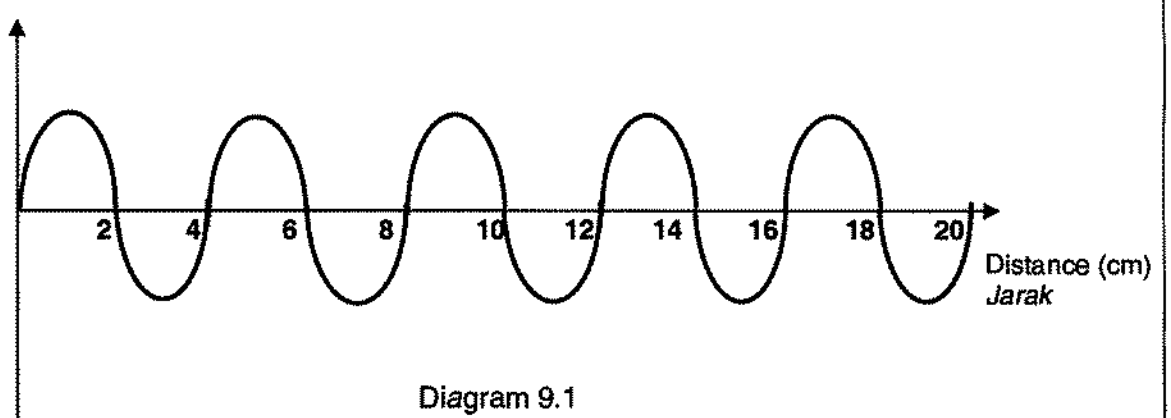


Diagram 9.1
Rajah 9.1

Refer to Diagram 9.1,
Merujuk kepada Rajah 9.1,

(i) State the wavelength.
Nyatakan panjang gelombang.

..... cm

(ii) State the frequency of the wave.
Nyatakan frekuensi bagi gelombang tersebut.

..... Hz

[2 marks]
[2 *markah*]

9(b) 2

(c) Diagram 9.2 shows a wave formed by the modulator.
Gambarajah 9.2 menunjukkan gelombang yang dihasilkan oleh modulator.

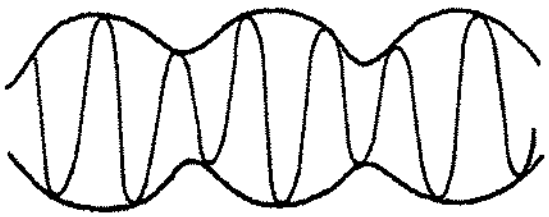


Diagram 9.2
Rajah 9.2

(i) State the wave form.
Nyatakan bentuk gelombang.

.....

(ii) Which part of the radio communication system produced this waves?
Bahagian sistem komunikasi radio yang manakah menghasilkan gelombang ini?

.....

[2 marks]
[2 *markah*]

9(c) 2

Total B9 6

Section C
Bahagian C

[20 marks]
[20 *markah*]

Answer **Question 10** and either **Question 11** or **Question 12**.
Jawab **Soalan 10** *dan sama ada* **Soalan 11** *atau* **Soalan 12**.

10 Study the following statement.
Kaji pernyataan berikut.

> An alloy is more corrosive resistance than its pure metal.
> *Aloi lebih tahan kakisan daripada logam tulen.*

You are given an iron nail, a steel nail and Sodium Chloride solution.
Anda diberikan sebatang paku besi, sebatang paku keluli dan larutan Natrium Klorida.

(a) Suggest a hypothesis to investigate the above statement. [1 mark]
Cadangkan satu hipotesis untuk menyiasat pemyataan di atas. [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*) *berpandukan kriteria berikut.*

(i) Aim of the experiment [1 mark]
Tujuan eksperimen [1 *markah*]

(ii) Identification of variables [2 marks]
Mengenal pasti pemboleh ubah [2 *markah*]

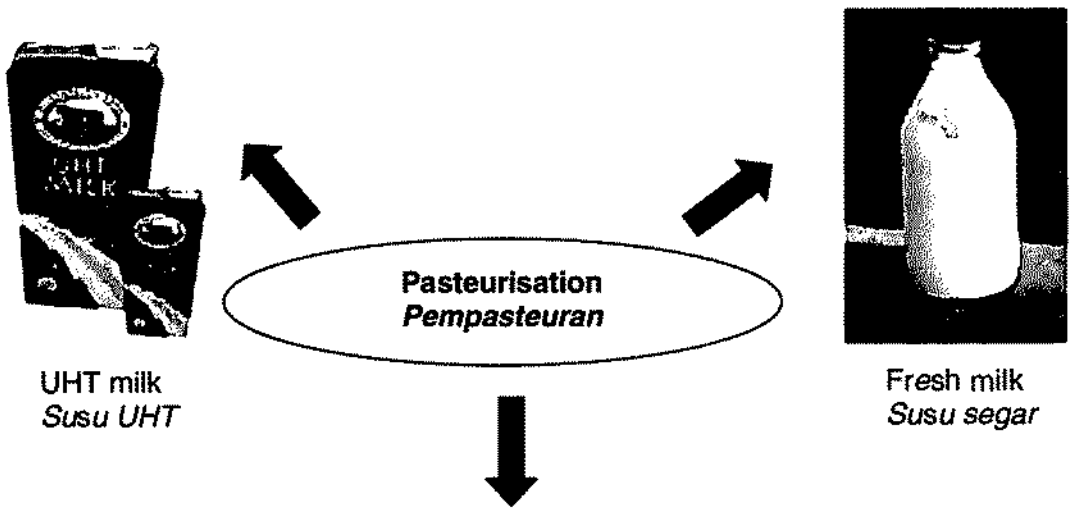
(iii) List of apparatus and materials [1 mark]
Senarai radas dan bahan [1 *markah*]

(iv) Procedure or method [4 marks]
Prosedur atau kaedah [4 *markah*]

(v) Tabulation of data [1 mark]
Penjadualan data [1 *markah*]

11 (a) Describe how to increase the quality and quantity of food production.
Huraikan bagaimana untuk meningkatkan kualiti dan kuantiti penghasilan makanan.
[4 marks]
[4 *markah*]

(b) Diagram 11 shows three types of food process by pasteurisation.
Rajah 11 *menunjukkan tiga jenis makanan yang telah diproses secara pempasteuran.*



UHT milk
Susu UHT

Fresh milk
Susu segar

Cultured milk
Susu kultur

Diagram 11
Rajah 11

Study examples of food in Diagram 11 and construct the concept of pasteurisation.
Kaji contoh makanan dalam Rajah 11 *dan bina konsep pempasteuran.*

Your answer should be based on the following aspects:
Jawapan anda hendaklah berdasarkan aspek-aspek berikut:

- Identify **two** common characteristics. [2 marks]
  Kenal pasti **dua** *ciri sepunya.* [2 *markah*]

- Give **one** other example of food using pasteurisation. [1 mark]
  Beri **satu** *contoh makanan lain yang menggunakan proses pempasteuran.* [1 *merkah*]

- Give **two** examples of another method of food processing. [2 marks]
  Beri **dua** *contoh lain kaedah pemprosesan makanan.* [2 *markah*]

- Relate the common characteristics to construct the concept of pasteurization. [1 mark]
  Hubungkaitkan ciri sepunya untuk membina konsep pempasteuran. [1 *markah*]

12 (a) (i) What is immunity? [1 mark]
Apakah keimunan? [1 *markah*]

(ii) State the differences between artificial active immunity and artificial passive immunity.
Nyatakan perbezaan antara keimunan aktif buatan dengan keimunan pasif buatan.
[3 marks]
[3 *markah*]

(b) A few people from Kampung Cempaka had admitted to emergency ward due to worst diarrhoea and vomiting. Doctor had confirmed that they had cholera.
A group of officers from Health Department were asked to control cholera due to the case.
Explain how could they overcomes this problem.

Beberapa orang penduduk Kampung Cempaka telah dimasukkan ke wed kecemasan akibat cirit birit dan muntah-muntah yang teruk. Doktor telah mengesahkan mereka mengidap penyakit taun.
Berdasarkan kes tersebut, sekumpulan pegawai dari Jabatan Kesihatan telah diarahkan untuk mengawal penyakit itu.
Huraikan bagaimana mereka dapat mengatasi masalah ini.

Your explanation should include the following aspects:
Penerangan anda hendaklah mengandungi aspek-aspek berikut :

- Identify the problem [1 mark]
  Kenalpasti masalah [1 *markah*]

- Clarification of the problem [1 mark]
  Penjelasan masalah [1 *merkah*]

- Suggest **four** method to solve the problem [4 marks]
  Cadangkan **empat** *kaedeh untuk menyelesaikan masalah itu* [4 *markah*]

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

SULIT

PEPERIKSAAN PERCUBAAN BERSAMA
SIJIL PELAJARAN MALAYSIA 2011

ANJURAN
MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
CAWANGAN PERLIS

MARKING SCHEME

SCIENCE PAPER 1

AND

SCIENCE PAPER 2

PEPERIKSAAN PERCUBAAN BERSAMA SPM
NEGERI PERLIS 2011

MARKING SCHEME
SCIENCE 1 (1511/1)

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

SULIT

PEPERIKSAAN PERCUBAAN BERSAMA
SIJIL PELAJARAN MALAYSIA 2011

ANJURAN
MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
CAWANGAN PERLIS

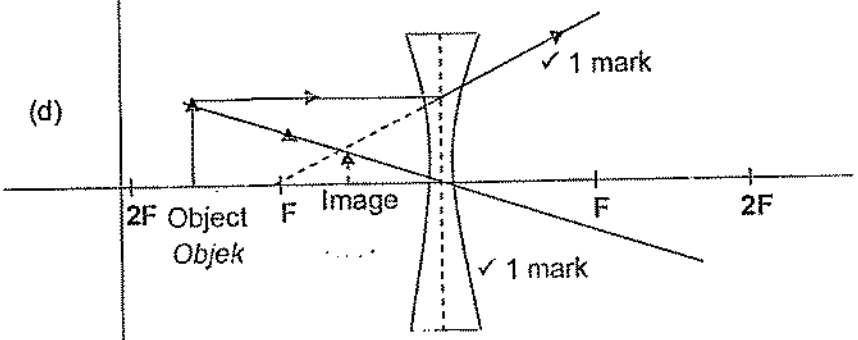
MARKING SCHEME

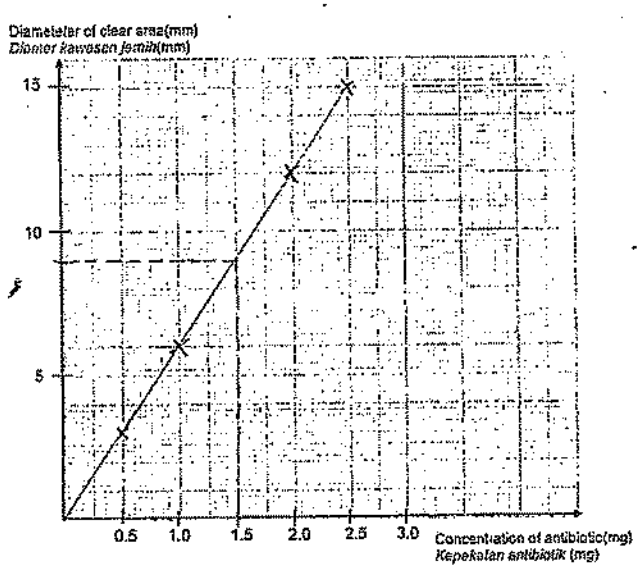
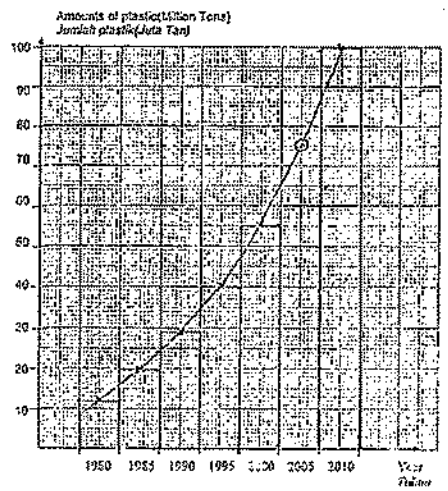
SCIENCE PAPER 1

AND

SCIENCE PAPER 2

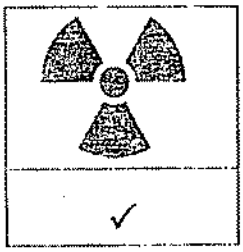
MARKING SCHEME
SCIENCE – PAPER 2 (1511/2)
SECTION A

Question	Mark Scheme	Sub Mark	Total Mark
1(a)	(i) 0.8	1	
(b)	(i) The needle of the ammeter deflected	1	
	(ii) Molten Lead (II)Bromide can conduct electricity	1	
(c)	The state of the Lead (II) Bromide ✓	1	
(d)	0 A	1	5
2(a)	1.9 ± 0.1 cm	1	
(b)	The focal length for lens A is more longer than focal length lens B	1	
(c)	The thicker the lens, the shorter the focal length // the thinner the thickness, the longer the focal length	1	
(d)			
	Note: - ray with arrow - ray pass through optical centre and focal point	1 1	5

Question	Mark Scheme	Sub Mark	Total Mark
3 (a)	 Note : - All point correct - Smooth graph	 1 1	
(b)	Diameter = 9 (refer the graph) Note : -student must show at the graph	1	
(c)	The higher the concentration of antibiotic the bigger the diameter of clear area	1	
(d)	Antibiotic is a (chemical) substances that produces clear area on the (surface) nutrient agar	1	5
4 (a)	 Note : Transfer all points correct Graph *same width*	 1 1	

(b)	*If the year increase, the amount of plastic increase*	1	
(c)	75 ± 0.1	1	
(d)	Melamine ✓ Polystyrene ✓	1	5

MARKING SCHEME
SCIENCE – PAPER 2 (1511/2)
SECTION B

Question	Mark Scheme	Sub mark	Total mark
5 (a)	(i) Sensory neurone	1	
	(ii) Carries impulses from receptor to the spinal cord//central nerves system.	1	
(b)	<table><tr><td>Cerebellum *Serebelum*</td><td>Spinal cord *Saraf tunjang*</td><td>Medulla oblongata *Medula oblongata*</td></tr><tr><td></td><td>✓</td><td></td></tr></table>	1	
(c)	the finger withdraw immediately upon touching a sharp object//pupils get smaller in bright light//sneezing	1	
(d)	Relay neurone	1	
(e)	To prevent risk of injury// protect us from injury// avoid danger	1	6
6 (a)	M: Alpha ray N: Gamma ray	1 1	
(b)	Aluminium	1	
(c)	 ✓	1	
(d)	Kill cancer cells//sterilize medical equipment	1	
(e)	Be thrown into the deep sea	1	6

7(a)	Electroplating	1	
(b)	(i) Copper plate	1	
	(ii) Copper sulphate//Copper nitrate	1	
(c)	Become thinner	1	
(d)	Use small current // rotate the spoon	1	
(e)	Chemical energy ⟶ Electrical energy	1	6
8(a)	Ozone layer	1	
(b)	Prevent ultra violet (UV) from reaching the earth//Protect earth form ultra violet rays	1	
(c)	Chloroflourocarbon / CFC	1	
(d)	(i) Eye cataract // skin cancer // lower immunity	1	
	(ii) Kill phytoplankton // damages crops resulting in low yield	1	
(e)	Use HCFC// Recycle CFC in air conditioners and refrigerators instead of releasing it into the air.	1	6
9(a)	P : radiowave	1	
	Q: gamma rays	1	
(b)	(i) 4 cm	1	
	(ii) 5 Hz	1	
(c)	(i) Modulated wave	1	
	(ii) Radio transmission system	1	6

MARKING SCHEME
SCIENCE – PAPER 2 (1511/2)
SECTION C

Question	Mark Scheme	Sub mark	Total mark
10(a)	Hypothesis - An alloy // a steel is more corrosive resistance then pure metal //nail	1	1
(b)(i)	Aim of the experiment - To compare / investigate the corrosive resistance of a steel nail and an iron nail (to sodium chloride solution).	1	

(ii)	Identification of variables
	(a) Manipulated variable
	-Type of nail //substances // pure metal and alloy
	(b) Responding variable
	-Corrosive resistance
	(c) Fixed variable
	-Concentration // volume of sodium chloride solution // time
	Max=2
		1
		1
		1
		2	

(iii)	Apparatus and materials - Test tube,(test tube rack) ,sodium chloride solution, iron nail, steel nail.	1	
(iv)	Procedure. 1) Two test tubes are labelled with A and B. 2) 5cm^3 of sodium chloride solution is poured into test tube A and B. 3) A steel nail is put into test tube A and iron nail is put into test tube B. 4) The corrosive resistance is observed and recorded after 3 days .	1 1 1 1	
(v)	Tabulation of data Type of nail / corrosive resistance Steel Nail Iron Nail	1	9
			10

Question	Mark scheme	Sub mark	Total mark
11(a)	1) Use of quality breeds; - Selective breeding is the process in with farmer select seeds from the best plants to propagate or the best animal to breed.	1 1	
	2) Use of modern technology; - Machines such as tractors, mechanical harvesters and power tillers speed up the planting and harvesting of crops.	1 1	
	3) Education and guidance for farmers; - Education and guidance is crucial for farmers in order to increase the quality and quantity of food production.	1 1	
	4) Research and development; - MARDI produces various quality breeds of plant and animal, MPOB does research on diversifying the uses of palm oil, FAMA markets the crops produced by Malaysia.	1 1	
	5) Optimum use of land and irrigated areas; As agricultural land in Malaysia is limited, the use of agricultural land must be optimised. Integrated systems involve rearing livestock and planting crops on the same farmland. Max= 4	1 1 4	4
(b)	Any two methods Method - 1 mark Explanation - 1 mark		
	<u>Two common characteristics.</u> 1. Heated to 63°C for 30 minute // heated to 72°C for 15 seconds. 2. Cool rapidly.	1 1	
	<u>One other example of food using pasteurisation.</u> Fruit juices // beer // wine	1	
	<u>Two examples of another method of food processing.</u> Canning//dehydration//refrigeration//freezing//freeze-drying//vacuum-packing//irradiation. *Any two*	2	
	<u>Relate common characteristics to contruct the concept of pasteurisation.</u> Pasteurisation is the process where food is heated to 63°C for 30 minute or 72°C for 15 seconds then cooled rapidly	1	6
			10

Question	Mark Scheme	Sub mark	Total mark
12 (a)(i)	Immunity is the body's ability to destroy pathogens before they can cause deseases.	1	
(a)(ii)	Differences between artificial active immunity and artificial passive immunity.		
	Artificial active immunity / **Artificial passive immunity** 1. Injection of vaccine. / 1. Injection of antiserum.	1	
	2. Stimulates or induces the body to produce antibodies. / 2. Does not stimulate or induce the body to produce antibodies.	1	
	3. A slow immunisation process. / 3. A fast immunisation process.	1	
	4. A long lasting immunisation. / 4. A short temporary immunisation.	1	Max =3
	Identify the problem; • Diarrhoea and vomiting	1	
	Clarification of the problem • Cause by cholera	1	
	Four methods to solve the problem; • Destroy the breeding grounds of houseflies by disposing waste food/ decaying matter/rubbis	1	
	• through burning/burying.	1	
	• Spray insecticide to kill the larvae of houseflies.	1	
	• Cover all food from the houseflies.	1	
	• Use boiling water.	1	Max=4
			10