1511/1
Sains
Kertas 1
1 ¼ Jam
Sept 2013

PEPERIKSAAN PRASPM
SEKOLAH-SEKOLAH MENENGAH
2013

SAINS
Kertas 1
1 JAM 15 MINIT

DO NOT OPEN THIS TEST PAPER UNTIL YOU ARE TOLD TO DO SO
JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

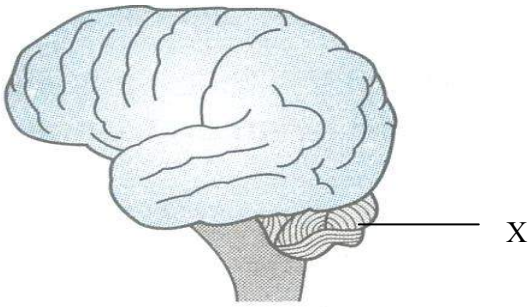
1. *Kertas soalan ini adalah dwibahasa.*
2. *Soalan dalam bahasa Inggeris mendahului soalan yang sepadan dalam bahasa Melayu*

INFORMATION FOR CANDIDATES
MAKLUMAT UNTUK CALON

1. This question paper consist of 50 questions.
   Kertas ini mengandungi 50 soalan.
2. Answer all questions.
   Jawab semua soalan-soalan.
3. Each question 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.
   Setiap soalan diikuti oleh empat pilihan jawapan, A, B, C dan D. Bagi setiap soalan pilih satu jawapan sahaja. Hitamkan jawapan anda pada kertas jawapan objektif yang disediakan.
4. The diagrams in the questions provided are not drawn to scale unless stated.
   Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.

This question paper consists of 22 printed pages
Kertas soalan ini mengandungi 22 halaman bercetak

1. The diagram shows a cross section through the human brain.
(Rajah menunjukkan keratan rentas otak manusia)



What is part X?
(Apakah bahagian X?)

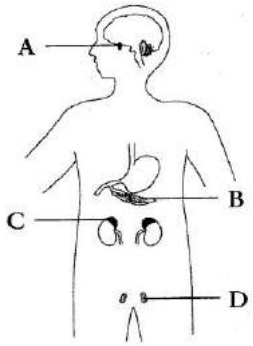
A Medulla oblongata
(Medulla oblongata)

B Spinal cord
(Saraf tunjang)

C Cerebrum
(serebrum)

D Cerebellum
(serebelum)

2 The urine of a student contains glucose. Which endocrine gland is not functioning?
(Air kencing pelajar mengandungi gula. Kelenjar endokrin manakah yang tidak berfungsi?)



3 Which of the following is an effect on body coordination as a result of consuming alcoholic drinks?
(Yang manakah antara berikut merupakan kesan ke atas koordinasi badan akibat pengambilan minuman beralkohol?)

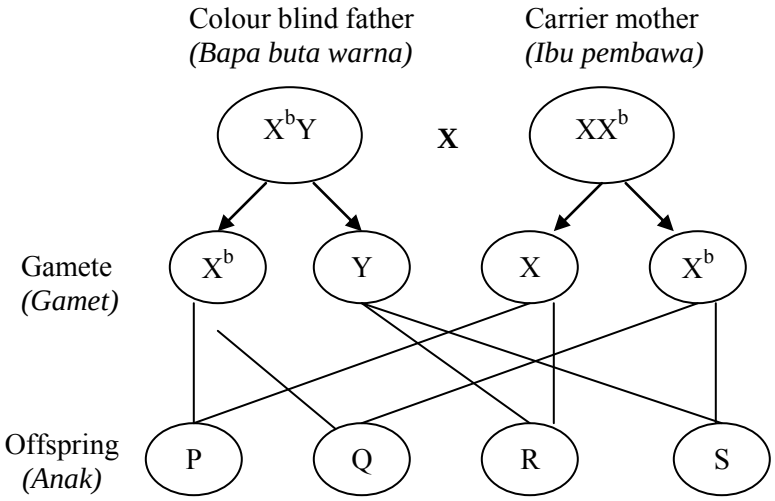
A Causes heart attack
(Menyebabkan serangan sakit jantung)

B Interferes the function of a liver
(Mengganggu fungsi hati)

C Delays the reaction of a particular stimulus
(Melambatkan tindakan terhadap sesuatu rangsangan)

D Increases our body resistance against diseases
(Meningkatkan ketahanan badan terhadap penyakit)

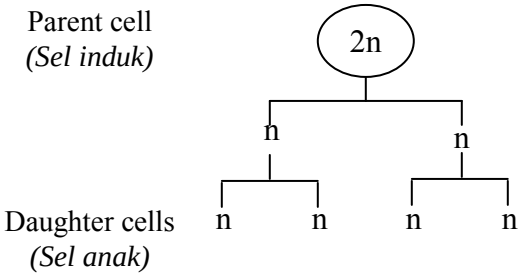
4 The diagram shows the inheritance of colour blindness.
(Rajah menunjukkan pewarisan bagi buta warna)



Colour blindness is caused by the mutated recessive gene, X^b. Which offspring is a colour blindness carrier?
(Buta warna disebabkan oleh gen resesif termutasi, X^b. Anak yang manakah merupakan pembawa gen buta warna?)

A P
B Q
C R
D S

5 The diagram shows a process in a human body.
(Rajah menunjukkan satu proses yang berlaku dalam badan manusia.)



What process is shown?
(Apakah proses yang ditunjukkan?)

A Mitosis
(Mitosis)
B Meiosis
(Meiosis)
C Mutation
(Mutasi)
D Fertilisation
(Persenyawaan)

6 Which of the following statements shows the advantage of genetic research?
(Manakah pernyataan berikut, yang menunjukkan kebaikan penyelidikan genetik?)

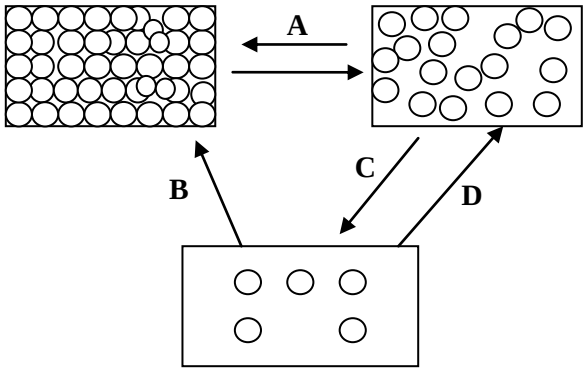
A Cloning of humans
(Pengklonan manusia)

B Use of biological weapon
(Penggunaan senjata biologi)

C Produces dangerous animals that threaten other living organisms
(Menghasilkan haiwan merbahaya yang boleh mengancam organisma lain)

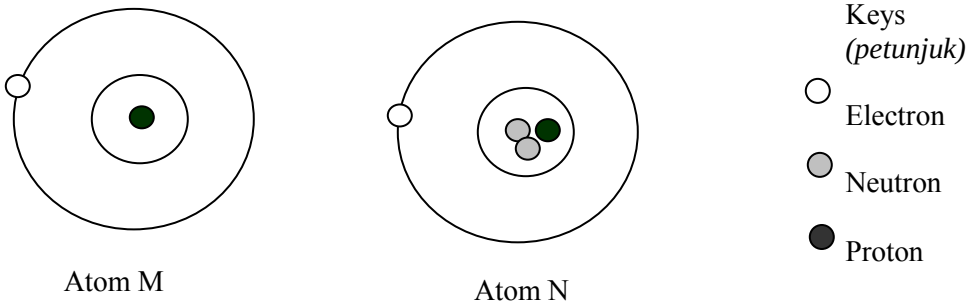
D Improve the quality and yield of agriculture and livestock product.
(Menambahbaik kualiti dan hasil pertanian dan penternakan

7 The diagram shows the changes of states of matter.
(Rajah menunjukkan perubahan keadaan jirim)



Which of the following **A, B, C** and **D** represents the process of condensation?
*(Manakah antara **A, B, C** dan **D** mewakili proses kondensasi?)*

8 The diagrams 5 show the structures of atoms M and N
(Rajah 5 menunjukkan struktur atom M dan N)



Atom M Atom N

What is the difference between atoms M and N?
(Apakah perbezaan antara atom M dan N?)

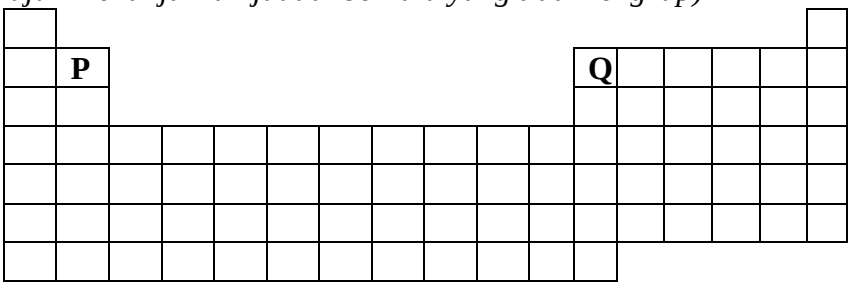
A The proton number
(Nombor proton)

B The number of neutron
(Bilangan neutron)

C The number of electron
(Bilangan electron)

D The number of proton and electron
(Bilangan proton dan elektron)

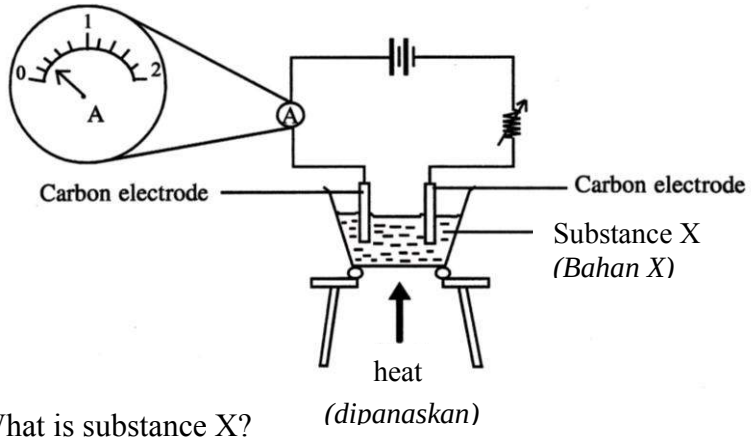
9 The diagram shows an incomplete Periodic Table.
(Rajah menunjukkan jadual berkala yang tidak lengkap)



Which of the following represent elements P and Q?
(Yang manakah antara berikut yang mewakili unsur P dan Q?)

	P	Q
A	Metal *(logam)*	Non- metal *(bukan logam)*
B	Metal *(logam)*	Semi-metal *(separuh logam)*
C	Non- metal *(bukan logam)*	Metal *(logam)*
D	Semi-metal *(separuh logam)*	Non- metal *(bukan logam)*

10 The diagram shows an experiment to study the electrical conductivity of substance X in a molten state.
(Rajah menunjukkan eksperimen untuk mengkaji kekonduksian elektrik bahan X dalam keadaan lebur)



What is substance X?
(Apakah bahan X?)

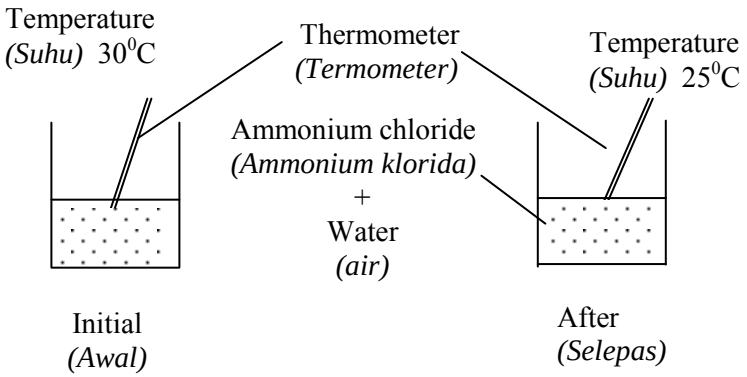
A Sugar
(Gula)

B Sulphur
(Sulfur)

C Naphthalene
(Naftalena)

D Lead(II) bromide
(Plumbum(II) bromida)

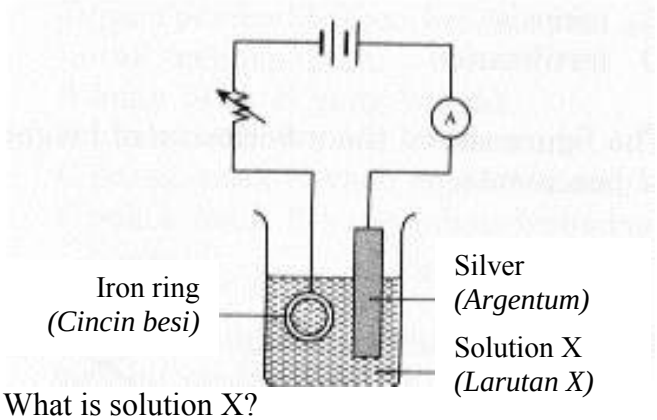
11 The diagram shows a chemical reaction.
(Rajah menunjukkan satu tindak balas kimia)



What is the type of this reaction?
(Apakah jenis tindak balas tersebut?)

A Hydrolysis
(Hidrolisis)
B Exothermic
(Eksotermik)
C Endothermic
(Endotermik)
D Neutralization
(Peneutralan)

12 The diagram shows an electroplating process.
(Rajah menunjukkan proses penyaduran)



What is solution X?
(Apakah larutan X?)

A Silver nitrate
(argentum nitrat)
B Iron(II) sulphate
(Ferum(II) sulfat)
C Aluminium nitrate
(Aluminium nitrat)
D Copper(II) sulphate
(Kuprum (II) sulfat)

13 Which of the following substances absorbs light energy during photosynthesis process?
(Antara berikut bahan manakah yang menyerap tenaga cahaya semasa proses fotosintesis?)

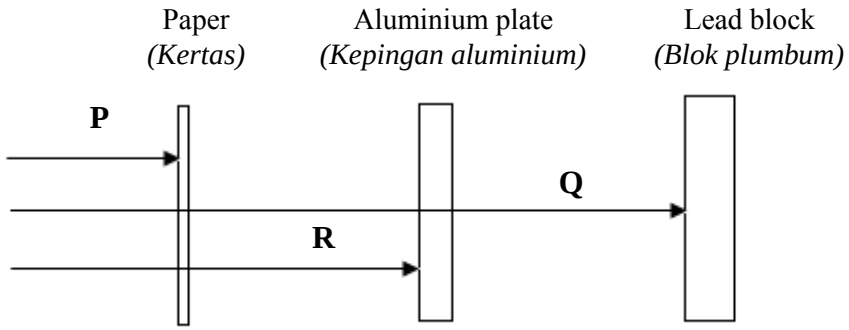
A Water
(Air)

B Oxygen
(Oksigen)

C Chlorophyll
(Klorofil)

D Carbon dioxide
(Karbon dioksida)

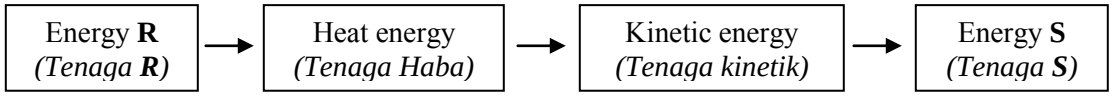
14 The diagram shows the penetrating power of radiations P, Q and R.
(Rajah menunjukkan kuasa penembusan bagi sinar P, Q dan R.)



What are P, Q and R?
(Apakah P, Q dan R?)

	P	Q	R
A	Alpha ray *(Sinar alfa)*	Beta ray *(Sinar beta)*	Gamma ray *(Sinar gamma)*
B	Beta ray *(Sinar beta)*	Alpha ray *(Sinar alfa)*	Gamma ray *(Sinar gamma)*
C	Gamma ray *(Sinar gamma)*	Beta ray *(Sinar beta)*	Alpha ray *(Sinar alfa)*
D	Alpha ray *(Sinar alfa)*	Gamma ray *(Sinar gamma)*	Beta ray *(Sinar beta)*

15 The diagram shows the sequence of energy transformation which occurs in a nuclear power station.
(Rajah menunjukkan urutan perubahan tenaga yang berlaku dalam stesyen janakuasa nuklear)



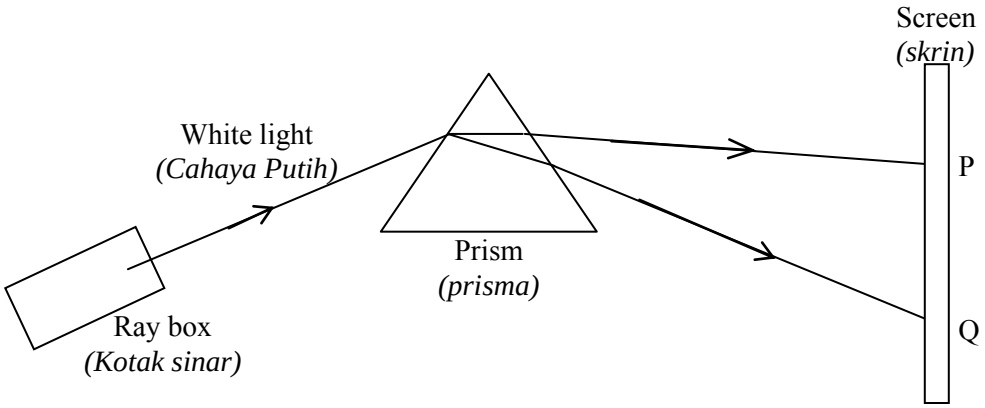
What are energies **R** and **S**?
*(Apakah tenaga **R** dan **S**?)*

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

16 Which of the following substances can be used to make containers for storing radioactive substances?
(*Antara bahan berikut, yang manakah boleh digunakan untuk membuat bekas menyimpan bahan radioaktif?)*

A Glass
(Kaca)
B Lead
(Plumbum)
C Wood
(Kayu)
D Plastic
(Plastik)

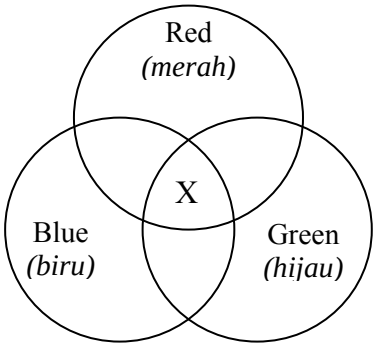
17 The diagram shows the dispersion of white light.
(Rajah menunjukkan penyebaran cahaya putih)



What colours of light P and Q formed on the screen?
(Apakah warna cahaya P dan Q yang terbentuk pada skrin?)

A	Red *(Merah)*	Purple *(Ungu)*
B	Red *(Merah)*	Blue *(Biru)*
C	Blue *(Biru)*	Orange *(Jingga)*
D	Purple *(Ungu)*	Red *(Merah)*

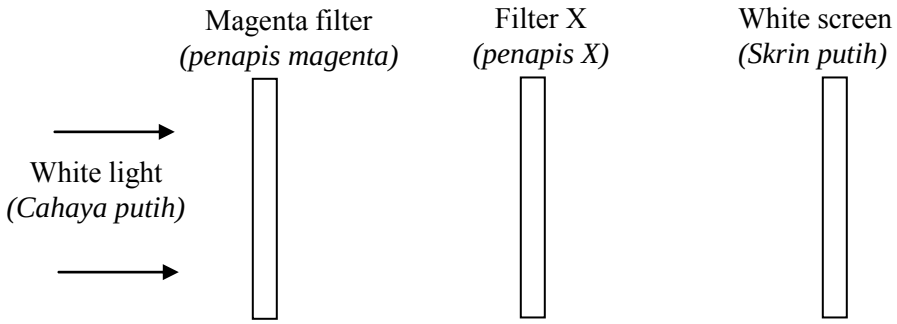
18 The diagram shows the overlapping of three coloured light spot.
(Rajah menunjukkan pertindihan tiga tompok cahaya berwarna)



What colour is X?
(Apakah warna X?)

A Black *(Hitam)*
B White *(Putih)*
C Yellow *(Kuning)*
D Magenta *(Magenta)*

19 The diagram shows the filtering of white light using a magenta filter and filter X.
(Rajah menunjukkan penapisan cahaya putih menggunakan penapis magenta dan penapis X)



What is the colour of filter X if the light on the screen appears red?
(Apakah warna penapis X jika cahaya yang terbentuk pada skrin berwarna merah?)

A Cyan
(Sian)
B Blue
(Biru)
C Green
(Hijau)
D Yellow
(Kuning)

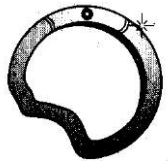
20 Which of the following light colours is scattered the least in the evening?
(Manakah antara warna-warna cahaya berikut, diserakkan paling kurang pada waktu petang?)

A Red
(Merah)
B Blue
(Biru)
C Cyan
(Sian)
D Green
(Hijau)

21 What is the product of reaction between ammonia and carbon dioxide at temperature 200^{o}C and at 200 atmospheric pressure?
(Apakah hasil tindak balas ammonia dengan karbon dioksida pada suhu 200 ^{o}C dan 200 tekanan atmosfera?)

A Urea
(Urea)
B Ammonium nitrate
(Ammonium nitrat)
C Ammonium oxide
(Ammonium oksida)
D Ammonium chloride
(Ammonium klorida)

22 The diagram shows a bent golden bracelet
(Rajah menunjukkan satu gelang emas yang bengkok)



How can the bracelet be made stronger?
(Bagaimanakah gelang emas itu boleh dibuat lebih kuat?)

A Melt and remade
(Dileburkan dan dibentuk semula)

B Melt and add with more gold
(Dileburkan dan ditambah lebih banyak emas)

C Melt and add with other elements
(Dileburkan dan ditambah dengan unsur lain)

D Hit until it regains its original shape
(Diketuk semula sehingga kembali kebentuk asal)

23 What is the cause of water pollution?
(Apakah yang menyebabkan pencemaran air?)

A The use of aerosol materials
(Penggunaan bahan aerosol)

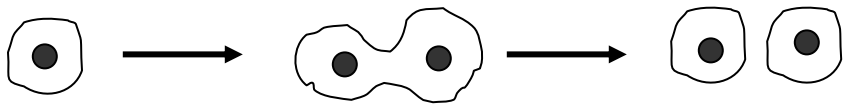
B The use of machinery in factories
(Penggunaan mesin dalam industri)

C The increase of high-rise glass buildings
(Penambahan bilangan bangunan kaca)

D The direct disposal of industrial wastes
(Pembuangan sisa industri secara terus)

24 The diagram shows the reproduction of a microorganism.
(Rajah menunjukkan pembiakan mikroorganisma)

.



Which of the following is the method of this reproduction?
(Yang manakah merupakan cara pembiakan tersebut?)

A Budding
(Penunasan)

B Binnary fission
(Belahan dedua)

C Spore formation
(Pembentukan spora)

D Sexual reproduction
(Pembiakan seks)

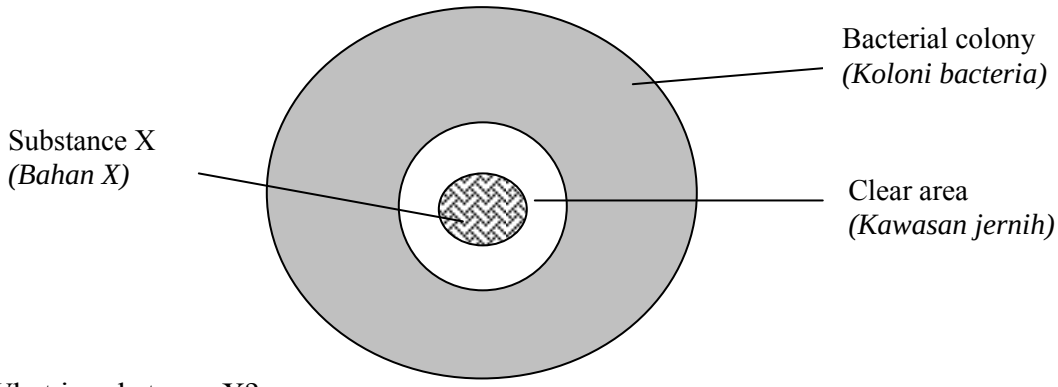
25 The diagram shows three types of foods.
(Rajah menunjukkan tiga jenis bahan makanan.)

Cheese *(Keju)* | Yogurt *(Dadih)* | vinegar *(cuka)*

Which of the following microorganisms is used to produce those foods?
(Manakah antara organisma berikut digunakan untuk menghasilkan makanan-makanan tersebut?)

A Yeast *(Yis)*
B Algae *(Alga)*
C Bacteria *(Bakteria)*
D Protozoa *(Protozoa)*

26 The diagram shows an action of a chemical substance on a colony of bacteria.
(Rajah menunjukkan tindakan bahan kimia ke atas koloni bakteria)



What is substance X?
(Apakah bahan X?)

A Antibody *(Antibodi)*
B Antiseptic *(Antiseptik)*
C Antibiotic *(Antibiotik)*
D Antiserum *(Antiserum)*

27 Which statement is **true** about a balanced diet?
*(Pernyataan manakah **benar** tentang diet seimbang?)*

A A balanced diet contains all the seven classes of foods.
(Diet seimbang mengandungi semua tujuh kelas makanan)

B A balanced diet contains at least four of the seven classes of food.
(Diet seimbang mengandungi sekurang-kurangnya empat dari tujuh kelas makanan)

C A balanced diet contains all the seven classes of foods in suitable proportions and quantities.
(Diet seimbang mengandungi semua tujuh kelas makanan dalam kadar dan kuantiti yang sesuai)

D A balanced diet contains all the seven types of nutritious foods in suitable proportions and quantities.
(Diet seimbang mengandungi semua tujuh jenis makanan yang berkhasiat dalam kadar dan kuantiti yang sesuai)

28 Which word equation correctly represents the process of photosynthesis?
(Persamaan perkataan manakah menunjukkan proses fotosintesis yang betul?)

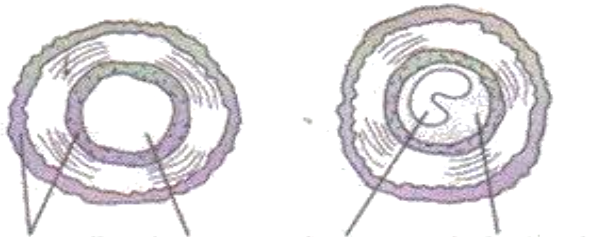
A Carbon dioxide + water → glucose + oxygen
(Karbon dioksida + air → glukosa + oksigen)

B Carbon dioxide + water → glucose +hydrogen
(Karbon dioksida + air → glukosa + hidrogen)

C Carbon monoxide + water → glucose + oxygen
(Karbon monoksida + air → glukosa + oksigen)

D Carbon monoxide + water → glucose + hydrogen
(Karbon monoksida + air → glukosa + hidrogen)

29 The diagram shows the change of the lumen size in an artery.
(Rajah menunjukkan perubahan di dalam saiz lumen pada arteri)



artery wall *(dinding arteri)* lumen *(lumen)* lumen *(lumen)* cholesterol deposit *(mendapan kolesterol)*

Which food is most probably the cause of change of the lumen size in the artery?
(Makanan manakah penyebab utama perubahan saiz lumen pada arteri?)

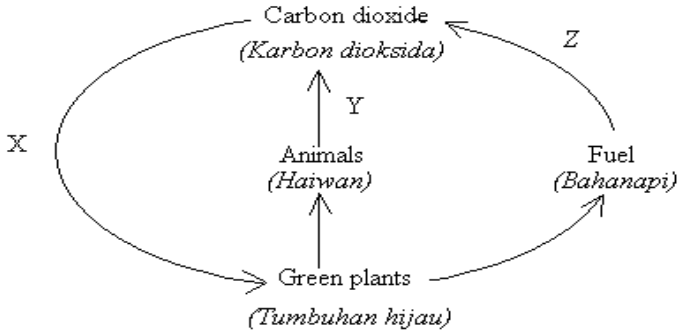
A Rice
(Nasi)

B Cereals
(Bijirin)

C Fatty meats
(Daging berlemak)

D Vegetables and fruits
(Sayur-sayuran dan buah-buahan)

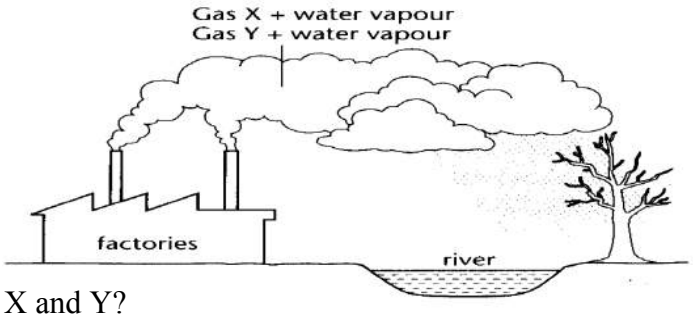
30 The diagram shows the green plants and animals in an environment involved in the carbon cycle.
(Rajah menunjukkan tumbuhan hijau dan haiwan yang terlibat dengan kitar karbon dalam suatu persekitaran)



What are processes X, Y and Z in the carbon cycle as shown in the diagram?
(Apakah proses X, Y dan Z dalam kitar karbon Rajah di atas?)

	X	Y	Z
A	Respiration *(Respirasi)*	photosynthesis *(fotosintesis)*	decomposition *(pereputan)*
B	Photosynthesis *(Fotosintesis)*	respiration *(respirasi)*	transpiration *(transpirasi)*
C	Respiration *(Respirasi)*	photosynthesis *(fotosintesis)*	combustion *(pembakaran)*
D	Photosynthesis *(Fotosintesis)*	respiration *(respirasi)*	combustion *(pembakaran)*

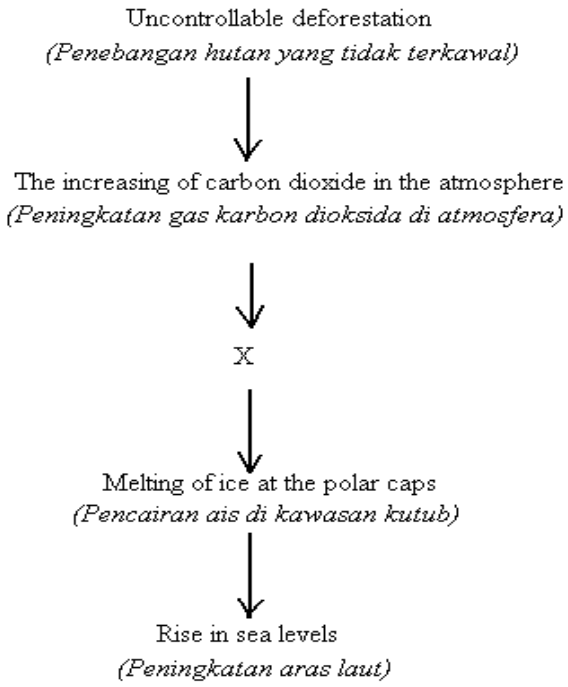
31 The diagram shows acidic gases released from a factory.
(*Rajah menunjukkan gas berasid yang dibebaskan oleh sebuah kilang)*



What are gases X and Y?
(Apakah gas X dan Y?)

	Gas X	Gas Y
A	Nitrogen *(Nitrogen)*	Carbon dioxide *(Karbon dioksida)*
B	Sulphur dioxide *(Sulfur dioksida)*	Carbon dioxide *(Karbon dioksida)*
C	Sulphur dioxide *(Sulfur dioksida)*	Nitrogen dioxide *(Nitrogen dioksida)*
D	Nitrogen *(Nitrogen)*	Nitrogen dioxide *(Nitrogen dioksida)*

32 The diagram shows the pathway of the effects of the uncontrollable deforestation.
(Rajah menunjukkan aliran kesan penebangan hutan yang tidak terkawal)



What is phenomenon X?
(Apakah fenomena X?)

A Acid rain
(Hujan asid)
B Air pollution
(Pencemaran udara)
C Greenhouse effect
(*Kesan rumah hijau)*
D Thinning of ozone layer
(Penipisan lapisan ozon)

33 How the damage of the ozone layer can affect food chains in the sea?
(Bagaimanakah kemusnahan lapisan ozon memberi kesan pada rantai makanan di dalam laut?)

A The temperature of the sea increases
(Suhu air laut meningkat)
B Phytoplankton in the sea is destroyed
(Fitoplankton dalam laut musnah)
C The oxygen content in the sea decreases
(Kandungan oksigen dalam air laut berkurang)
D The carbon dioxide content in the sea decreases
(Kandungan karbon dioksida dalam laut berkurang)

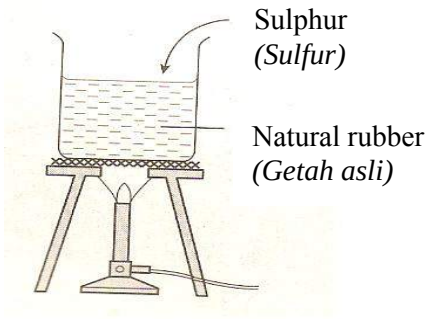
34 Study the following word equation.
(Perhatikan persamaan perkataan di bawah.)

Glucose *(Glukosa)*	Yeast *(Yis)* →	Ethanol *(Etanol)*	+	Carbon dioxide *(Karbon dioksida)*

What is the name of this reaction?
(Apakah nama tindak balas ini?)

A Hydrolisis
(Hidrolisis)
B Dehydration
(Pendehidratan)
C Esterification
(Pengesteran)
D Fermentation
(Penapaian)

35 The diagram shows an experiment carried out on natural rubber.
(*Rajah menunjukkan eksperimen yang dijalankan ke atas getah asli)*



What is the function of sulphur in this experiment?
(Apakah fungsi sulfur dalam eksperimen ini?)

A To coagulate latex
(Untuk menggumpalkan lateks)
B To prevent the coagulation of latex
(Untuk menghalang penggumpalan lateks)
C To increase the hardness of natural rubber
(Untuk meningkatkan kekerasan getah asli)
D To make natural rubber less resistant to chemicals
(Untuk menjadikan getah asli kurang tahan terhadap bahan kimia)

36 Which of the following polymers is correctly matched with its monomer?
(Antara berikut polimer manakah dipadankan dengan monomernya dengan betul?)

	Natural polymer ***(Polimer semulajadi)***	**Monomer** ***(Monomer)***
A	Cellulose *(Selulosa)*	Starch *(Kanji)*
B	Starch *(Kanji)*	Cellulose *(Selulosa)*
C	Natural rubber *(Getah asli)*	Isoprene *(Isoprena)*
D	Protein *(Protein)*	Fatty acid *(Asid lemak)*

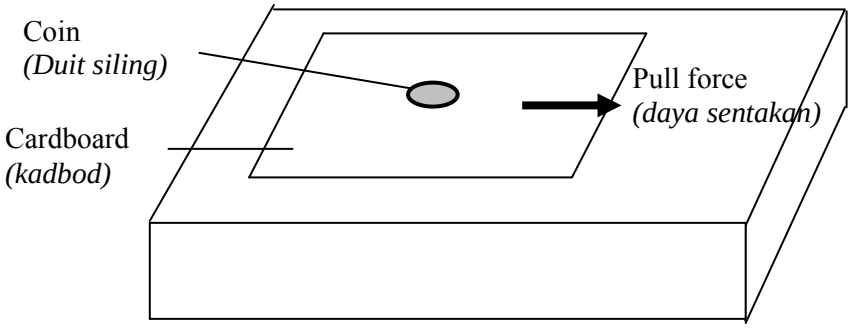
37 The following are some sources of fats.
(Berikut adalah beberapa sumber lemak)

P – Cheese
(Keju)
Q – Corn oil
(Minyak jagung)
R – Butter
(Mentega)
S – Coconut oil
(Minyak kelapa)
T – Peanut oil
(Minyak kacang)

Which of the following group has unsaturated fats?
(Antara berikut kumpulan yang manakah mempunyai lemak tak tepu?)

A P, R, S
B Q, S, T
C P, R
D Q, T

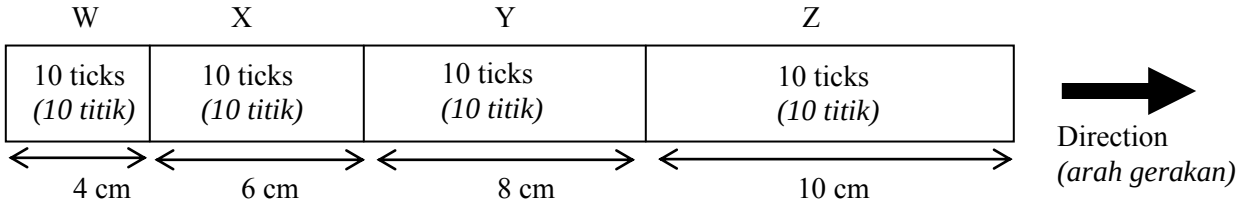
38 The diagram shows a coin placed on a piece of cardboard. The cardboard is pulled out quickly.
(Rajah menunujukkan satu duit siling diletakkan di atas sekeping kadbod. Kadbod tersebut disentak keluar dengan cepat)



What happens to the coin?
(Apakah yang berlaku ke atas duit siling itu?)

A Flings upwards
(Terpelanting ke atas)
B Remains on the table
(Kekal atas meja)
C Rolls along together with the card board
(Bergerak bersama dengan kadbod)
D Rolls in the opposite direction of the card board
(Bergerak bertentangan arah dengan arah kadbod)

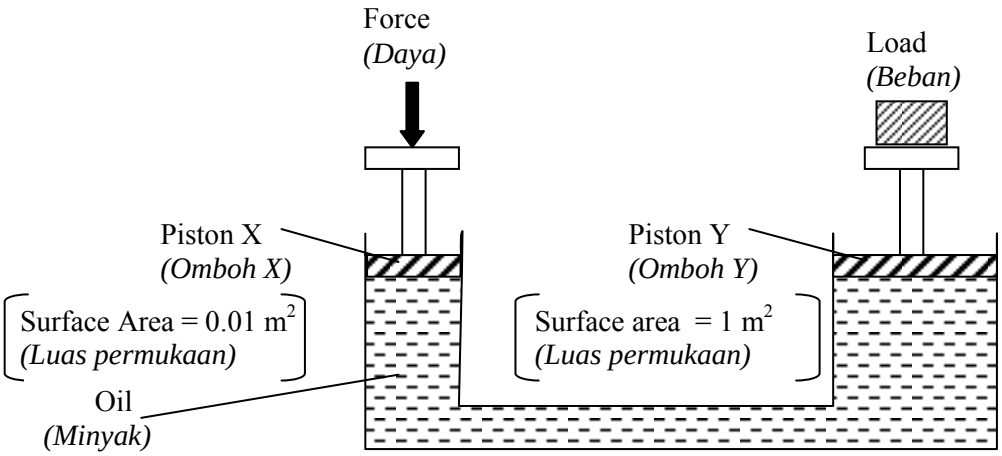
39 The diagram shows ticker tape W, X, Y and Z produced from the movement of a trolley.
(Rajah menunjukkan pita detik W, X, Y dan Z dihasilkan daripada pergerakan sebuah troli)



What type of movement made by the trolley from W to Z?
(*Apakah jenis gerakan troli itu dari W ke Z?*)

A Zero velocity
(*Halaju sifar*)
B Constant velocity
(*Halaju tetap*)
C Decreasing velocity
(*Halaju berkurang*)
D Increasing velocity
(*Halaju meningkat*)

40 The diagram shows a hydraulic system.
(Rajah menunjukkan satu sistem hidraulik)

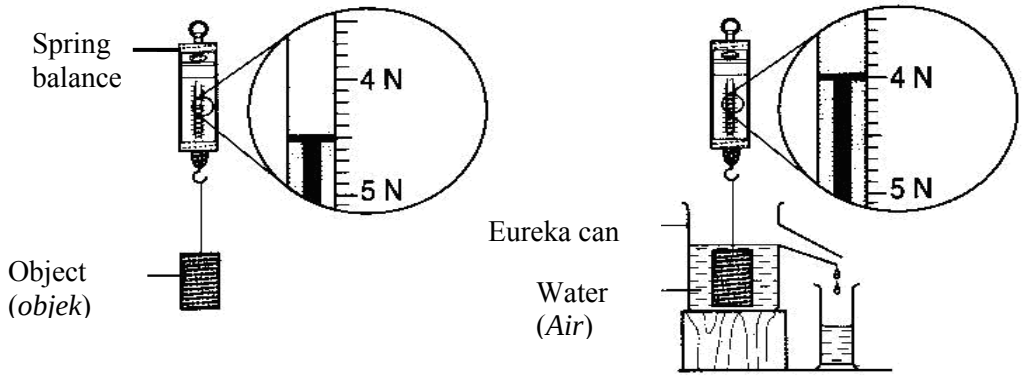


How much force is needed to lift a load of 10,000 N?
(Berapakah daya yang diperlukan untuk mengangkat beban seberat 10,000N?)

$$\text{Pressure (Tekanan)} = \frac{\text{Force (Daya)}}{\text{Surface area (Luas permukaan)}}$$

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

41 The diagram shows an object weighed in the air and then in water.
(Rajah menunjukkan satu objek ditimbang di dalam udara kemudian di dalam air)



What is the upthrust experienced by the object?
(*Berapakah tujah ke atas yang dialami oleh objek tersebut?*)
A 0.5 N
B 4.0 N
C 4.5 N
D 5.0 N

42 What is the best way to preserve a banana without losing the vitamin?
(Apakah kaedah terbaik untuk menyimpan pisang tanpa kehilangan vitamin?)

A Canning
(Pengetinan)

B Cooling
(Penyejukan)

C Dehydration
(Dehidrasi)

D Vacuum packing
(Pembungkusan vakum)

43 What is the function of food emulsifier?
(Apakah fungsi pengemulsi makanan?)

A To prevent oxidation of food
(Untuk menghalang makanan dari teroksida)

B To make food more appealing
(Untuk menjadikan makanan kelihatan lebih menarik)

C To restore flavours of food lost in processing
(Untuk menambah rasa makanan yang hilang semasa pemprosesan makanan)

D To maintain the stability of a mixture of two liquids
(Untuk mengekalkan kestabilan dua larutan yang bercampur)

44 How to process milk using pasteurize method?
(Bagaimanakah pemprosesan susu menggunakan kaedah pempasteuran?)

A Air is removed from the food
(Udara dikeluarkan daripada makanan)

B Water is removed from the food
(A*ir dikeluarkan daripada makanan)*

C Heated at temperature 63^0C for 30 minutes followed by instant cooling
(Dipanaskan pada suhu 63^0C selama 30 minit dan disejukkan serta merta)

D Heated at temperature between 0^0C to 10^0C and preserve in a cool place immediately.
(Dipanaskan pada suhu antara 0^0C hingga 10^0C dan disimpan ditempat sejuk dengan segera)

45 Which of the following is thermosets plastic?
(Manakah antara berikut merupakan plastik termoset?)

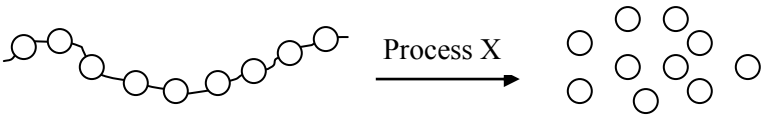
A Thiokol
(Tiokol)

B Bakelite
(Bakelit)

C Polystyrene
(Polistirena)

D Polyvinyl chloride (PVC)
(Polivinil klorida)

46 The diagram shows a process to produce a synthetic material.
(Rajah menunjukkan satu proses bagi penghasilan bahan sintetik)



Polyneoprene
(*Polineoprena*)

Neoprene
(*Neoprena*)

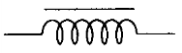
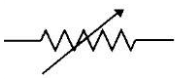
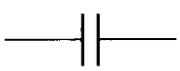
What is process X?
(Apakah proses X?)

A Coagulation
(Penggumpalan)
B Vulcanization
(Pemvulkanan)
C Polymerization
(Pempolimeran)
D Depolymerization
(Penyahpolimeran)

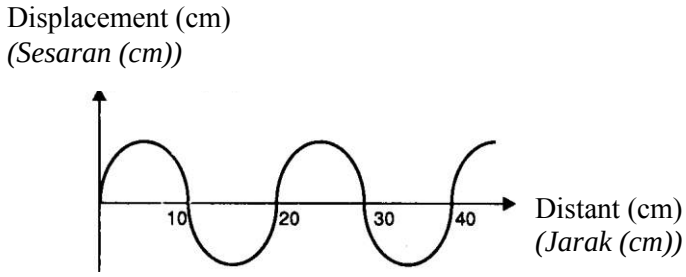
47 What is the best method to avoid pollution from used plastic wrappers?
(Apakah kaedah yang terbaik untuk mengelakkan pencemaran daripada pembungkus plastik yang telah digunakan?)

A Use biodegradable plastic
(Menggunakan plastic yang boleh diurai)
B Throw the plastic into a river
(Membuang plastik ke dalam sungai)
C Burn the plastic in an open area
(Membakar plastik secara terbuka)
D Throw the plastic into the jungle
(Membuang plastik ke dalam hutan)

48 Which electronic component controls the size of current in a circuit?
(Manakah komponen elektronik yang mengawal saiz arus dalam litar?)

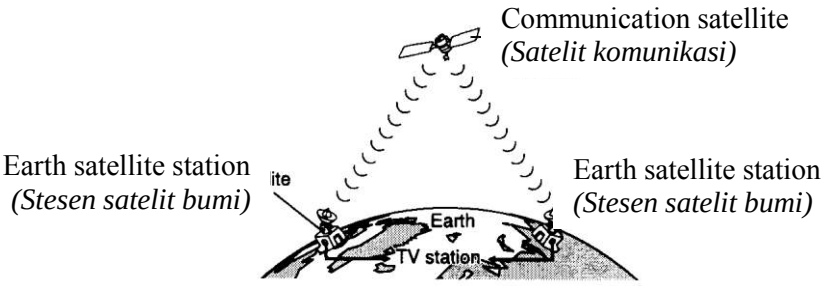
A 
B 
C 
D 

49 The diagram shows a wave. State the wavelength.
(*Rajah menunjukkan satu gelombang. Nyatakan panjang gelombang)*



A 10 cm
B 20 cm
C 30 cm
D 40 cm

50 The diagram shows how information is transmitted between earth satellite stations and a communication satellite.
(*Rajah menunjukkan bagaimana maklumat dipancarkan antara stesen satelit bumi dan satelit komunikasi)*



What type of wave is used in this communication?
(*Apakah jenis gelombang yang digunakan dalam komunikasi ini?)*

A Microwave
(Gelombang mikro)
B Short wave
(Gelombang pendek)
C Long wave
(Gelombang panjang)
D Medium wave
(Gelombang sederhana)

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

1511/2
SAINS
KERTAS 2
2 ½ JAM
SEPT 2013

NAMA: _____ TING: _____

PEPERIKSAAN PRA SPM
SEKOLAH-SEKOLAH MENENGAH
2013

SAINS
KERTAS 2
2 JAM 30 MINIT

DO NOT OPEN THIS TEST PAPER UNTIL YOU ARE TOLD TO DO SO
JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. This question paper consists of three sections: Section A, Section B and Section C.
   Kertas ini mengandungi tiga bahagian :Bahagian A, Bahagian B dan Bahagian C.
2. **Answer all questions** in Section A and Section B. Write your answer for Section A and Section B clearly in the space provided on the question paper.
   Jawab semua soalan-soalan *dalam Bahagian A dan Bahagian B. Jawapan anda untuk Bahagian A dan Bahagian B hendaklah jelas ditulis ditempat yang disediakan dalam kertas jawapan.*
3. For Section C, **answer Question 10** and **choose either Question 11 or Question 12**.
   Untuk Bahagian C, ***Jawab Soalan 10*** *dan* ***pilih salah satu dari Soalan 11 atau Soalan 12****.*
4. The diagrams in the questions provided are not drawn to scale **unless** stated.
   Gambarajah yang dilukis dalam soalan tertentu bukan dilukis mengikut skala yang betul ***kecuali*** *dinyatakan.*
5. The marks allocated for each question are shown in brackets.
   Markah bagi setiap soalan dinyatakan dalam bentuk kurungan.
6. Hand in this question paper at the end of the examination.
   Kertas soalan ini hendaklah diserahkan pada akhir peperiksaan.

For Examiner's Use		
Section	**Question**	**Marks**
A (20)	**1**	
	2	
	3	
	4	
B (30)	**5**	
	6	
	7	
	8	
	9	
C (20)	**10**	
	11	
	12	
Total		

This question paper consists of 17 printed pages
Kertas soalan ini mengandungi 17 halaman bercetak

Section A / *Bahagian A*
[20 marks]

Answer all questions / *Jawab* **semua** *soalan*

The time suggested to answer this section is 60 minutes
Masa yang dicadangkan untuk bahagian ini ialah **60** *minit*

1 The weight of male students in Form 5 Bestari are recorded in the table below.
Berat badan pelajar lelaki dalam kelas Tingkatan 5 Bestari dicatatkan di dalam jadual di bawah.

Weight of students/kg *Berat badan pelajar / kg*									
70	65	63	49	74	53	43	75	56	63
62	66	47	58	60	67	77	50	51	61
55	74	54	68	53	57	78	72	60	56

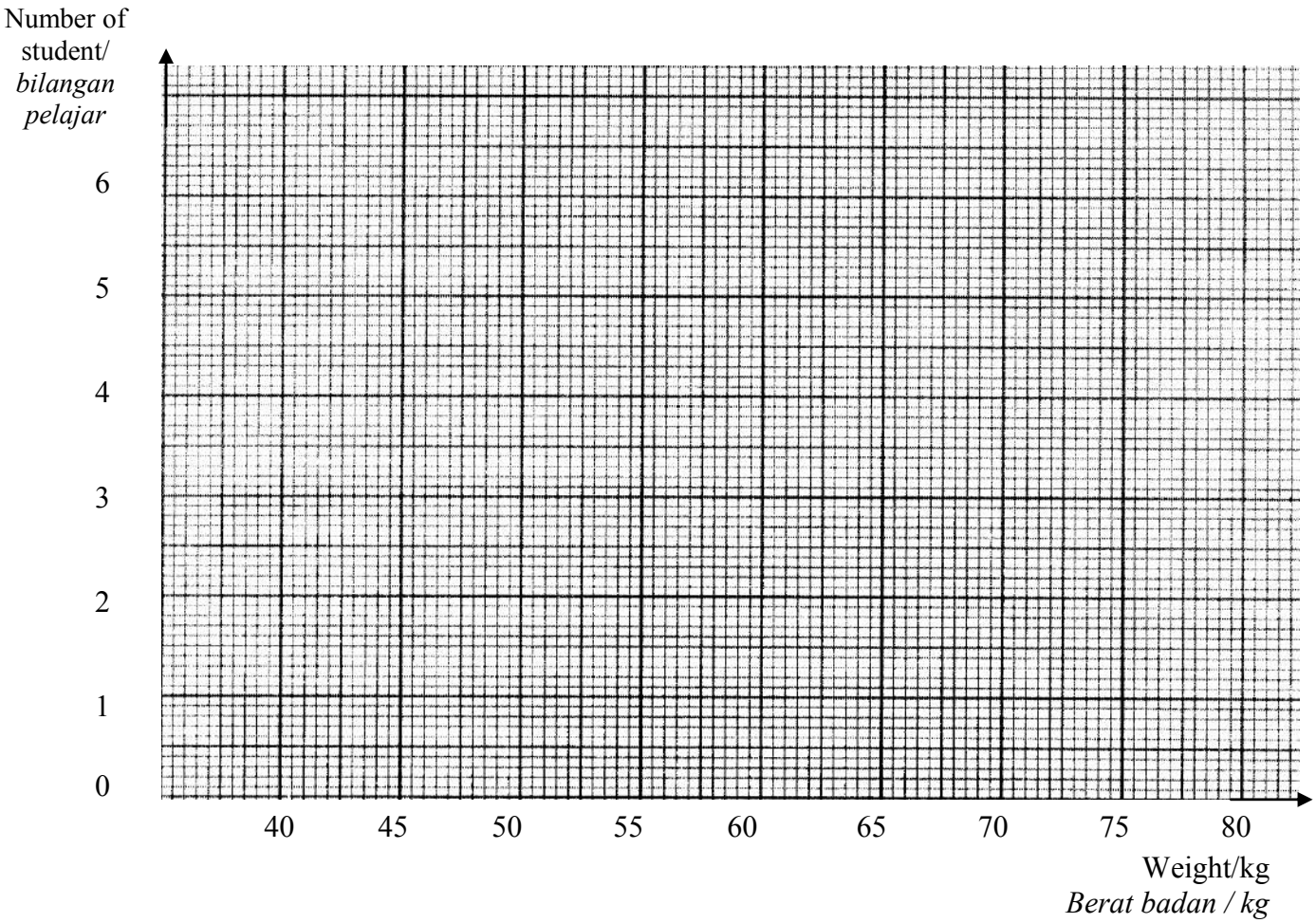
(a) By using the data above, complete Table 1
Dengan menggunakan data di atas, lengkapkan Jadual 1.

Weight *Berat badan* / kg	41 - 45	46 - 50	51 - 55	56 - 60	61 - 65	66 - 70	71 - 75	76 - 80
Number of student *Bilangan pelajar*								

TABLE 1
JADUAL 1

[2 *marks*]

(b) By using the result in Table 1, draw a histogram the number of student against the weight.
Dengan menggunakan keputusan yang diperolehi dalam Jadual 1, lukiskan histogram bilangan pelajar melawan berat badan.



[2 *marks*]

(c) From the histogram in (b), state the type of variation that shown by the weight of students.
Daripada histogram yang diperolehi di (b), tentukan jenis variasi yang ditunjukkan oleh berat badan pelajar.

.....

[1 *mark*]

2 Diagram 1 shows an experiment to study the reactivity of metals when react with oxygen.
(Rajah 1 menunjukkan satu eksperimen untuk mengkaji kereaktifan logam bila bertindak balas dengan oksigen)

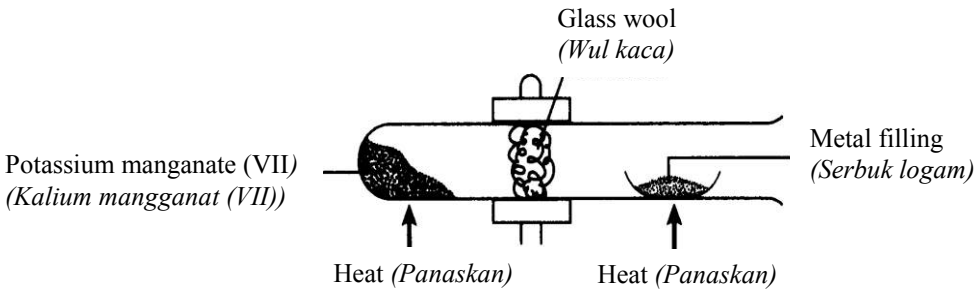


DIAGRAM 1

Three types of metals X, Y and Z are used and the results are shown in the Table 2.
(Tiga jenis logam iaitu X, Y dan Z telah digunakan dan keputusan pemerhatian ditunjukkan dalam Jadual 2.)

Metal ***(Logam)***	**Observation** ***(Pemerhatian)*** (Condition of burning/*keadaan keterbakaran*)
X	Burns with bright light *(Terbakar dengan nyalaan terang)*
Y	Glows dimly *(Membara malap)*
Z	Burns moderately *(Terbakar sederhana)*

TABLE 2 (*Jadual 2*)

(a) Write down **one** inference that can be made from observation in Table 2
*(Tuliskan **satu** inferens yang boleh dibuat berdasarkan pemerhatian pada Jadual 2)*

……

……

[1 *mark*]

(b) State the following variables in this experiment.
(Nyatakan pembolehubah berikut dalam eksperimen ini)

(i) Manipulated *(Dimanipulasi)*

……

(ii) Constant *(dimalarkan)*

……
[2 *marks*]

(c) Based on the results in Table 2, arrange the reactivity of the metals from the most reactive to the least reactive.
(Berdasarkan keputusan dalam Jadual 2, susun kereaktifan logam daripada paling reaktif kepada kurang reaktif).

……
[1 *mark*]

(d) If the metals used in this experiment are magnesium, zinc and iron, predict what is metal **X**?
(*Jika logam-logam yang digunakan di dalam eksperimen ini adalah magnesium, zink dan besi, ramalkan apakah logam **X***?)

……
[1 *mark*]

3 Diagram 3 shows the arrangement of the apparatus to compare the hardness of copper and brass.
The diameter of the dent in each block is measured when the weight is released and the results are recorded.
Rajah 3 menunjukkan susunan radas bagi membandingkan sifat kekerasan kuprum dan loyang. Diameter lekukan yang terbentuk pada setiap bongkah diukur apabila pemberat dijatuhkan dan dicatatkan.

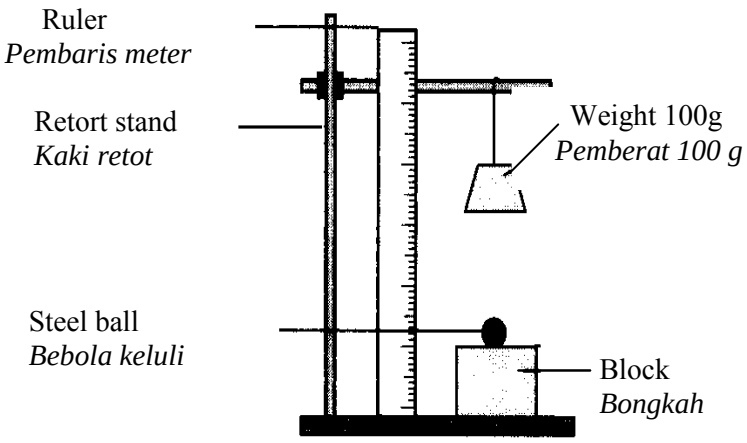


Diagram 3
Rajah 3

The result is recorded on Table 3
Keputusan yang diperolehi dicatatkan dalam Jadual 3.

Block *Bongkah*	Diameter lekuk / cm *The diameter of the dent/cm*		The average of the dent/cm *Purata diameter lekuk / cm*
	Experiment 1 *Eksperimen 1*	Experiment 2 *Eksperimen 2*	
Copper *Kuprum*	1.2	1.4	1.3
Brass *Loyang*	0.8	0.9	.....

Table 3
Jadual 3

(a) Based on the experiment above, complete table 3
Berdasarkan eksperimen di atas, lengkapkan Jadual 3.

[1 *mark*]

(b) Based on Table 2, state the observation in this experiment.
Berdasarkan Jadual 2, nyatakan pemerhatian bagi eksperimen ini.

.....

[1 *mark*]

(c) What is the inference based on the observation above ?
Apakah inferens berdasar pemerhatian di atas?

.....

[1 *mark*]

(d) State the operational definition of brass.
Nyatakan definisi secara operasi bagi loyang.

.....

[1 *mark*]

(d) Predict the diameter of the dent of copper block if weight 200 g is used in this experiment.
Ramalkan diameter lekuk logam kuprum jika pemberat 200 g digunakan dalam eksperimen ini.

.....

[1 *mark*]

4 Diagram 4 shows an experiment to study the weight of plasticine in air and water.
Rajah 4 menunjukkan eksperimen untuk mengkaji berat plastisin di udara dan di dalam air.

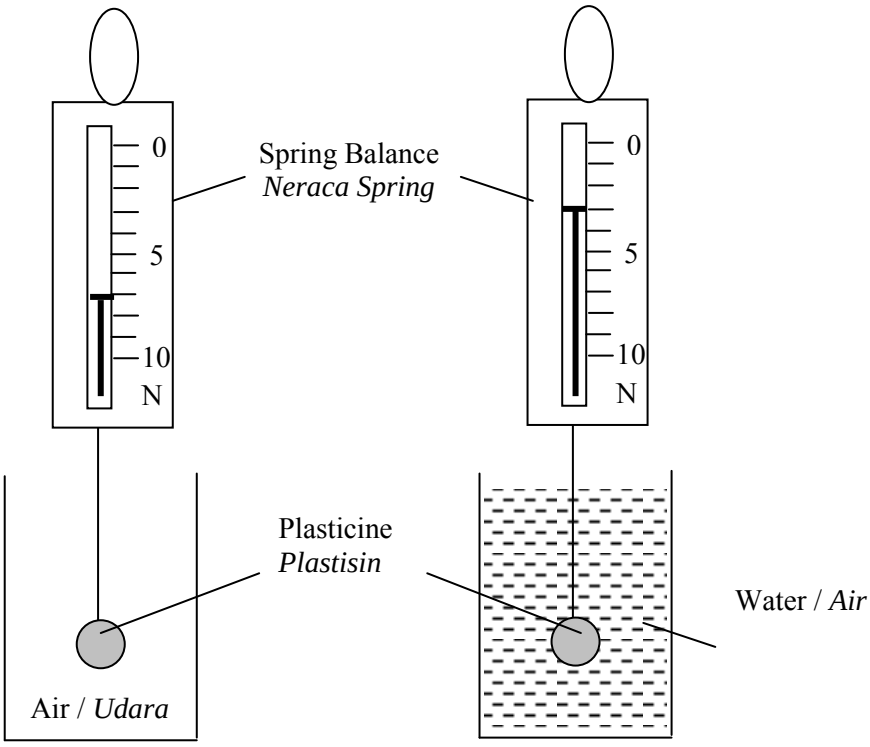


DIAGRAM 4
RAJAH 4

(a) State the weight of the plasticine in air together with its unit.
Catat berat plastisin di udara berserta unitnya.

.....

[1 *mark*]

(b) Write **one** observation for this experiment.
*Tulis **satu** pemerhatian bagi eksperimen itu*

.....

[1 *mark*]

(c) Write **one** inference for the observation made in 4(b).
*Nyatakan **satu** inferens berdasarkan pemerhatian dalam 4(b).*

.....

[1 *mark*]

(d) State the manipulated variable for this experiment.
Nyatakan pembolehubah yang dimanipulasikan.

.....

[1 *mark]*

(e) Predict the reading on the spring balance if the plasticine is dipped in sea water.
Ramalkan bacaan neraca jika plastisin itu di masukkan ke dalam air laut.

.....

[1 *mark*]

Section B / *Bahagian B*

[30 marks]

Answer **all** questions / *Jawab* **semua** *soalan dalam bahagian ini*

The time suggested to answer this section is 50 minutes
Masa yang dicadangkan untuk bahagian ini ialah **50** *minit*

5. Diagram 5 shows organs and neurones that involved while writing a novel
Rajah 5 menunjukkan beberapa organ dan neuron yang terlibat semasa menulis novel.

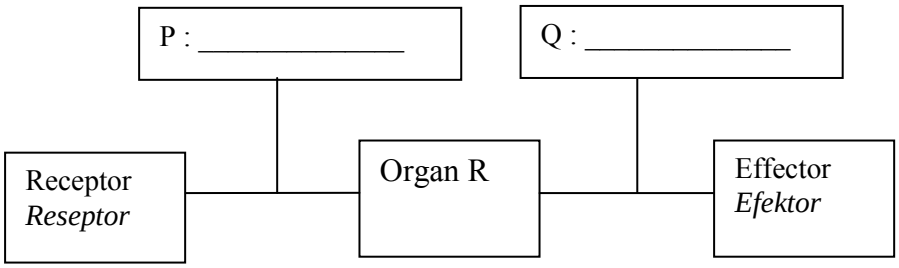


DIAGRAM 5
RAJAH 5

(a) Mark with arrows the direction of impulse in Diagram 5.
Tandakan arah aliran impuls dalam Rajah 5.

[1 *mark*]

(b) Name nurone P , neurone Q and organ R in the boxes provided in Diagram 5.
Namakan neuron P , neuron Q dan organ R dalam kotak pada Rajah 5.

[3 *marks*]

(c) The action above occurs in human body.
Gerak balas di atas berlaku dalam badan manusia.

(i) What type is this action?
Apakah jenis tindakan tersebut?

.....

(ii) Give another example for action (c)(i)
Berikan satu contoh lain bagi tindakan (c)(i)

.....

[2 *marks*]

6 Diagram 6 shows copper refining using electrolysis
Rajah 6 menunjukkan proses penulenan kuprum secara elektrolisis.

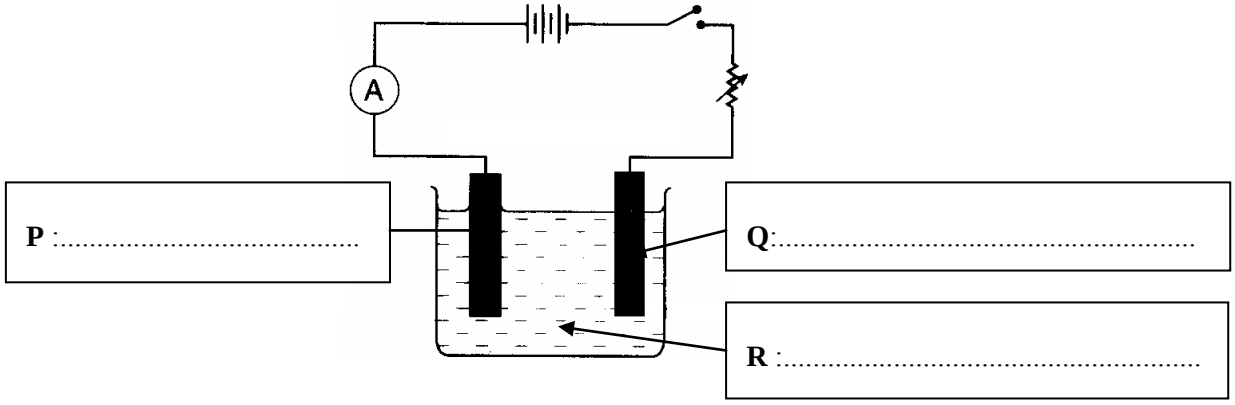


DIAGRAM 6
RAJAH 6

(a) On diagram 6, name P, Q and R by using the following information
Pada Rajah 6, namakan P, Q dan R dengan menggunakan maklumat berikut;

Pure copper/*Kuprum tulen* Impure copper/*Kuprum tak tulen* Copper(II) sulphate/*Larutan kuprum(II) sulfat*

[3 *marks*]

(b) State the energy changes in this electrolysis process
Nyatakan perubahan tenaga yang berlaku dalam proses elektrolisis

.....
[1 *mark*]

(c) Why metal P becomes thinner in the electrolysis process?
Mengapakah logam P menjadi semakin nipis semasa proses elektrolisis?

.....
[1 *mark*]

(d) State **one** use of electrolysis other than metal refining
*Nyatakan **satu** kegunaan elektrolisis selain dari penulenan logam.*

.....
[1 *mark*]

7 Diagram 7 shows radioactive radiation in electrical field.
Rajah 7 menunjukkan sinar radioaktif dalam medan elektrik.

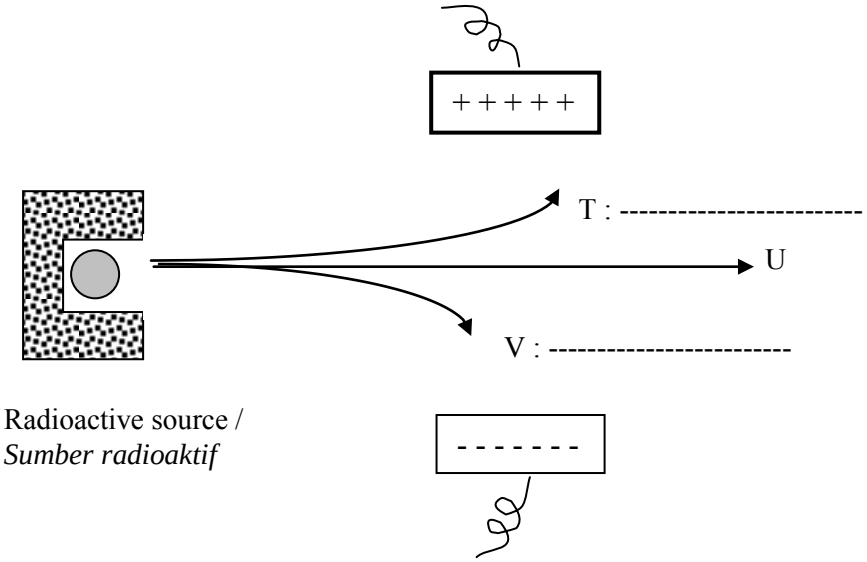


DIAGRAM 7
RAJAH 7

(a) Name radioactive rays T and V in Diagram 7.
Namakan sinar radioaktif T dan V pada Rajah 7.

[2 *marks*]

(b) (i) Which ray is positively charged?
Sinar manakah yang bercas positif?

.....

(ii) Explain your answer in b(i)
Jelaskan jawapan anda di b(i).

.....

[2 *marks*]

(c) Which ray is used to sterile food before packaging?
Sinar manakah yang digunakan untuk mensterilkan makanan sebelum dibungkus?

.....

[1 *mark*]

(d) State the method that can be used to stop ray U from emit to the environment?
Nyatakan kaedah yang boleh digunakan untuk menghalang sinar U terpancar ke persekitaran ?

.....

[1 *mark*]

8 Diagram 8 shows the amount of antibody in blood of a normal male after two times of vaccine injection
Rajah 8 menunjukkan jumlah antibodi dalam darah seorang lelaki normal setelah dua kali suntikan vaksin dilakukan.

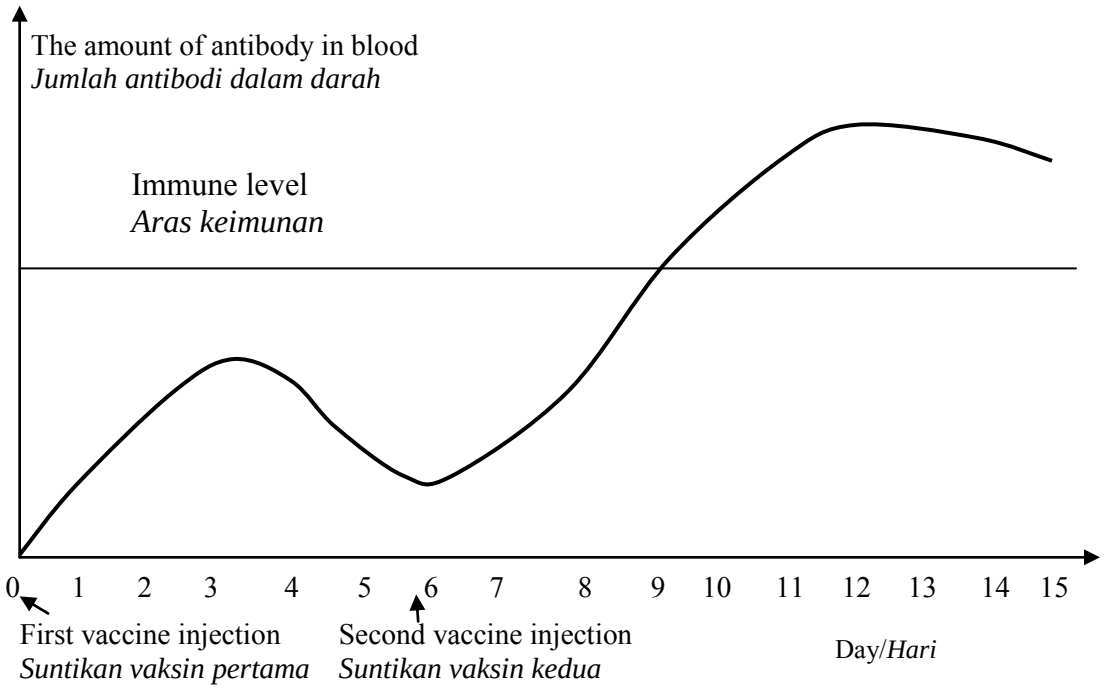


DIAGRAM 8

(a) What is found in vaccine solution?
Apakah yang terdapat dalam larutan vaksin?

.....
[1 *mark*]

(b) State the type of immunization that is gained by the man.
Nyatakan jenis keimunan yang diperolehi oleh lelaki tersebut.

.....
[1 *mark*]

(c) Why the second vaccine injection must be done?
Mengapakah perlu suntikan vaksin kedua dilakukan?

.....
[1 *mark*]

(d) On which day the man obtained the immunity level?
Pada hari keberapakah lelaki tersebut mencapai aras keimunan?

.....
[1 *mark*]

(e) Name the cell in our body that produce antibody.
Namakan sel dalam badan yang menghasilkan antibodi.

.....

[1 *mark*]

(f) Give **one** function of antibody in our body.
*Berikan **satu** fungsi antibodi dalam badan*

.....

[1 *mark*]

9 Diagarm 9.1 shows the water flows in the Bernoulli Tube.
Rajah 9.1 menunjukkan aliran air dalam Tiub Bernoulli.

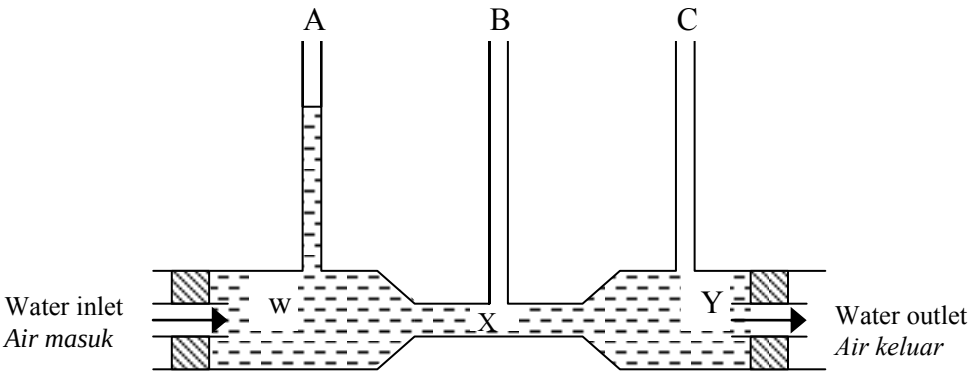


Diagram 9.1

(a) Mark the water level at Tube B.
Tandakan aras air pada Tiub B.

[1 *mark*]

(b) W, X and Y are the points in the water that flows in Bernoulli Tube.
Which area has ……
W, X dan Y ialah titik di dalam air yang mengalir dalam Tiub Bernoulli.
Kawasan yang manakah mempunyai ……..

(i) the higher velocity of water ?
aliran air yang paling laju?

.....

(ii) the higher pressure of water ?
tekanan air paling tinggi?

.....

[2 *marks*]

(c) (i) State the relationship between the velocity and the pressure of water in Diagram 9.
Nyatakan hubungan di antara kelajuan air dengan tekanan air dalam Rajah 9

.....

(ii) Name the shape of flight which uses Bernoulli Principle
Namakan bentuk pada sayap pesawat terbang yang menggunakan prinsip Bernoulli.

.....
[2 *marks*]

(d) Diagram 9.2 shows the Bernoulli Tube which both ends of tubes are blocked. Mark the water level in tube B and C in Diagram 9.2
Rajah 9.2 menunjukkan Tiub Bernoulli ditutup kedua-dua hujungnya. Tandakan aras air pada tiub B dan C pada Rajah 9.2.

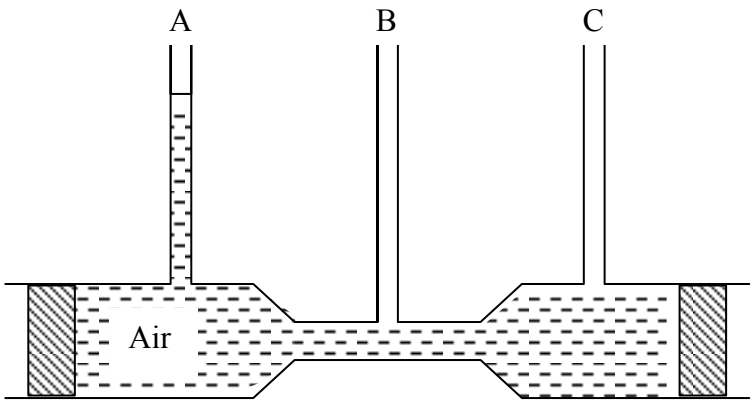


Diagram 9.2

[1 *mark*]

Section C

[20 *marks*]

Answer **Question 10** *and either* **Question 11** or **Question 12**.
Write your answers on pages 15 - 18
The time suggested to answer this section is 40 minutes
Jawab ***Soalan* 10** *dan mana-mana* ***satu*** *daripada* **Soalan 11** atau **Soalan 12.**
Tuliskan jawapan anda di halaman 15-18.
Masa yang dicadangkan untuk menjawab bahagian ini ialah **40** *minit.*

10 Study the following statement:
(Kaji pernyataan berikut)

Reaction of different metals with acid will produce different volume of gas. *(Tindak balas logam yang berlainan dengan asid akan menghasilkan isipadu gas yang berlainan)*

You are given boiling tube, cork stopper, delivery tube glass trough, water, magnesium powder, zinc powder and dilute sulphuric acid.
(Anda diberikan tabung didih, penutup tabung uji, salur penghantar, air, serbuk magnesium, serbuk zink dan asid sulfurik cair)

(a) Suggest a hypothesis to investigate the above statement [1 *mark*]
(*Cadangkan satu hipotesis untuk menyiasat penyataan di atas*)

(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 criteria berikut*)

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

(ii) Identification of variables [2 *marks*]
(*Mengenal pasti pembolehubah*)

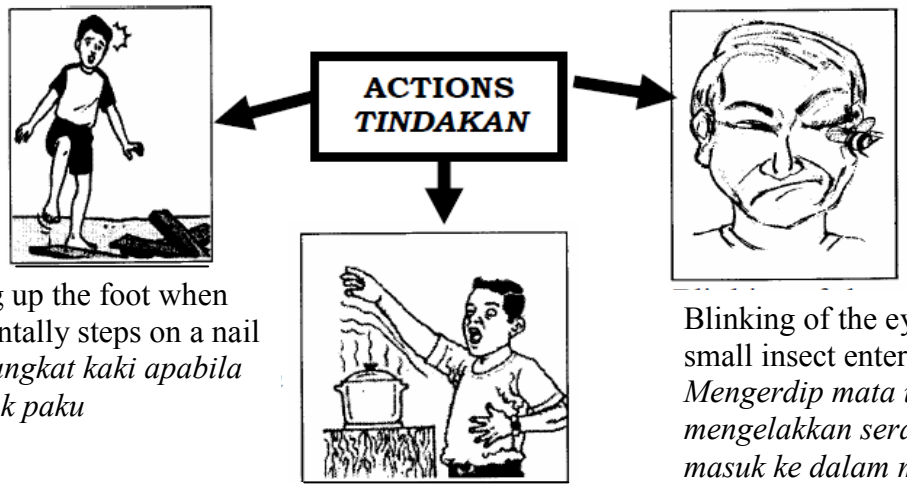
(iii) List of apparatus and materials [1 *mark*]
(*Senarai radas dan bahan*)

(iv) Procedure and methods [4 *marks*]
(*Prosedur atau kaedah*)

(v) Tabulation of Data [1 *mark*]
(*Penjadualan Data*)

11(a) State **four** differences between voluntary action and involuntary action.
*Nyatakan **empat** perbezaan antara tindakan terkawal dengan tindakan luar kawal.*
[4 *marks*]

(b) Diagram 10 shows several actions. Study the actions in Diagram 10 and construct the concept of reflex action.
Rajah 10 menunjukkan beberapa tindakan. Kaji tindakan-tindakan dalam Rajah 10 dan bina konsep tindakan refleks.



Lifting up the foot when accidentally steps on a nail
Mengangkat kaki apabila terpijak paku

Withdrawal away of the hand when touches a hot pot
Menarik tangan apabila tersentuh periuk panas

Blinking of the eyes to avoid small insect entering the eyes.
Mengerdip mata untuk mengelakkan serangga halus masuk ke dalam mata.

Diagram 10
Rajah 10

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

- Identify **two** common characteristics
  *Kenal pasti **dua** ciri sepunya*

[2 marks]

- Give **one** other example of reflex action
  *Beri **satu** contoh lain bagi tindakan refleks*

[1 marks]

- Give **two** actions which are not reflex actions
  *Beri **dua** tindakan yang bukan tindakan refleks*

[2 marks]

- Relate the common characteristics to construct the actual concept of reflex action
  Hubungkaitkan ciri sepunya untuk membina konsep sebenar tindakan refleks

[1 *mark*]

12 (a) State **two** sources of water pollution and **two** effects on the environment
*(Nyatakan **dua** punca pencemaran air dan **dua** kesan terhadap persekitaran)*
[4 *marks*]

(b) The Environmental Department had received a complaint from Kampung Indah's residents regarding to variety species of fishes found floating dead in the river. The result of the investigation made on the sample taken from the river proves that the river was contaminated with effluents from the nearby palm oil factory.

Explain **three** methods that could be done by the factory management in order to eliminate the effluents produced. Your explaination should base on the following aspect:

(Jabatan Alam Sekitar telah menerima aduan daripada penduduk Kampung Indah tentang pelbagai spesies ikan telah ditemui mati terapung di dalam sungai. Setelah sample air sungai tersebut diambil untuk dikaji, bukti menunjukkan sungai tersebut telah dicemari oleh sisa-sisa daripada kilang minyak kelapa sawit berhampiran sungai tersebut.

*Terangkan **tiga** kaedah yang boleh dilakukan oleh pengurusan kilang tersebut dalam menghapuskan sisa-sisa yang terhasil. Penerangan anda mestilah mengandungi aspek-aspek berikut:)*

- Identify the problem.
(Mengenalpasti masalah)

- Clarification of the problem
(Penjelasan masalah)

- Explain **three** alternatives to conserve the river
*(Terangkan **tiga** alternatif bagi memulihara sungai tersebut)*

- Choose the best alternative and state the reason for your choice
(Pilih alternatif terbaik dan nyatakan sebab pilihan anda)

[6 *marks*]

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

PEPERIKSAAN PRASPM SEKOLAH-SEKOLAH MENENGAH 2013

PEPERIKSAAN PRASPM
SAINS TINGKATAN 5
2013

MARKING SCHEME

PAPER 1

1	**D**	**11**	**C**	**21**	**A**	**31**	**C**	**41**	**A**
2	**B**	**12**	**A**	**22**	**C**	**32**	**C**	**42**	**B**
3	**C**	**13**	**C**	**23**	**D**	**33**	**B**	**43**	**D**
4	**A**	**14**	**D**	**24**	**B**	**34**	**D**	**44**	**C**
5	**B**	**15**	**A**	**25**	**C**	**35**	**C**	**45**	**B**
6	**D**	**16**	**B**	**26**	**C**	**36**	**C**	**46**	**D**
7	**D**	**17**	**A**	**27**	**C**	**37**	**B**	**47**	**A**
8	**B**	**18**	**B**	**28**	**A**	**38**	**B**	**48**	**C**
9	**B**	**19**	**D**	**29**	**C**	**39**	**D**	**49**	**B**
10	**D**	**20**	**A**	**30**	**D**	**40**	**A**	**50**	**A**

Total mark for Paper 1 : 50 marks

PAPER 2

SECTION A

A1 (a)

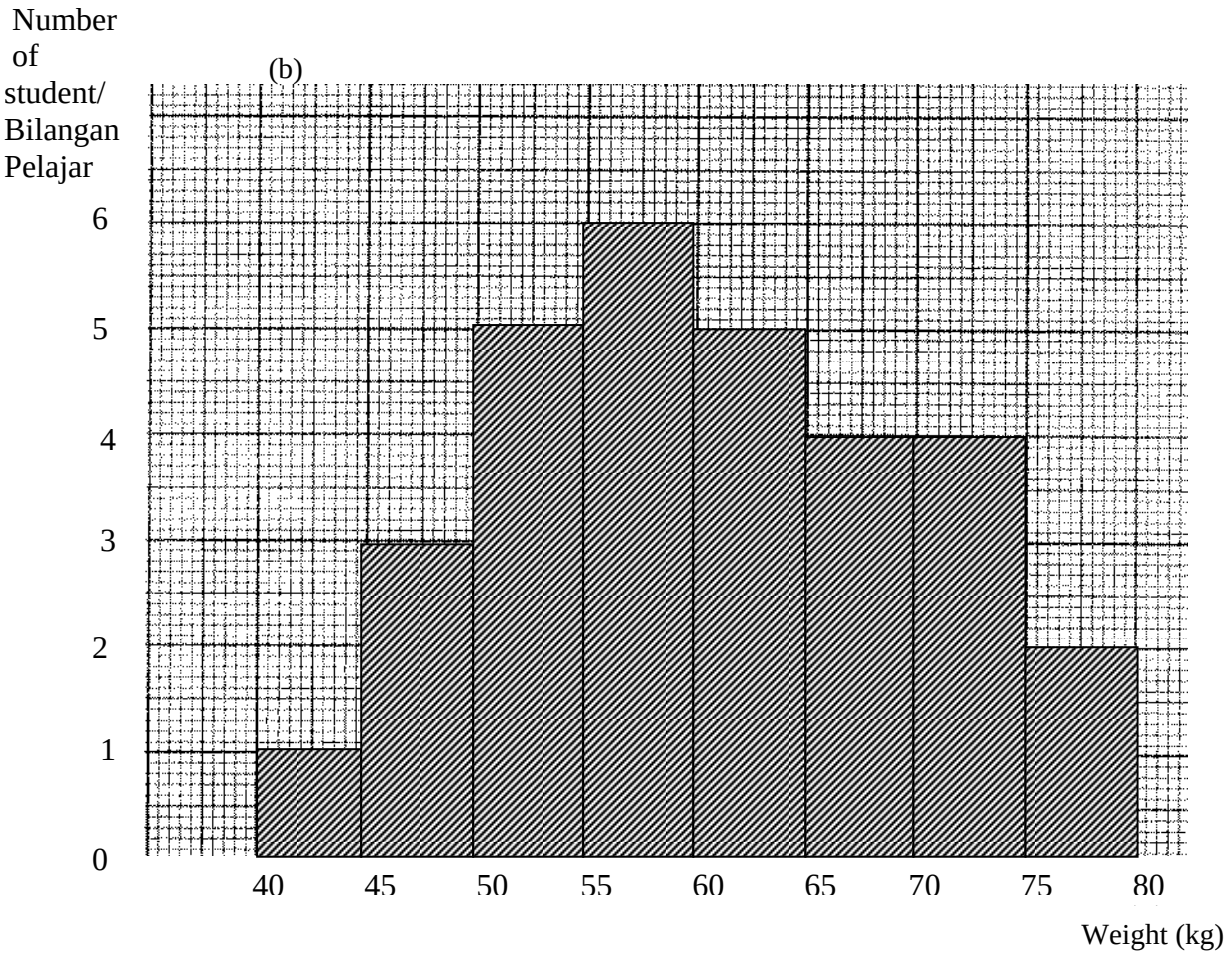
Weight/Berat badan / kg	41 - 45	46 - 50	51 - 55	56 - 60	61 - 65	66 - 70	71 - 75	76 - 80
Number of students/Bilangan pelajar	1	3	5	6	5	4	4	2

`

Correct 4 hingga 7 1 m

All correct- 2 m

(b)



- Transfer all points corrrectly – 1 m
- Bar chart has th – 1 m

A2 (a) Metal X is the most reactive // Metal Y is the least reactive 1 m
(Logam X paling reaktif // logam Y paling tidak reaktif)

(b) (i) Type of metal 1 m

(ii) Amount/Quantity/Mass of metal 1 m

(c) X, Z, Y 1 m

(d) Magnesium 1 m

Total 5 m

A3 (a) 0.85 cm 1 m

(b) (The average of diameter) the dent of copper block is more than brass block// vice versa
(Purata diameter) lekuk (bongkah) kuprum lebih besar berbanding (bongkah)loyang//sebaliknya 1 m

(c) The brass is harder than copper.// vice versa
Loyang lebih keras berbanding kuprum//sebaliknya 1 m

(d) Brass is a type of substance that produced the shallower dent/0.85 cm
Loyang ialah sejenis bahan yang menghasilkan lekuk yang cetek/0.85 cm 1 m

(e) More than 1.3 cm //any answers more than 1.3 cm
Lebih besar daripada 1.3 cm//mana-mana jawapan lebih daripada 1.3 cm 1m

Total 5 m

A4 (a) 7.0 N — 1 m
(b) The weight of plasticine in air is bigger compared to water — 1 m
(c) Thrust force is formed in water — 1 m
(d) Air and water // medium type — 1 m
(e) Less than 3N — 1 m
Total **5 m**

SECTION B

B5 (a) Receptor ⟶ Organ R ⟶ Effector — 1 m
(b) P : Sensory Neurone/*Neuron deria*
Q : Motor Neuron/*Neuron motor*
R : Brain/*Otak* — 3 m
(c) (i) Voluntary action/*Tindakan terkawal*
(ii) Any example of voluntary action/*Sebarang contoh tindakan terkawal* — 2 m

Total **6 m**

B6 (a) P : Impure Copper/*Kuprum tak tulen*
Q : Pure Copper/*Kuprum tulen*
R : Copper (II) sulphate solution/*Larutan kuprum(II) sulfat* — 3 m
(b) Chemical energy to electical energy/*Tenaga kimia kepada tenaga elektrik* — 1 m
(c) P metal dissolve to form positive ion/*Logam P melarut membentuk ion positif* — 1 m

(d) Metal extraction//Metal electroplating/*Pengekstrakan logam // Penyaduran logam* — 1 m

Total **6 m**

B7 (a) T : Beta ray/*Sinar beta*
V : Alpha ray/*Sinar alfa* — 2 m
(b) (i) V ray/Alpha ray/*Sinar V// Sinar alfa*
(ii) because it deflect to negative plate/*kerana ia terpesong ke plat negatif* — 2 m
(c) U ray/gama ray/*Sinar U//Sinar gama* — 1 m

(d) Placed in lead block//concrete container/*Letak dalam blok plumbum//bekas konkrit* — 1 m

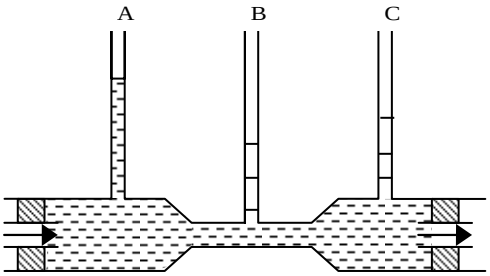
Total **6 m**

B8 (a) Substance that contains weakened or mild form of pathogen to produce immunity.
(Bahan yang mengandungi patogen yang mati atau dilemahkan untuk menghasilkan keimunan) — 1 m
(b) Artificial active immunity — 1 m
(c) To stimulate antibodies up to the level of immunity — 1 m
(Untuk merangsang antibodi mencapai aras keimunan)
(d) 9 — 1 m

(e) Sel darah putih — 1 m
(f) Membunuh/melawan patogen //mencegah penyakit — 1 m

Total **6 m**

B9 (a)



1 m

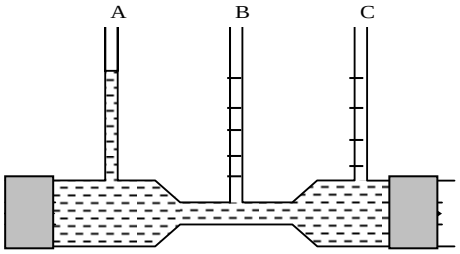
(b) (i) Area X 1 m

(ii) Area W 1 m

(c) (i) The velocity of water increase, the pressure decrease (*Halaju air bertambah tekanan berkurang*) // Vice Versa *(sebaliknya*) 1 m

(ii) Aerofoil 1 m

(d)



1 m

Total **6 m**

SECTION C

10 (a) Reaction of reactive metals with acid produce a higher volume of gas/ the more reactive the metal the higher the volume of gas produced 1 m
(Semakin reaktif logam semakin tinggi isipadu gas terbebas)

(b) (i) To study the reactivity of metals with acid 1 m
(Mengkaji kereaktifan tindakbalas logam dengan asid)

(ii) Manipulated variable: type of metal *(Jenis logam)*
Responding variable: volume of gas collected *(isipadu gas terkumpul)*
Controlled variable: concentration of dilute sulphuric acid *(kepekatan asid sulfurik)*
(any two)
2 m

(iii) boiling tube, cork stopper, delivery tube, glass trough, water, magnesium powder, zinc powder, copper powder dilute sulphuric acid and **test tube**. 1 m

(iv) 1. 5 cm^3 of dilute sulphuric acid is poured into a boiling tube.
(5 cm^3 asid sulfurik dituang ke dalam tabung didih)
2. A spatula of magnesium powder is added into the boiling tube.
(Satu spatula serbuk magnesium ditambah ke dalam tabung didih tersebut)
3. The gas released is collected in a test tube.
(Gas yang terbebas dikumpul di dalam tabung uji)
4. Steps 1-3 is repeated using zinc and copper powder.
(Langkah 1-3 diulang menggunakan serbuk zink dan kuprum)
5. The volume of gas collected is recorded in a table.
(Isipadu gas yang terkumpul direkodkan dalam jadual)
(any four) 4 m

(v) Tabulation of data

Type of metal	Volume of gas (cm^3)
Magnesium	
Zinc	
Copper	

1m

Total **10 m**

11 (a)

Voluntary action	Involuntary action
Action which we are aware of // action can be controlled	Automatic action // action cannot controlled
Action can be slowed or fastened	Fast action
Response involve skeletal muscles	Response involve smooth muscles
Action is controlled by cerebrum	Action is controlled by medulla oblongata
Action involve the somatic nervous system	Action involve the autonomic nervous system

Note: Any four differences [4 m]

(b) Common characteristics

1. Automatic response towards external stimulus
2. Action which is controlled by spinal cord [2 m]

Other example

Knee jerk
Note: Any relevant answer [1 m]

Two Non-examples

Reading and writing
Note: Any relevant answer [2 m]

Actual concept

Reflex action is an automatic response towards external stimulus and is controlled by spinal cord
Note: 1. Must has minimum two common characteristics
2. Actual concept: the two common characteristics must be mentioned
[1 m]

12 (a) Disposal of rubbish/ sewage/ fertilizer/ toxic substance/ chemicalsubstance / oil spills/ pesticides/ fungiticides.
(Pembuangan sampah sarap/ air kumbahan/baja/ bahan toksik/ bahan kimia/ tumpahan minyak/penggunaan racun serangga)
(any two suitable answers) 2 m

Effects :
Kills aquatic organisms/ destructions of habitats/ Change the pH value of water/ leads to eutrophication/ causes lack of oxygen in water/
(memusnahkan hidupan akuatik/ pemusnahan habitat/ perubahan nilai pH air/ menyebabkan eutrofikasi/ mengurangkan kandungan oksigen dalam air)
(any two suitable answers) 2 m

(b) *Identify the problem: The variety species of fishes found floating dead in the river/The river was contaminated with effluents from the nearby palm oil factory
(Pelbagai spesies ikan didapati mati dalam sungai/ sungai itu telah dicemari oleh sisa daripada kilang kelapa sawit berhampiran) 1 m

* Three alternatives and explanations
- Treating liquid effluents from the factory before disposing them into the river 1 m
  (Rawat sisa cecair daripada kilang sebelum dialirkan ke dalam sungai)
- Recycle solid effluents from the factory into useful substances/ animals feed/ compost fertilizer 1 m
  (Kitar semula sisa pepejal daripada kilang kepada bahan yang boleh digunakan/ makanan haiwan/ baja kompos)
- Burn the oil palm waste can lead to release of thick smoke 1 m
  (Bakar sisa kelapa sawit boleh menyebabkan penghasilan asap yang tebal)

* Sequence of priority:
1. Treating liquid effluent *(Rawat sisa cecair)*
2. Recycle solid effluent *(Kitar semula sisa pepejal)*
3. Burn the waste *(Bakar sisa tersebut)* 1 m

* Best alternative: treating liquid effluent can protect the aquatic animals. 1 m
(Rawat sisa cecair boleh melindungi haiwan akuatik)

Total 10 m

Total marks for Section C20 marks

END OF MARKING SCHEME

JADUAL SPESIFIKASI UJIAN
PEPERIKSAAN PERCUBAAN SPM TAHUN 2013
SAINS TINGKATAN 5 – KERTAS 1

SUB	TOPIC	CONSTRUCT			LEVEL		
		K	U	A	L	M	H
TINGKATAN 4 **KOORDINASI BADAN**							
2.5	OTAK MANUSIA	1			1		
2.6	KOORDINASI KIMIA DI DALAM BADAN	1			1		
2.7	KOORDINASI ANTARA SISTEM SARAF DENGAN SISTEM ENDOKRIN		1			1	
KETURUNAN DAN VARIASI							
3.1	PEMBAHAGIAN SEL	1			1		
3.2	PRINSIP & MEKANISME PEWARISAN	1			1		
3.5	KESAN PENYELIDIKAN GENETIK TERHADAP KEHIDUPAN MANUSIA		1			1	
JIRIM DAN BAHAN							
4.1	PERUBAHAN KEADAAN JIRIM	1			1		
4.2	STRUKTUR ATOM			1			1
4.4	JADUAL BERKALA			1			1
4.6	LOGAM DAN BUKAN LOGAM	1			1		
TENAGA DAN PERUBAHAN KIMIA							
5.2	PERUBAHAN HABA DALAM TINDAK BALAS KIMIA	1			1		
5.5	ELEKTROLISIS		1			1	
5.7	TINDAKBALAS KIMIA YANG BERLAKU DENGAN ADANYA CAHAYA	1			1		
TENAGA NUKLEAR							
6.1	BAHAN RADIOAKTIF			1			1
6.2	PENGHASILAN TENAGA NUKLEAR DAN KEGUNAANNYA		1			1	
6.3	PENGENDALIAN BAHAN RADIOAKTIF YANG SEMPURNA	1			1		
CAHAYA, WARNA DAN PENGLHATAN							
7.3	PENYEBARAN CAHAYA	1				1	
7.4	PENYERAKAN CAHAYA			1			1
7.5	PENAMBAHAN DAN PENOLAKAN CAHAYA BERWARNA		1	1		1	1

BAHAN KIMIA DALAM PERINDUSTRIAN							
8.1	SIFAT ALOI DAN KEGUNAANNYA			1			1
8.2	PENGHASILAN DAN PENGGUNAAN AMMONIA DALAM INDUSTRI		1			1	
8.3	KESAN PEMBUANGAN BAHAN SISA INDUSTRI TERHADAP ALAM SEKITAR	1			1		
TINGKATAN 5 **MIKROORGANISMA DAN KESANNYA TERHADAP BENDA HIDUP**							
1.1	PENGELASAN MIKROORGANISMA	1			1		
1.3	PERANAN MIKROORGANISMA BERFAEDAH	1			1		
1.5	CARA-CARA MENCEGAH JANGKITAN PENYAKIT YANG DISEBABKAN OLEH MIKROORGANISMA		1			1	
NUTRISI DAN PENGELUARAN MAKANAN							
2.1	KEPENTINGAN MENGAMBIL MAKANAN BERNUTRISI DAN MENGAMALKAN TABIAT PEMAKANAN YANG SIHAT		1			1	
PEMELIHARAAN DAN PEMULIHARAAN ALAM SEKITAR							
3.1	KESEIMBANGAN ALAM SEMULAJADI	2			2		
3.2	PENCEMARAN ALAM SEKITAR		1			1	
3.3	PEMELIHARAAN DANPEMULIHARAAN ALAM SEKITAR	1	1		1	1	
SEBATIAN KARBON							
4.2	ALKOHOL DAN KESANNYA KEATAS KESIHATAN			1			1
4.3	LEMAK DAN KESANNYA TERHADAP KESIHATAN	2			2		
4.6	POLIMER SEMULA JADI	1	1		1	1	
GERAKAN							
5.3	KONSEP INERSIA	1				1	
5.4	KONSEP LAJU, HALAJU & PECUTAN			1			1
5.6	PRINSIP SISTEM HIDRAULIK DALAM KEHIDUPAN SEHARIAN			1			1
5.7	GERAKAN KENDERAAN DI AIR		1			1	
TEKNOLOGI MAKANAN DAN PENGHASILAN MAKANAN							

6.1	KAEDAH DAN BAHAN YANG DIGUNAKAN DALAM TEKNOLOGI PEMPROSESAN MAKANAN	2		1	2		1
BAHAN SINTETIK DALAM INDUSTRI							
7.1	POLIMER SINTETIK		1			1	
7.2	PLASTIK	1			1		
7.3	SIKAP BERTANGGUNGJAWAB DALAM PELUPUSAN POLIMER SINTETIK	1			1		
ELEKTRONIK DAN TEKNOLOGI MAKLUMAT (ICT)							
8.1	GELOMBANG RADIO	1	1		1	1	
8.3	KOMUNIKASI SATELIT		1			1	
	JUMLAH	25	15	10	25	15	10

JADUAL SPESIFIKASI UJIAN
PEPERIKSAAN PERCUBAAN SPM TAHUN 2013
SAINS TINGKATAN 5 – KERTAS 2

No. soalan	SP/HSP	Tajuk	KONSTRUK											
			KEM.SAINTIFIK			PENGETAHUAN			KEFAHAMAN			APLIKASI		
			R	S	T	R	S	T	R	S	T	R	S	T
SECTION A														
1	3.6 FM4	VARIASI		/			2	1		2				
2	4.6 FM4	LOGAM DAN BUKAN LOGAM	/				1		2		1	1		
3	8.1 FM4	SIFAT ALOI DAN KEGUNAANNYA			/		1	1	1	1	1			
4	5.7 FM5	GERAKAN KENDERAAN DI AIR		/		1	1	1	1	1				
SECTION B														
5	2.2 FM4	SISTEM SARAF MANUSIA				1	1	1	1	1	1			
6	5.5 FM4	ELEKTROLISIS						1	1	1	1	1	1	
7	6.1 FM4	BAHAN RADIOAKTIF					1			1	1	1	1	
8	1.5 FM5	CARA-CARA MENCEGAH JANGKITAN PENYAKIT YANG DISEBABKAN OLEH MIKROORGANISMA				1	1	1	1	1	1	1		
9	5.8 FM5	GERAKAN KENDERAAN DI UDARA					1	1	1	1	1	1		
SECTION C														
10	4.6 FM4	LOGAM DAN BUKAN LOGAM			/	1	1	1	1	1	4	1		
11	2.5, 2.7 FM4	OTAK MANUSIA DAN KOORDINASI ANTARA SISITEM SARAF DENGAN SISTEM ENDOKRIN		/			1	2	1	2	4			
12	3.2 FM5	PENCEMARAN ALAM SEKITAR			/					4	1	1	4	
		JUMLAH	1	3	3	4	11	10	10	16	16	7	6	

ANALYSIS SECTION A PAPER 2 – SCIENTIFIC SKILL

NO.	Scientific Skills/ Science Process Skills	QUESTION			
		Q1	Q2	Q3	Q4
1	Observing			1	1
2	Classsifying (2m)	1			
3	Measuring and using numbers	1		1	
4	Inferring		1	1	1
5	Predicting	1		1	1
6	Communiting (3m)	1			
7	Using space-time relationship	1			
8	Interpreting data	1	1	1	
9	Defining Operationally			1	
10	Controlling variables (3m)				
10	Control variables		1		
10	Manipulated variables		1		1
10	Responding variables				
11	Hypothesising				
12	Experimenting	Question 10 – Section C			
	TOTAL	6	5	6	4