

NAMA : .....

TINGKATAN : .....

1511/2  
SCIENCE  
PAPER 2  
OKT / NOV  
2007  
2½ HOURS

## JABATAN PELAJARAN TERENGGANU

DENGAN KERJASAMA  
PERSIDANGAN KEBANGSAAN PENGETUA  
SEKOLAH MENENGAH MALAYSIA  
CAWANGAN TERENGGANU

PEPERIKSAAN AKHIR TAHUN 2007

TINGKATAN EMPAT

### SCIENCE

Paper 2

Two Hours and Thirty Minutes

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

- This question paper consists of three sections: Section A, Section B and Section C.*
- 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.*
- 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.*
- The marks allocated for each sub-part of a question are shown in brackets.*
- The time suggested to complete Section A is 60 minutes, Section B is 50 minutes and Section C is 40 minutes.*
- You are allowed to answer the question in English or Bahasa Melayu.*

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

This question paper consists of **19** printed pages

[Lihat sebelah  
SULIT

**Section A**  
[20 marks]

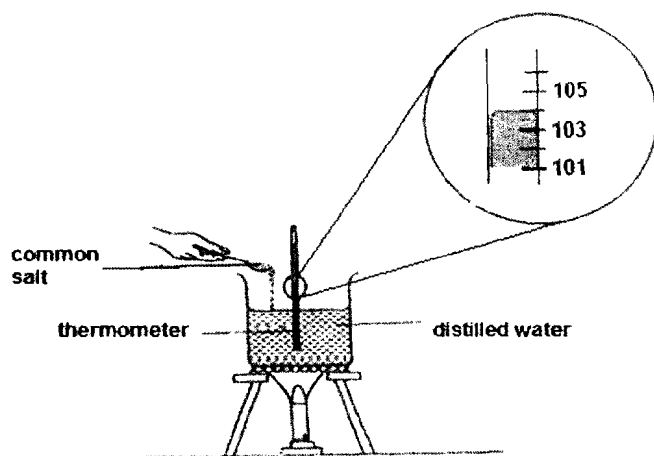
Answer **all** questions in this section.

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 shows an experiment to study the effect of impurities on boiling point of distilled water.  
(Rajah 1 menunjukkan eksperimen untuk mengkaji kesan bendasing ke atas takat didih air suling)



**DIAGRAM 1**

The result of the experiment are recorded are in Table 1.

(Keputusan eksperimen direkodkan dalam Jadual 1)

Substances (Bahan)	Boiling point/ <sup>o</sup> C (Takat didih / <sup>o</sup> C)
Distilled water (Air suling)	100
Distilled water + common salt (Air suling + garam biasa)	.....

**TABLE 1**

- (a) Based on the above experiment, what is the reading of the thermometer in Diagram 1  
(Berdasarkan eksperimen di atas, apakah bacaan thermometer dalam Rajah 1?)

[1 mark]

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

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

[1 mark]

(ii) Responding variable : .....  
(Pembolehubah yang bergerakbalas)

[1 mark]

- (c) State **one** hypothesis for this experiment.  
 (Nyatakan *satu* hipotesis dalam eksperimen ini)

.....

[1 mark]

- (d) Distilled water is a pure liquid. State the operational definition for distilled water.  
 (Air suling adalah air tulen. Nyatakan definisi secara operasi bagi air suling)

.....

[1 mark]

- 2 Diagram 2 shows an experiment to study the electrical conductivity for two types of material.  
 (Rajah 2 menunjukkan satu eksperimen untuk mengkaji kekonduksian elektrik bagi dua jenis bahan)

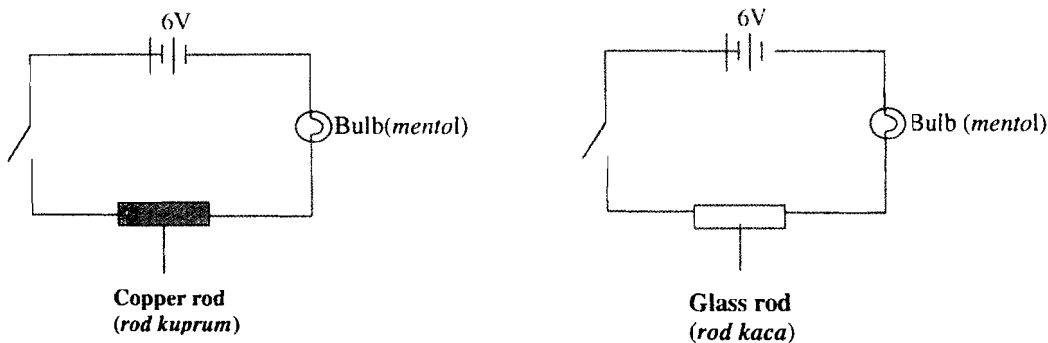


DIAGRAM 2

Table 2 shows the result of the experiment.  
 (Jadual 2 menunjukkan keputusan eksperimen)

Material (Bahan)	Bulb Condition (Keadaan mentol)
Copper rod (Rod kuprum)	Lights up (Menyala)
Glass rod (Rod kaca)	Does not light up (Tidak menyala)

TABLE 2

- (a) Based on the result in Table 2, state **one** inference for this experiment.  
 (Berdasarkan keputusan dalam Jadual 2, nyatakan *satu* inferens bagi eksperimen ini)

.....

[1 mark]

[Lihat sebelah  
SULIT]

- (b) State the constant variable in this experiment.  
 (Nyatakan pemboleh ubah yang dimalarkan dalam eksperimen ini)

.....

[1 mark]

- (c) Copper rod is a metal. What is the operational definition for metal?  
 (Rod kuprum adalah logam. Nyatakan definisi secara operasi bagi logam)

.....


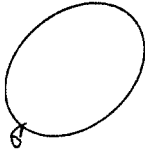

[1 mark]

- (d) What can be observed when the bulb is replaced with ammeter when using copper rod?  
 (Apakah yang boleh diperhatikan bila mentol digantikan dengan ammeter semasa menggunakan rod kuprum?)

.....

[1 mark]

- (e) Mark (  $\checkmark$  ) for the objects in the boxes provided below which have the same physical properties as copper rod.  
 ( Tandakan (  $\checkmark$  ) pada objek yang mempunyai sifat-sifat yang sama dengan kuprum dalam petak yang disediakan di bawah)

 Can	 Balloon	 Medal

[1 mark]

- 3 Diagram 3 shows an experiment to study the reaction of metal P with dilute hydrochloric acid.  
(Rajah 3 menunjukkan satu eksperimen untuk mengkaji tindakbalas logam P dengan asid hidroklorik cair)

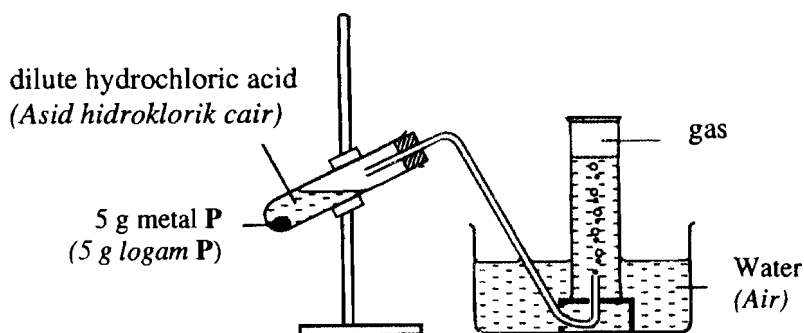


DIAGRAM 3

The volume of gas collected is recorded every minute for six minutes.  
Table 3 shows the results of the experiment.  
(Isipadu gas yang dipungut direkod setiap minit dalam masa enam minit.  
Jadual 3 menunjukkan keputusan eksperimen)

Time (minutes) Masa (minit)	1	2	3	4	5	6
Volume of gas collected ( $\text{cm}^3$ ) Isipadu gas ( $\text{cm}^3$ )	15	30	37.5	41	42.5	43

TABLE 3

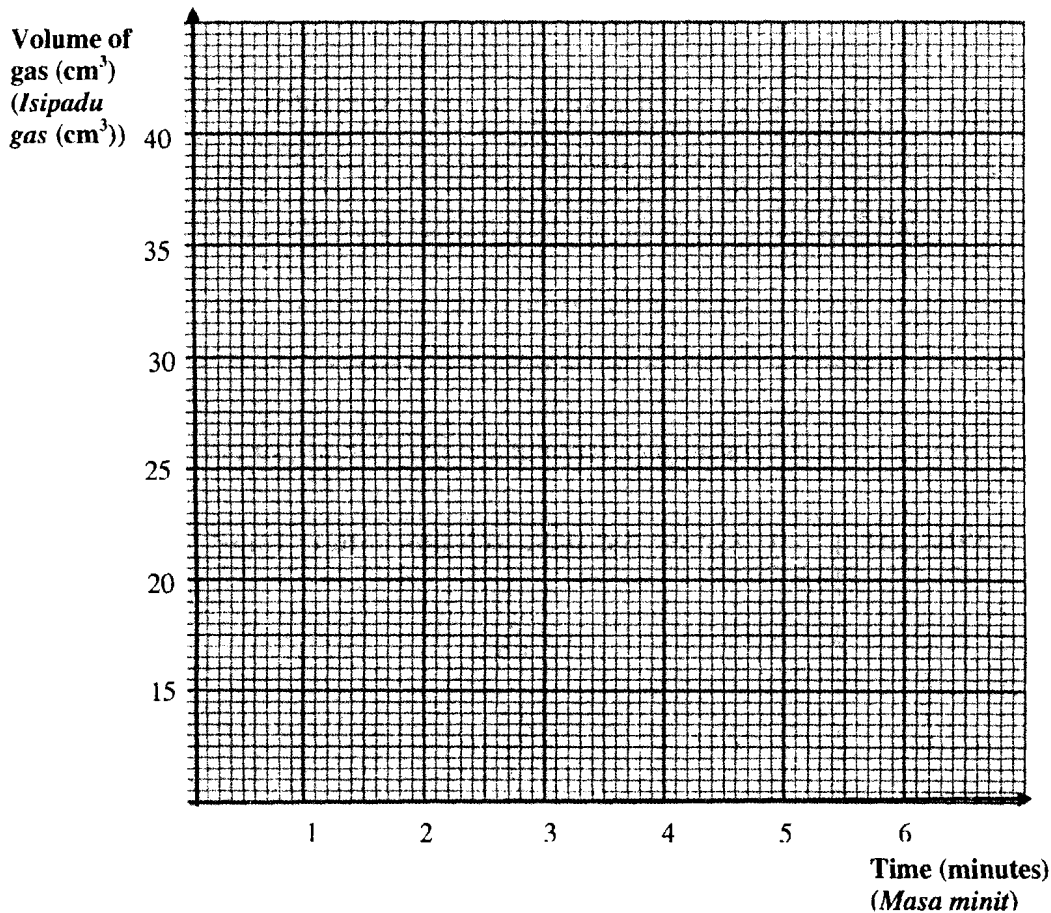
- (a) State the responding variable in this experiment.  
(Nyatakan pembolehubah yang bergerak balas dalam eksperimen ini)

.....

[1 mark]

[Lihat sebelah  
SULIT]

- (b) Based on Table 3, draw a graph of the volume of gas against time.  
(Berdasarkan Jadual 3, lukiskan graf isipadu gas melawan masa)



[2 marks]

- (c) What is the relationship between the volume of gas given off and the reaction time in the first two minutes?  
(Apakah hubungan antara isipadu gas yang terhasil dengan masa tindak balas bagi dua minit pertama?)

.....

[1 mark]

- (d) Predict the volume of gas collected at the eighth minute.  
(Ramalkan isipadu gas yang dikumpul pada masa lapan minit.)

.....

[1 mark]

- 4 Diagram 4 shows an experiment to find the relationship between lens thickness and its image distance.  
 (Rajah 4 menunjukkan eksperimen untuk mengkaji hubungan kait antara ketebalan kanta dengan jarak imejnya)

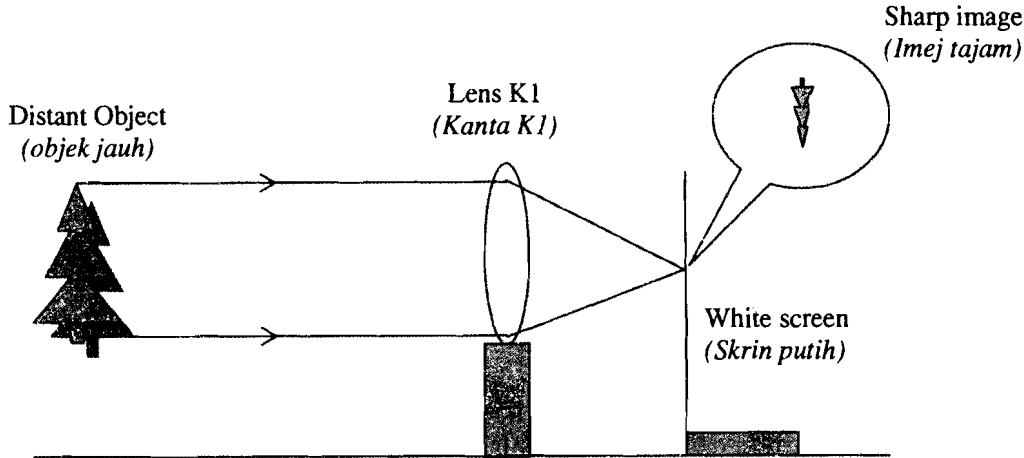


DIAGRAM 4

An image of a distant object through lens K1 is formed on a white screen. The screen is then adjusted so that a sharp image is formed. The experiment is repeated using lens K2 and K3 with different thickness. The image distance of each lens is recorded in Table 4.

(Menggunakan satu objek jauh melalui K1, skrin dilaraskan supaya menghasilkan satu imej. Eksperimen itu diulang dengan menggunakan kanta K2 dan K3 yang mempunyai ketebalan berbeza. Jarak imej setiap kanta dicatatkan. Keputusan yang diperolehi seperti dalam Jadual 4.)

Lens (Kanta)	Image distance ( cm ) (Jarak imej)
K1	.....
K2	3.5
K3	1.5

TABLE 4

- (a) State one characteristic of the image observed.  
 (Tuliskan satu pemerhatian sifat imej)

.....  
 [1 mark]

- (b) Measure and state the image distance of lens K1 in Table 4.  
 (Ukur dan catat jarak imej bagi kanta K1 dalam Jadual 4)

[1 mark]

- (c) Based on Table 4, which of the lenses is the thinnest?  
 (Berdasarkan Jadual 4, kanta manakah paling nipis?)

.....  
 [1 mark]

[Lihat sebelah  
 SULIT

- (d) State the hypothesis for this experiment.  
(Nyatakan satu hipotesis dalam eksperimen itu)

.....  
[1 mark]

- (e) What is the responding variable for this experiment.  
(Nyatakan satu pemboleh ubah yang bergerakbalas)

.....  
[1 mark]

**Section B**  
[30 marks]

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

- 5 Diagram 6 shows the pathway of impulse when a person steps on a sharp object.  
(Rajah 6 menunjukkan laluan impuls apabila seseorang terpijak objek tajam)

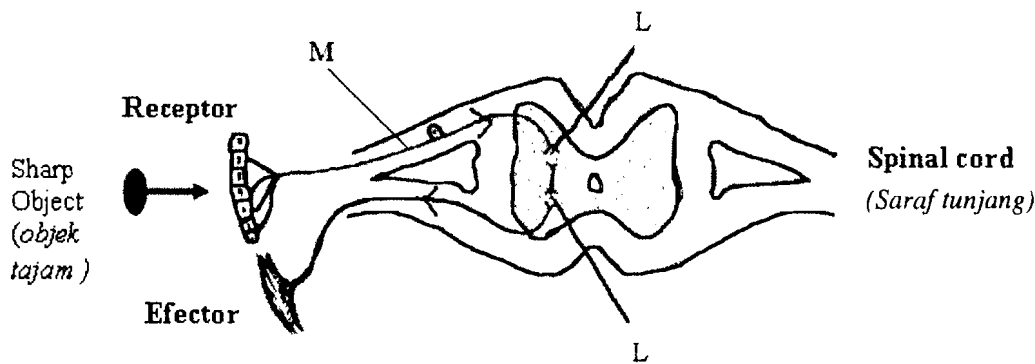


DIAGRAM 6

- (a) (i) Name the type of action shown above.  
(Namakan jenis tindakan yang ditunjukkan di atas.)

.....  
[1 mark]

- (ii) Give the reason for your answer.  
(Beri alasan bagi jawapan anda)

.....  
[1 mark]



(b) Name the part labelled .  
(*Namakan bahagian berlabel* )

(i) L

.....

(ii) M

.....

[2 marks]

(c) State **one** another example for this action.  
( *Nyatakan **satu** contoh lain bagi tindakan ini.* )

.....

[ 1 mark ]

(d) Why is this action importance in a daily life.  
( *Mengapakah tindakan ini penting dalam kehidupan seharian* )

.....

[ 1 mark ]

6 Diagram 6 shows the formation of twins.  
(*Rajah 6 menunjukkan pembentukan anak kembar.*)

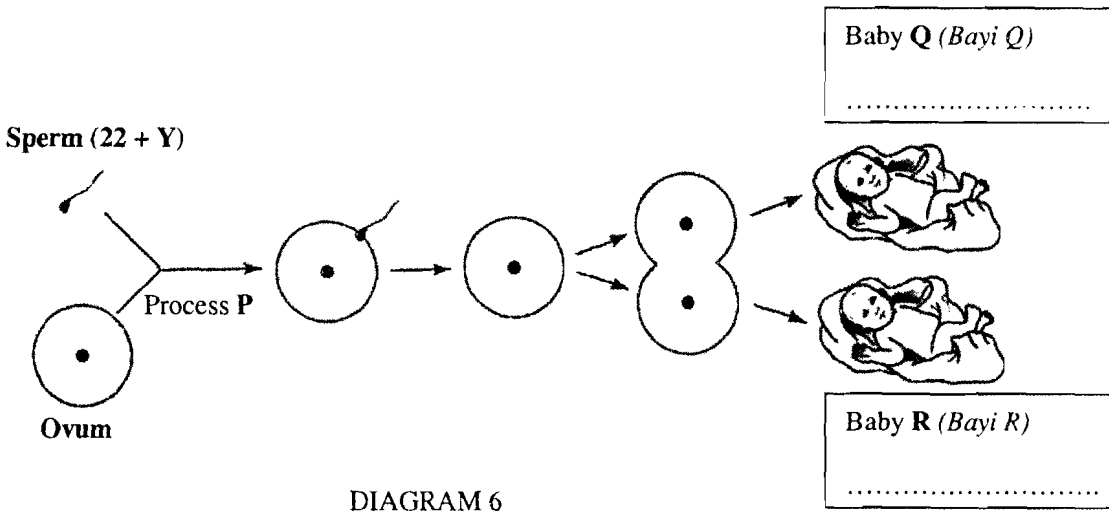


DIAGRAM 6

(a) State the gender of baby Q and R in the box provided in Diagram 6.  
(*Nyatakan jantina bayi Q dan R dalam kotak yang disediakan dalam Rajah 6*)

[2 marks]

[Lihat sebelah  
SULIT

(b) What is process P?  
(Apakah proses P) ?

[1 mark]

(c) (i) State the type of twins shown in Diagram 6.  
(Nyatakan jenis kembar yang ditunjukkan dalam Rajah 6)

[1 mark]

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

[1 mark]

(d) What will happen if splitting of the zygote formed is not complete?  
(Apakah yang akan berlaku jika pembahagian zigot tidak lengkap?)

[1 mark]

7 Diagram 7 shows how radioactive rays penetrate through different materials.  
Rajah 7 menunjukkan penembusan sinar radioaktif melalui bahan yang berbeza.

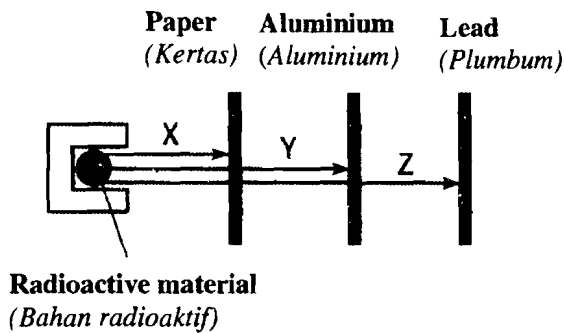


DIAGRAM 7

(a) What are radiations X, Y and Z?  
(Apakah sinaran X, Y dan Z?)

X : .....

Y : .....

Z : .....

[3 marks]

- (b) What is the best way to store radioactive substances?  
(Apakah cara terbaik bagi menyimpan bahan radioaktif?)

.....  
[1 mark]

- (c) (i) Which ray is the most dangerous?  
(Sinar manakah yang paling merbahaya?)

.....

- (ii) Explain your answer  
(Terangkan jawapan anda)

.....  
.....

[2 marks]

- 8 Diagram 8 shows a red light and a blue light projected on a white screen.  
(Rajah 8 menunjukkan cahaya merah dan cahaya biru dipancarkan ke skrin putih)

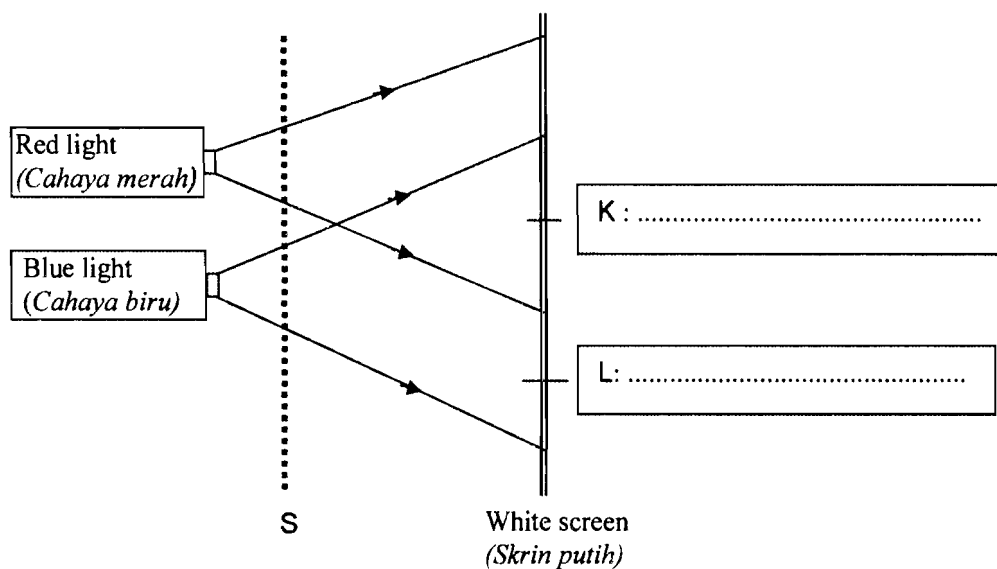


DIAGRAM 8

- (a) Complete the colours of K and L in the boxes in Diagram 8  
(Lengkapkan warna K dan L dalam kotak pada Rajah 8)

[2 marks]

[Lihat sebelah  
**SULIT**]

(b) Based on your answer in (a), state one primary colour and one secondary colour.  
(Berdasarkan jawapan (a), nyatakan satu warna primer dan satu warna sekunder)

(i) Primary colour : .....  
(Warna primer)

(ii) Secondary colour : .....  
(Warna sekunder)

[2 marks]

(c) What can be observed at K if a green light, red light and blue light being projected together?  
(Apakah yang diperhatikan pada K jika cahaya hijau, cahaya merah dan cahaya biru dipancarkan bersama?)

.....  
[1 mark]

(d) State the possible colour at L if a yellow filter is placed at S  
(Nyatakan warna pada L jika penapis kuning diletakkan pada S)

.....  
[1 mark]

9 Diagram 9 shows the arrangement of atoms in a steel.  
(Rajah 9 menunjukkan susunan atom atom dalam keluli )

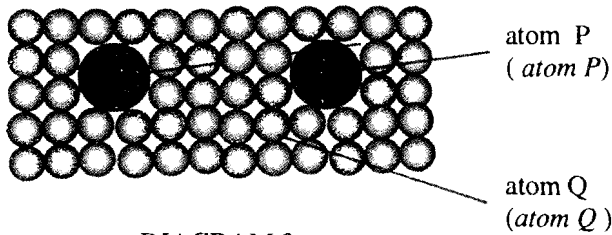


DIAGRAM 9

(a) Name the atom  
( Namakan atom )

( i ) P : .....

( ii ) Q : .....

[ 2 marks ]

(b) What is the role of atom P in the steel above?  
( Apakah peranan atom P dalam keluli tersebut?)

.....  
.....

[ 1 mark ]

- (c) State **two** new characteristics of the steel compared to the iron.  
(Nyatakan **dua** ciri-ciri baru keluli berbanding dengan besi )

(i) .....

(ii) .....

[ 2 marks ]

- (d) Name one alloy other than steel.  
( Namakan satu contoh aloi selain dari keluli )

.....

[ 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 pernyataan 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]  
(Mengetahui pasti pemboleh ubah)

[Lihat sebelah  
**SULIT**]

- (iii) List of apparatus and materials  
(*Senarai radas dan bahan*) [1 mark]
- (iv) Procedure and methods  
(*Prosedur atau kaedah*) [4 marks]
- (v) Tabulation of Data  
(*Penjadualan Data*) [1 mark]

11 There are two types of variation, continuous variation and discontinuous variation.  
(*Terdapat dua jenis variasi, variasi selanjar dan variasi tak selanjar*)

- (a) Give four differences between continuous variation and discontinuous variation.  
(*Berikan empat perbezaan antara variasi selanjar dan variasi tak selanjar*) [4 marks]
- (b) Diagram 11 shows various characteristics of human being.  
(*Rajah 11 menunjukkan ciri-ciri berbeza yang terdapat pada manusia*)

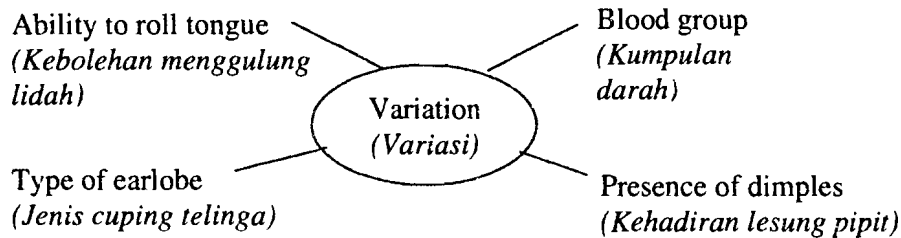


DIAGRAM 11

Study the above characteristics. Explain how you would develop a concept based on the information in Diagram 11

(*Kaji ciri-ciri di atas. Terangkan bagaimana anda membina satu konsep berdasarkan maklumat dalam Rajah 11*)

Your explanation of the concept should include the following:  
(*Penerangan anda tentang konsep itu hendaklah berdasarkan kepada perkara berikut:*)

- Identify two common characteristics  
(*Kenalpasti dua ciri sepunya*) [2 marks]
- Develop initial concept  
(*Bina konsep awal*) [1 mark]
- Give another example and a non-example in relation to the concept  
(*Berikan satu contoh lain dan satu bukan contoh berkaitan dengan konsep tersebut*) [2 marks]
- State the actual concept  
(*Nyatakan konsep sebenar*) [1 mark]

