SULIT

1511/2
Science
Paper 2
Okt / Nov
2010
2 ½ hours

NAMA : ..... TINGKATAN .....

JABATAN PELAJARAN NEGERI TERENGGANU

PEPERIKSAAN AKHIR TAHUN 2010
TINGKATAN EMPAT

SCIENCE

Paper 2

Two Hours and Thirty Minutes

DO NOT OPEN THIS TEST PAPER UNTIL YOU ARE TOLD TO DO SO

1 *This question paper consists of three sections:* **Section A** **Section B** *and* **Section C**

2 *Answer* **all** *questions in* **Section A** *and* **Section B**. *Write your answers for* **Section A** *and* **Section B** *clearly in the space provided on the question paper.*

3 *For* **Section C**, *answer* **Question 10** *and choose another* **Question 11** *or* **Question 12**. *Write your answer for* **Section C** *on the lined pages provided at the end of this paper. Answer should be clear and logical.*

4 *The marks allocated for each sub-part of a question are shown in brackets.*

5 *The time suggested to complete* **Section A** *is 60 minutes,* **Section B** *is 50 minutes and* **Section C** *is 40 minutes.*

6 *You are allowed to answer the question in English or Bahasa Melayu.*

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

Disediakan Oleh:
AKRAM NEGERI TERENGGANU

Dibiayai Oleh:
KERAJAAN NEGERI TERENGGANU

TERENGGANU ANJUNG ILMU

Dicetak Oleh:
Percetakan Yayasan Islam Terengganu Sdn. Bhd.
Tel: 609-666 8611/6652/8601 Faks: 609-666 0611/0063

This question paper consists of 19 printed pages

Section A
[20 *marks*]

Answer **all** *questions in this section.*
Jawab **semua** *soalan*
The time suggested to answer this section is 60 minutes
Masa yang dicadangkan untuk bahagian ini ialah **60** *minit*

1 Diagram 1.1 shows an experiment to study the electrical conductivity of sulphur powder and Diagram 1.2 shows an experiment to study the electrical conductivity of lead filings
Rajah 1.1 menunjukkan eksperimen untuk mengkaji kekonduksian elektrik bagi serbuk sulfur dan Rajah 1.2 menunjukkan eksperimen untuk mengkaji kekonduksian elektrik bagi serbuk plumbum

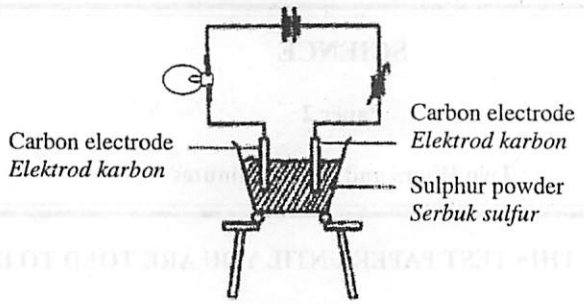


Diagram 1.1
Rajah 1.1

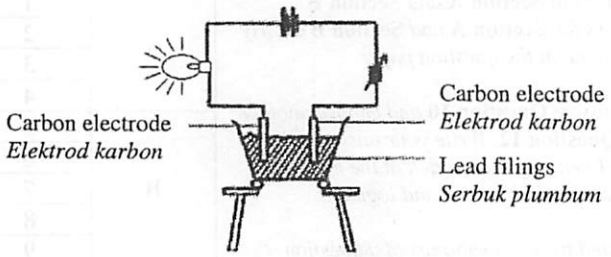


Diagram 1.2
Rajah 1.2

(a) State **one** observation based on Diagram 1.1 and Diagram 1.2.
Nyatakan ***satu*** *pemerhatian berdasarkan Rajah 1.1 dan Rajah 1.2.*

.....

[1 *mark*]

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

.....

[1 *mark*]

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

(i) Manipulated variable
Pembolehubah dimanipulasikan : .....

(ii) Responding variable
Pembolehubah bergerak balas : .....
[2 *marks*]

(d) Sulphur is a molecular substance. State the operational definition for a molecular substance
Sulfur adalah bahan molekul. Nyatakan definisi secara operasi bagi bahan molekul.

.....
[1 *mark*]

2 Diagram 2 shows an experiment to study the reaction of magnesium with dilute hydrochloric acid.
Rajah 2 menunjukkan satu eksperimen untuk mengkaji tindakbalas magnesium dengan asid hidroklorik cair.

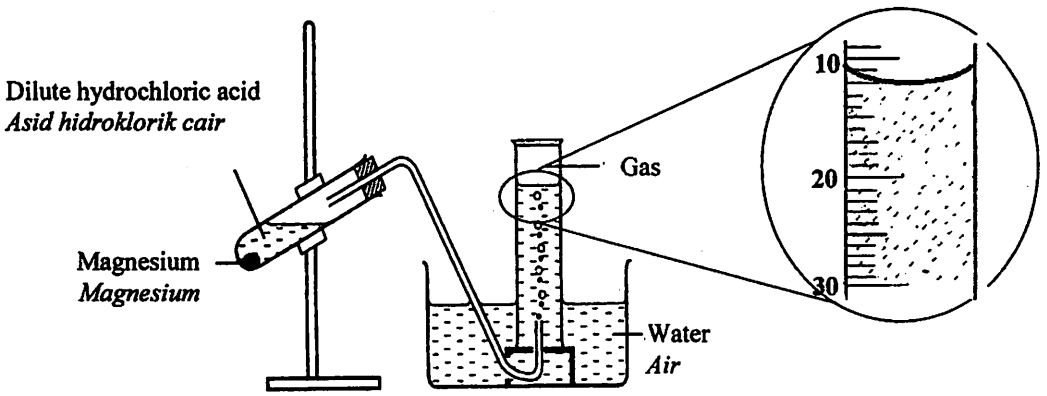


Diagram 2
Rajah 2

The volume of gas collected is recorded every minute for five minutes. Table 2 shows the results of the experiment.
Isipadu gas yang dipungut direkod setiap minit dalam masa lima minit. Jadual 2 menunjukkan keputusan eksperimen.

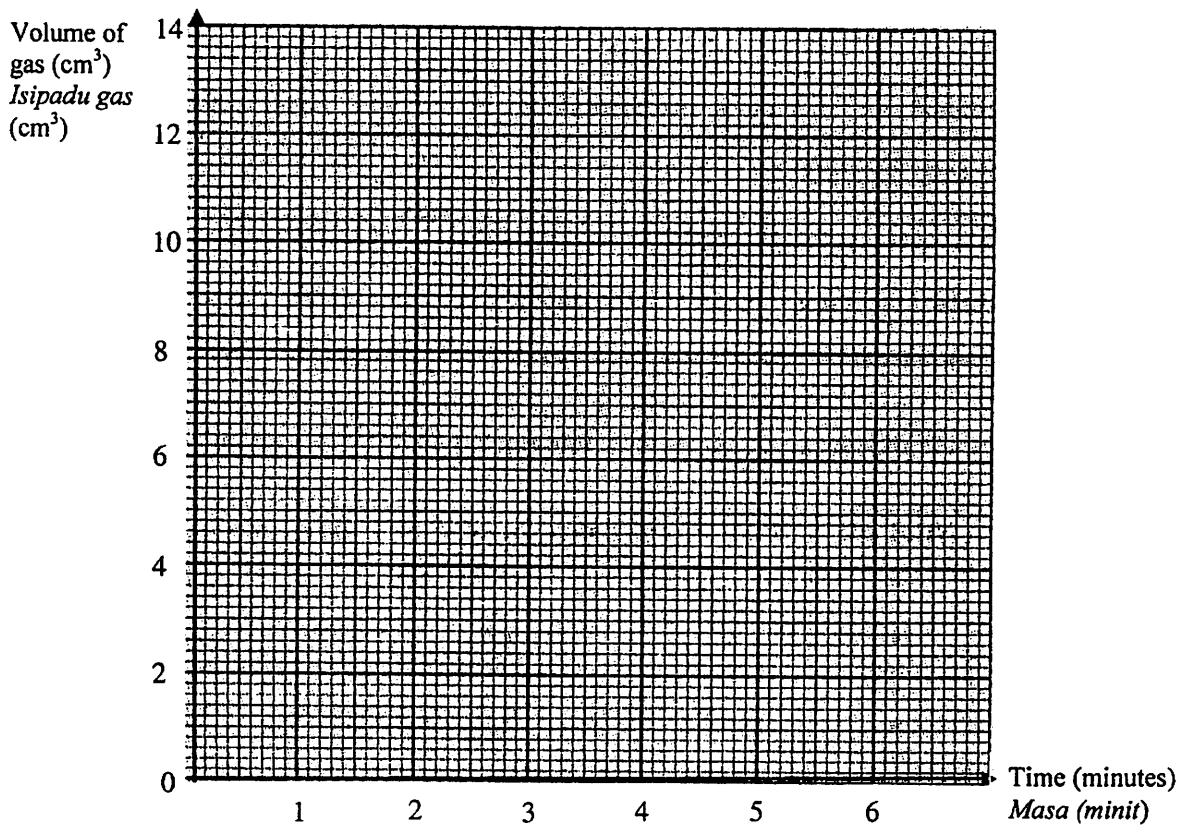
Time (minutes) *Masa (minit)*	0	1	2	3	4	5
Volume of gas collected (cm^3) *Isipadu gas (cm^3)*	0	4	8	.....	13	13

Table 2
Jadual 2

(a) Based on the reading of measuring cylinder in Diagram 2, complete Table 2.
Berdasarkan bacaan silinder penyukat dalam Rajah 2, lengkapkan Jadual 2.

[1 *mark*]

(b) Based on Table 2, draw a graph of the volume of gas against time.
Berdasarkan Jadual 2, lukiskan graf isipadu gas melawan masa.



[2 *marks*]

(c) State the relationship between volume of gas collected and time in the first two minutes.
Nyatakan hubungan antara isipadu gas terkumpul dan masa dalam dua minit pertama.

.....

[1 *mark*]

(d) Predict the volume of gas collected at the sixth minute.
Ramalkan isipadu gas yang dikumpul pada minit ke enam.

.....

[1 *mark*]

3 Diagram 3.1 shows the formation of image by a plane mirror.
Rajah 3.1 menunjukkan pembentukan imej oleh cermin satah.

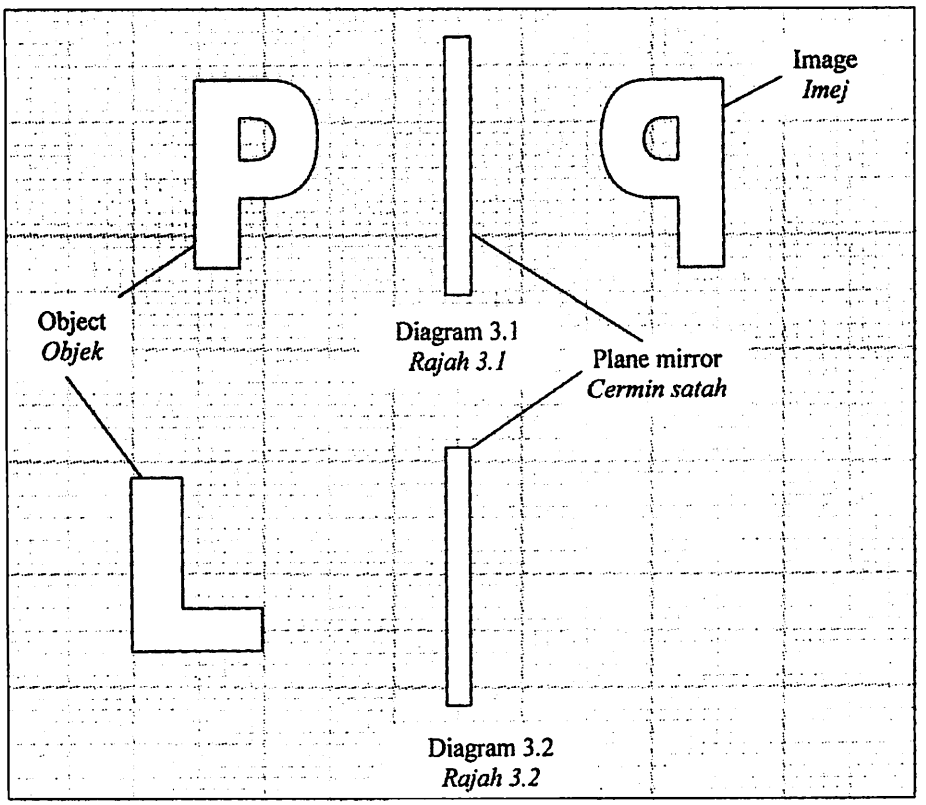


Diagram 3.1
Rajah 3.1

Diagram 3.2
Rajah 3.2

(a) i) Draw an image formed on Diagram 3.2.
Lukiskan imej yang terbentuk pada Rajah 3.2. [2 *marks*]

(ii) Measure the distance of image on Diagram 3.2.
Ukur dan catatkan jarak imej Rajah 3.2.

..... cm. [1 *mark*]

(b) State **one** characteristic of image form at plane mirror.
*Nyatakan **satu** ciri imej yang terbentuk pada cermin satah.*

.....

[1 *mark*]

(c) Mark (√) in Diagram 3.3 which form an image with the same characteristics as the image formed in Diagram 3.1.
Tandakan (√) pada Rajah 3.3 *yang membentuk imej yang mempunyai ciri-ciri sama dengan imej yang terbentuk dalam Rajah 3.1.*

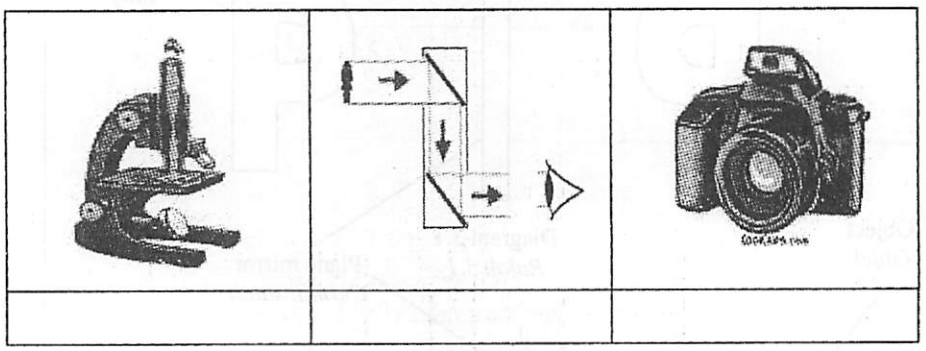


Diagram 3.3
Rajah 3.3

4 Diagram 4 shows the arrangement of apparatus to compare the hardness of copper and brass. After the weight is released, the diameter of the dent on each block is measured and recorded.
Rajah 4 menunjukkan susunan radas bagi membandingkan sifat kekerasan kuprum dan loyang. Selepas pemberat dijatuhkan, diameter lekukan yang terbentuk pada setiap bongkah diukur dan dicatat.

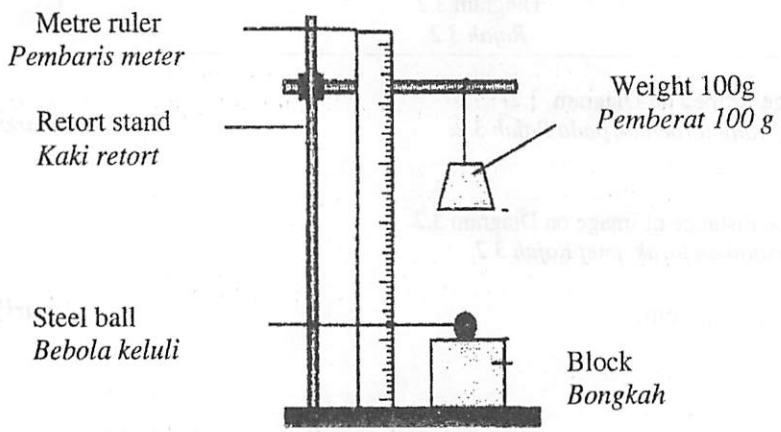


Diagram 4
Rajah 4

The result is recorded on Table 4
Keputusan yang diperolehi dicatatkan dalam Jadual 4.

Block *Bongkah*	Diameter lekuk / cm *The diameter of the dent/cm*		The average diameter 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 4
Jadual 4

(a) Based on the experiment above, complete Table 4.
Berdasarkan eksperimen di atas, lengkapkan Jadual 4. [1 *mark*]

(b) Based on Table 4, state the observation in this experiment.
Berdasarkan Jadual 4, 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 constant variable in this experiment
Nyatakan pembolehubah dimalarkan dalam eksperimen ini.

.....
[1 *mark*]

(e) State the hypothesis that can be made from this experiment..
Nyatakan hipotesis yang boleh dibuat daripada eksperimen ini.

.....
[1 *mark*]

Section B
[30 *marks*]

Answer **all** *questions in this section.*
The time suggested to answer this section is 50 minutes.

5 Diagram 5.1 shows the action by a boy when he is being chased by an elephant.
Rajah 5.1 menunjukkan tindakan seorang budak lelaki apabila dikejar oleh seekor gajah.

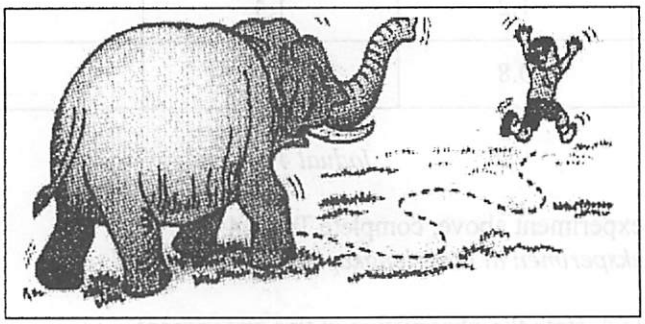


Diagram 5.1
Rajah 5.1

(a) State **two** systems in our body that involve in the above action.
*Nyatakan **dua** sistem dalam badan kita yang terlibat dalam tindakan di atas.*

1. .....

2. .....

[*2 marks*]

(b) The impulse pathways for the little boy's action is shown in Diagram 5.2.
Laluan impuls bagi tindakan budak lelaki kecil itu ditunjukkan dalam Rajah 5.2.

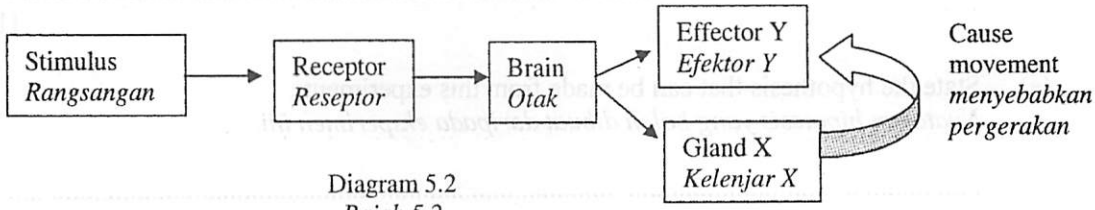


Diagram 5.2
Rajah 5.2

(i) Name gland X.
Namakan kelenjar X.

.....

[*1 mark*]

(ii) State **one** function of the hormone secreted by gland X.
*Nyatakan **satu** fungsi hormon yang dirembeskan oleh kelenjar X.*

.....

[1 *mark*]

(iii) What is effector Y?
Apakah efektor Y?

.....

[1 *mark*]

c) Give **another** example of endocrine gland.
*Berikan **satu** contoh lain kelenjar endokrin.*

.....

[1 *mark*]

6 Diagram 6 shows the stages of a cell division process.
Rajah 6 menunjukkan peringkat-peringkat pembahagian sel.

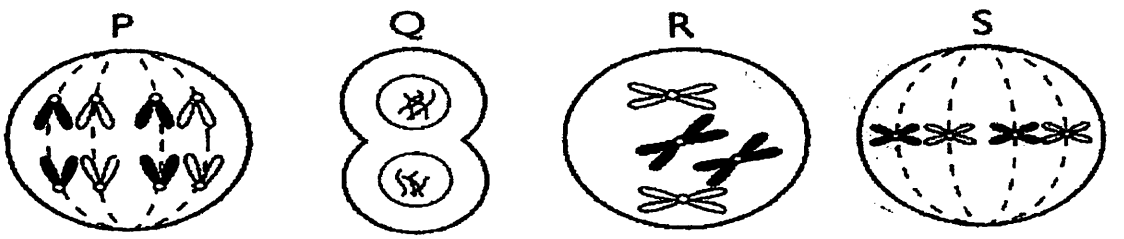
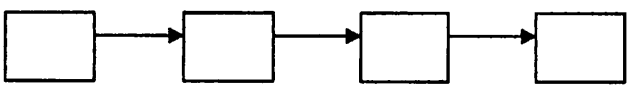


Diagram 6
Rajah 6

(a) Arrange stages of P,Q, R and S in the correct order.
Susunkan peringkat-peringkat P, Q, R dan S mengikut urutan yang betul.

[1 *mark*]



(b) (i) What is the type of cell division shown in Diagram 6?
Apakah jenis pembahagian sel yang ditunjukkan dalam Rajah 6?

.....

[2 *marks*]

(ii) Give **one** reason for your answer in (b)(i).
*Berikan **satu** alasan bagi jawapan anda di (b)(i).*

.....

[2 *marks*]

(c) Based on Diagram 6, state the number of chromosomes in the cell.
Berdasarkan Rajah 6, nyatakan bilangan kromosom dalam sel tersebut.

.....

[1 *mark*]

(d) State **one** importance of cell division shown in Diagram 6.
*Nyatakan **satu** kepentingan pembahagian sel yang ditunjukkan dalam Rajah 6.*

.....

[2 *marks*]

(e) Why this process does not cause variation?
Mengapa proses pembahagian sel ini tidak menyebabkan variasi?

.....

[1 *mark*]

7 Diagram 7 shows a schmetic diagram of marriage between a man with impure curly hair and a women with straight hair.
Rajah 7 menunjukkan rajah skematik perkahwinan seorang lelaki berambut kerinting tak tulen dengan seorang wanita yang berambut lurus.

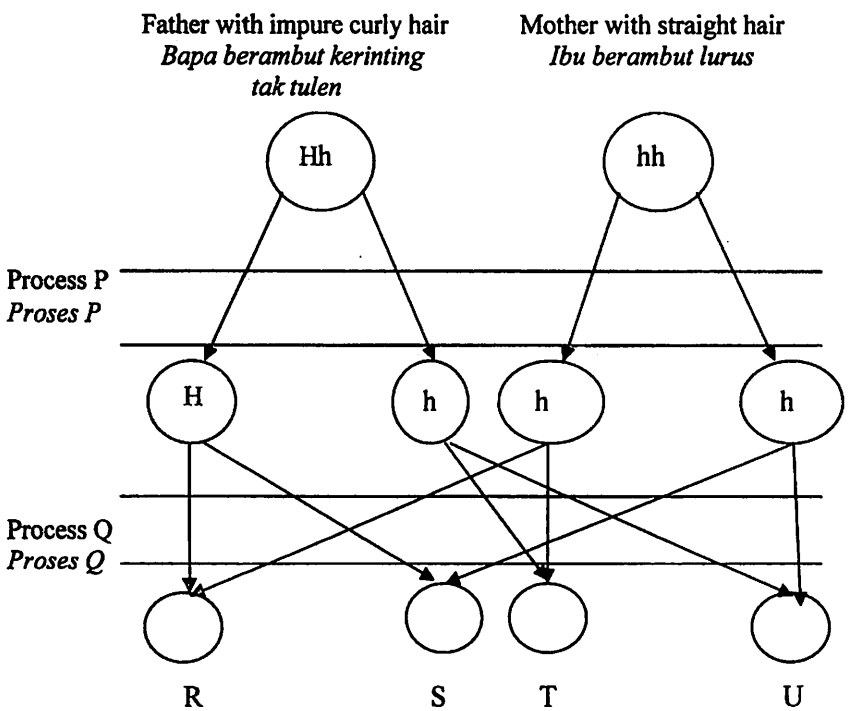


Diagram 7
Rajah 7

(a) What is the type of gene H?
Apakah jenis gen H?

.....

[1 *mark*]

(b) Name process:
Namakan proses:

(i) P:.....

(ii) Q:.....

[2 *marks*]

(c) State the genotype of child S.
Nyatakan genotip anak S.

.....

[1 *mark*]

(d) What is the ratio of having a child with straight to a child with curly hair?
Apakah nisbah memperolehi anak berambut lurus kepada anak berambut kerinting?

.....

[1 *mark*]

(e) What is the factor that affects the type of hair?
Apakah faktor yang mempengaruhi jenis rambut?

.....

[1 mark]

8. Diagram 8 shows radioactive rays from a radioactive substance.
Rajah 8 menunjukkan sinaran radioaktif dari satu bahan radioaktif.

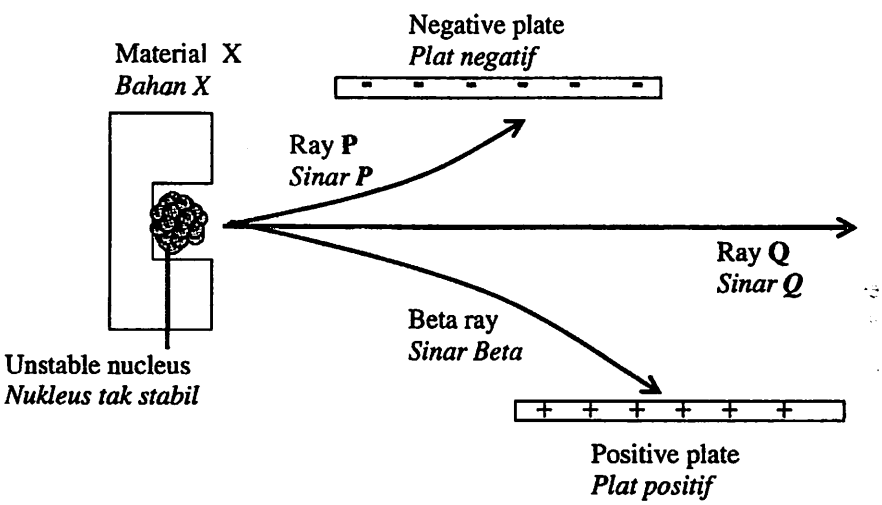


Diagram 8
Rajah 8

(a) Give **one** example of substance with an stable nucleus.
Berikan satu contoh bahan yang mempunyai nukleus yang tidak stabil.

.....
[1 *mark*]

(b) Name ray P and ray Q in Diagram 8.
Namakan sinar P dan sinar Q di dalam Rajah 8.

Ray P :.....
Sinar P
Ray Q :.....
Sinar Q
[2 *marks*]

(c) What is the charge of ray P?
Apakah cas bagi sinar P?

.....
[1 *mark*]

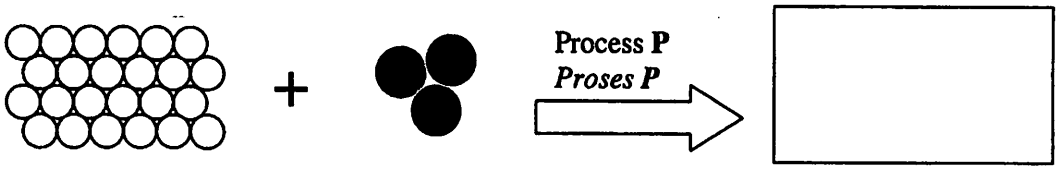
(d) Material X can prevent ray Q from being released to the surroundings. Name material X.
Bahan X boleh menghalang sinar Q daripada terbebas ke persekitaran. Namakan bahan X.

.....
[1 *mark*]

(e) State **one** usage of radioactive substance in industry.
Nyatakan satu kegunaan bahan radioaktif dalam industri.

.....
[1 *mark*]

9 Diagram 9 shows the formation of duralumin.
Rajah 9 menunjukkan proses pembuatan duralumin.



Aluminium atoms
Atom aluminium

Metal X atoms : .....
Atom logam X

Duralumin particles
Zarah-zarah duralumin

Diagram 9
Rajah 9

a) On Diagram 9,
Pada Rajah 9,

i. Draw the particles in duralumin.
Lukiskan zarah-zarah dalam duralumin.

ii. Name the atom of metal **X.**
Namakan atom logam X.

.....

[2 *mark*]

b) Name process **P.**
*Namakan proses **P.***

.....

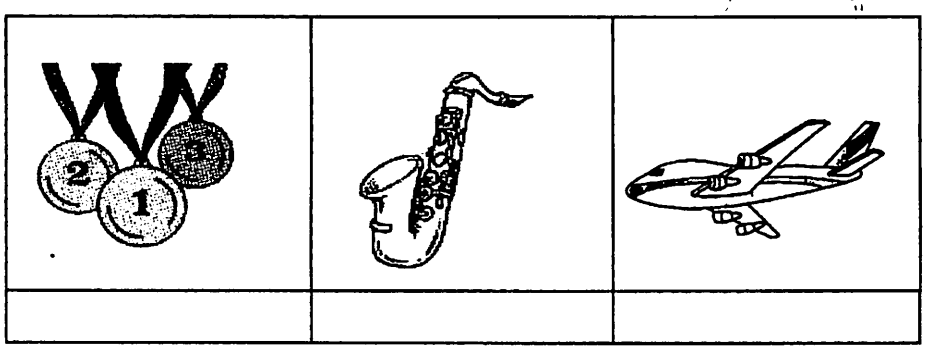
[1 *mark*]

c) State **one** property of duralumin.
*Nyatakan **satu** ciri duralumin.*

.....

[1 *mark*]

d) Mark (√) in Diagram 9.2 the product made up of duralumin.
Tandakan (√) pada Rajah 9.2 barangan yang diperbuat daripada duralumin.



[1 *mark*]

Diagram 9.2
Rajah 9.2

e) State **another** example of alloy.
*Nyatakan **satu** contoh lain aloi.*

.....

[1 *mark*]

Section C

[20 *marks*]

Answer **Question 10** *and either* **Question 11** or **Question 12**.
Write your answers on pages
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
Masa yang dicadangkan untuk menjawab bahagian ini ialah **40** *minit.*

10 Study the following statement;
Kaji pernyataan berikut,

> When red light is shone on blue light, the light magenta can be formed.
> *Apabila warna cahaya merah dipancarkan ke atas warna cahaya biru warna magenta akan terbentuk.*

(a) Suggest a hypothesis to investigate the above statement.
Cadangkan satu hipotesis untuk menyiasat pernyataan di atas

[1 *mark*]

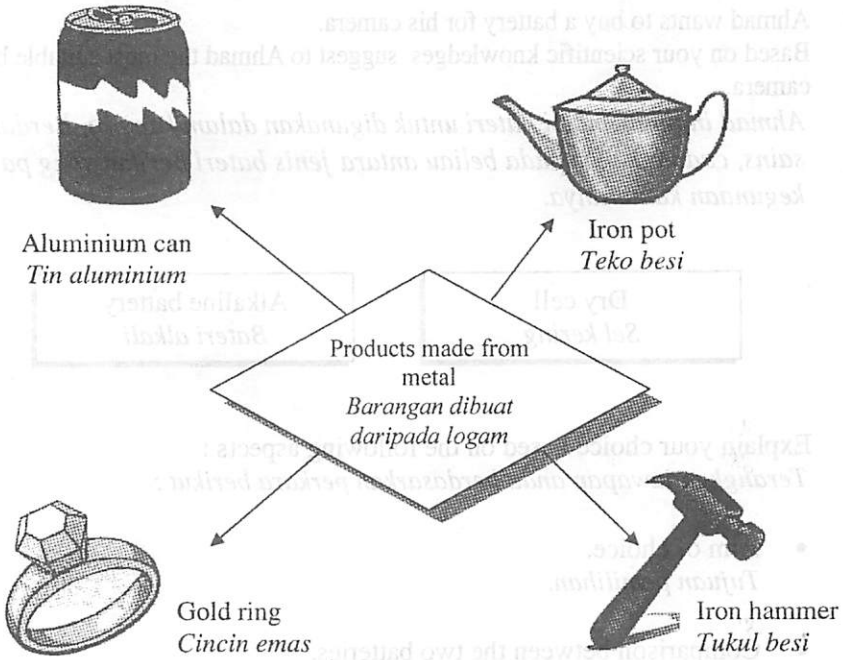
(b) Using a red filter, a blue filter, a green filter, torchlight and other apparatus, describe an experiment to test your hypothesis in (a) based on the following criteria;
Menggunakan penapis merah, penapis biru, penapis hijau, lampu suluh dan alat radas lain, terangkan suatu eksperimen untuk menguji hipotesis di (a) berdasarkan kriteria berikut;

- Aim of the experiment.
  Tujuan eksperimen [1 *mark*]
- Identification of variables.
  Mengenalpasti pembolehubah [2 *marks*]
- List of apparatus.
  Senarai alat radas [1 *mark*]
- Procedure.
  Kaedah / Prosedur [4 *marks*]
- Tabulation of data.
  Penjadualan data [1 *mark*]

11 (a) State **four** differences between metal and non-metal.
*Nyatakan **empat** perbezaan antara logam dan bukan logam.*

[4 *marks*]

(b) Diagram 11 shows four products made from metal.
Rajah 11 menunjukkan empat barangan dibuat daripada logam.



Based on the above information, construct the concept of metal.
Berdasarkan maklumat di atas, binakan konsep logam.

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

- Identify **two** common characteristic
*Kenalpasti **dua** ciri sepunya* [2 *marks*]

- Give **one** other example of metal.
*Berikan **satu** contoh lain bagi logam* [1 *mark*]

- Give **one** non-example of metal and one of properties.
*Berikan **satu** contoh bukan logam dan satu daripada sifat-sifatnya.* [2 *marks*]

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

12 (a) State **two** differences between physical changes and chemical changes.
Give one example of daily activities in physical changes and chemical changes.
*Nyatakan **dua** perbezaan antara perubahan fizik dengan perubahan kimia.*
Beri satu contoh aktiviti harian bagi perubahan fizik dan perubahan kimia.

[4 *marks*]

(b) Ahmad wants to buy a battery for his camera.
Based on your scientific knowledges, suggest to Ahmad the most suitable battery for his camera.
Ahmad ingin membeli bateri untuk digunakan dalam kamera. Berdasarkan pengetahuan sains, cadangkan kepada beliau antara jenis bateri berikut yang paling sesuai untuk kegunaan kameranya.

Dry cell *Sel kering*	Alkaline battery *Bateri alkali*

Explain your choice based on the following aspects :
Terangkan jawapan anda berdasarkan perkara berikut :

- Aim of choice. [1 *mark*]
  Tujuan pemilihan.
- Comparison between the two batteries. [3 *marks*]
  Perbandingan antara kedua-dua bateri.
- Choose the best battery to be used in camera. [1 *mark*]
  Pilih jenis bateri yang paling sesuai untuk kegunaan kamera.
- State **one** feature of the battery that you have choosen. [1 *mark*]
  Nyatakan satu ciri bateri yang telah anda pilih.

END OF QUESTION PAPER
KERTAS SOALAN TAMAT

SPACE FOR ANSWERS / RUANGAN JAWAPAN
SECTION C / BAHAGIAN C

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SECTION C / BAHAGIAN C

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SECTION C / BAHAGIAN C