

Section A
Bahagian A

[40 marks]
[40 markah]

Answer all questions.
Jawab semua soalan.

1. Diagram 1 shows some examples of the method used to separate some matter.
Rajah 1 menunjukkan contoh-contoh kaedah yang digunakan untuk memisahkan jirim tertentu.

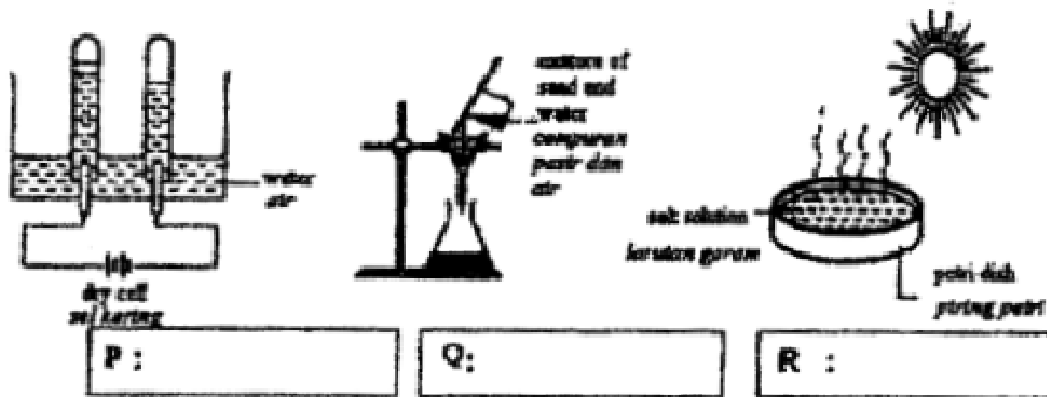


Diagram 1 / Rajah 1

- (a) On Diagram 1, label the method of separation P, Q and R using following words.
Pada Rajah 1, label kaedah pengasingan bagi P, Q dan R menggunakan perkataan berikut.

Evaporation Pengejatan	Filtration Penurasan	Electrolysis Elektrolisis
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1(a)

3

[3 marks]

- (b) Draw lines to show the correct match between the method of separation and their uses.

Lukiskan garisan untuk menunjukkan padanan yang betul antara kaedah pengasingan dan kegunaan masing-masing.

Separation method
Kaedah Pengasingan

P

Q

R

Uses
Kegunaan

To separate an insoluble solid from liquid
Mengasingkan bahan pepejal tak terlarut dari cecair

To breakdown the compound into its elements
Menguraikan sebatian kepada unsur-unsurnya

To separate a dissolved solid from a liquid
Mengasingkan bahan pepejal terlarut dari cecair

[3 marks]

For
Examiner's
use
Untuk
kegunaan
pemeriksa

1(b)

3

Total

6

2 Diagram 2.1 shows animals P, Q and R which have various support systems.
Rajah 2.1 menunjukkan haiwan-haiwan P, Q and R yang mempunyai pelbagai sistem sokongan

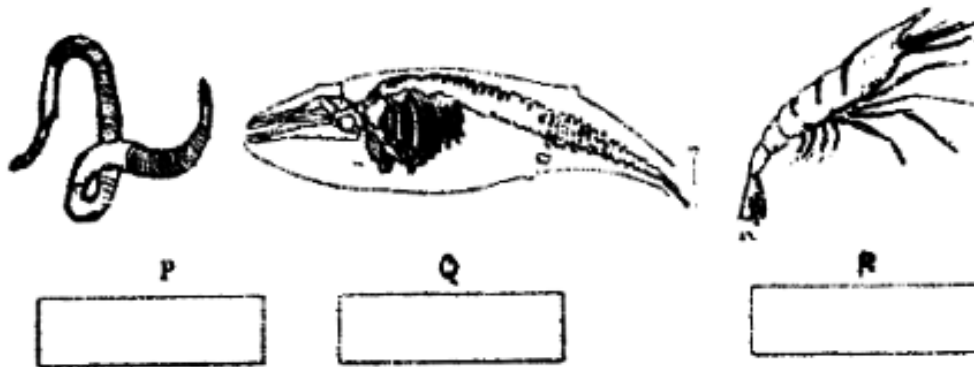


Diagram 2.1
Rajah 2.1

- a) i) Name any two types of skeletons animals P, Q and R in Diagram 2.1 using the following words
Namakan mana-mana dua jenis rangka haiwan P, Q dan R dalam Rajah 2.1 menggunakan perkataan berikut

Endoskeleton (internal skeleton) Endoskeleton (rangka dalam)	Exoskeleton (external skeleton) Exoskeleton (rangka luar)	Hydrostatic Hydrostatic
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[1 mark]

- ii) Organism P will die when it loses too much water to its surrounding. Explain why?
Organisma P akan mati jika kehilangan air yang terlampau banyak disekelilingnya. Terangkan mengapa?

[1 mark]

- b) What enables animal Q to support its body weight in the water?
Apakah yang membolehkan ~~haiwan~~ haiwan Q menyokong berat badannya di dalam air?

[1 mark]

Lihat sebelah
SULIT

2(a)

2(a)(ii)

2(b)

- c) Based on Diagram 2.2 mark (X) the animal which same skeleton as animal P in diagram 2.1

Berdasarkan Rajah 2.2 tanda (X) yang mempunyai sistem rangka yang sama dengan haiwan P seperti dalam Rajah 2.1.

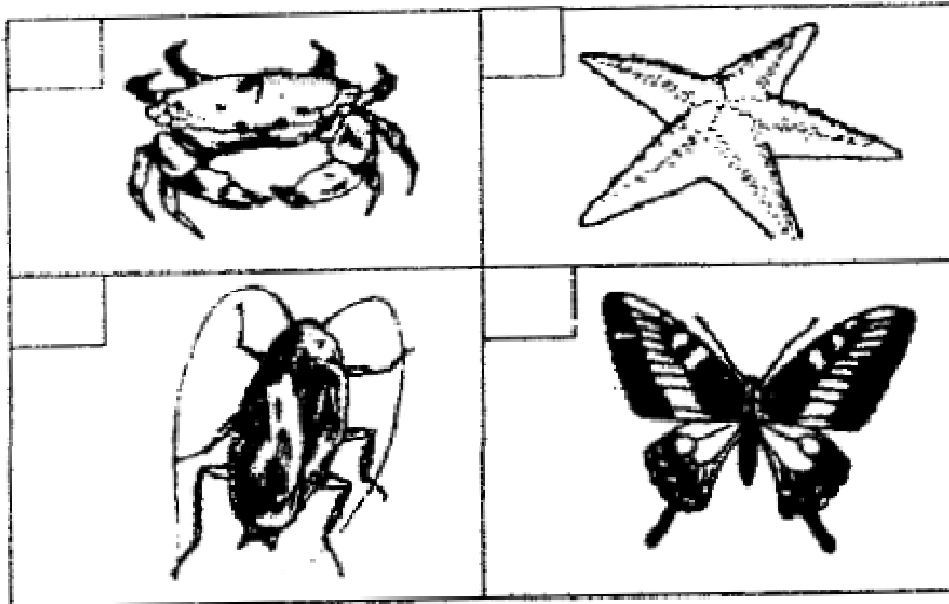


Diagram 2.2
Rajah 2.2

[1 mark]

- d) Diagram 2.3 shows an invertebrate, which has structure J as a support system
Rajah 2.3 menunjukkan invertebrata mempunyai struktur J sebagai satu sistem sokongan.

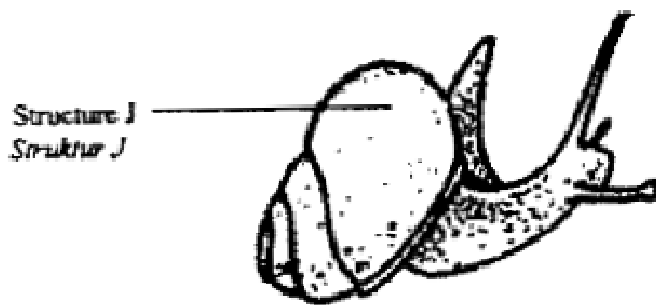


Diagram 2.3
Rajah 2.3

State the function of structure J.
Nyatakan satu fungsi struktur J.

[1 mark]

Lihat sebelah
SULIT

2(c)

	1
--	---

2(d)

	1
--	---

Total

	6
--	---

- 3 Diagram 3.1 shows the human digestive system.
Rajah 3.1 menunjukkan sistem pencernaan manusia.



Diagram 3.1
Rajah 3.1

- (a) (i) What is the part labelled P?
Apakah bahagian berlabel P?
- (ii) State the function of the part labelled P.
Nyatakan fungsi bahagian yang berlabel P.

[1 mark]

[1 mark]

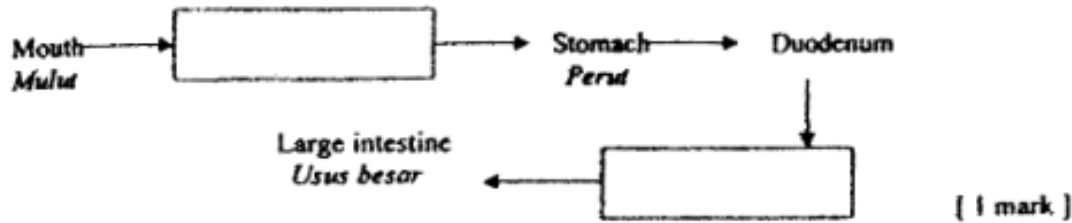
3(a)(i)



3(a)(ii)



- (b) Complete the pathway to show the flow of food in Diagram 3.1.
Lengkapkan laluan untuk menunjukkan pergerakan makanan di dalam Rajah 3.1.



- (c) Complete Table 3.2
Lengkapkan Jadual 3.2

Class of food <i>Kelas makanan</i>		End products of digestion <i>Hasil akhir pencernaan</i>
i.	Protein <i>Protin</i>	
ii	Carbohydrate <i>Karbohidrat</i>	Glucose <i>Glukosa</i>
iii		Fatty acid and glycerol <i>Asid lemak dan gliserol</i>

Table 3.2
Jadual 3.2 [2 marks]

- (d) Explain the process occurred inside structure Q.
Terangkan proses yang berlaku di dalam struktur Q.

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

3(b)

1

3(c)

2

3(d)

1

Total

6

- 4 Diagram 4.1 shows the apparatus set-up to study living things during respiration.
Rajah 4.1 menunjukkan susunan radas untuk mengkaji benda hidup semasa pernafasan.

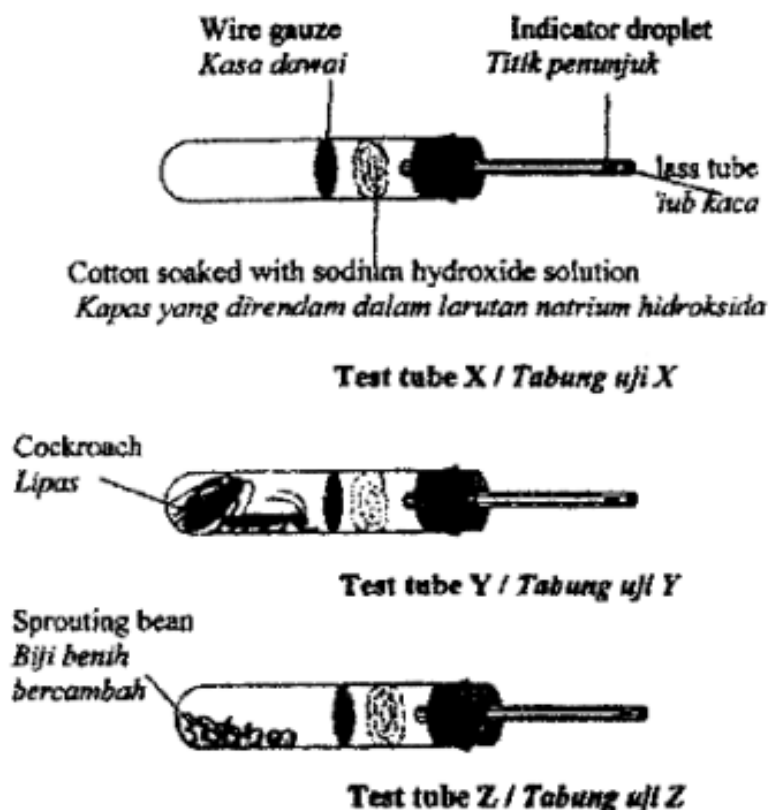


Diagram 4.1
Rajah 4.1

- (a) i) What will happen to the indicator droplet in test tube Y and Z after three hours.
Apakah yang berlaku pada titik pemunjuk bagi tabung uji Y dan Z selepas tiga jam

[1 mark]

- ii) Give the reason for your answer in a (i)
Berikan alasan bagi jawapan anda dalam a (i)

[1 mark]

4(a)(i)

1

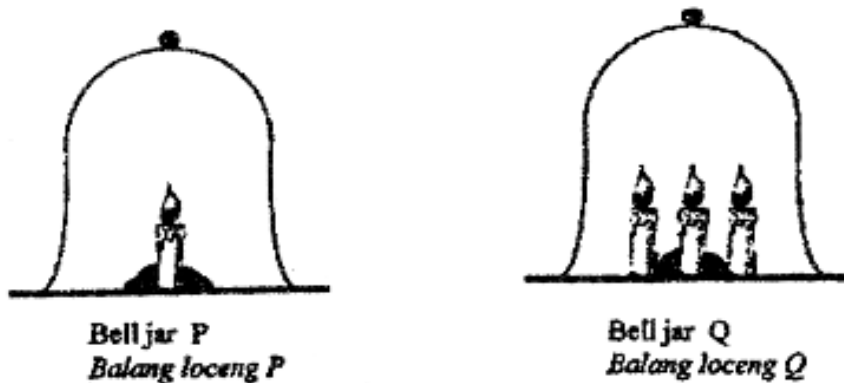
4(a)(ii)

1

- b) Based on diagram 4.1, suggest another living things to replace the cockroach in test tube Y.
Berdasarkan rajah 4.1, cadangkan satu benda hidup lain untuk menggantikan lipas dalam tabung uji Y.

[1 mark]

- c) Diagram 4.2 shows four identical candles are put into two identical bell jars P and Q respectively.
Rajah 4.2 menunjukkan empat lilin yang sama dimasukkan ke dalam dua balang loceng yang sama masing-masing P dan Q.



- (i) If the candle in bell jar P takes 30 second to extinguish. Predict the time for all the candles in bell jar Q to extinguish.
Jika lilin dalam balang loceng P mengambil masa 30 saat untuk padam. Ramalkan masa yang diambil untuk semua lilin dalam balang Q untuk padam.

[1 mark]

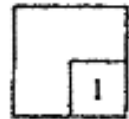
- (ii) Give your reason
Berikan alasan anda

[1 mark]

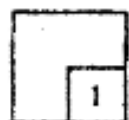
- (iii) When cooking is being done in the kitchen, why the windows need to be opened?
Semasa sedang memasak di dapur, mengapa tingkap perlu dibuka?

[1 mark]

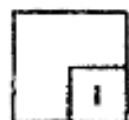
4(b)



4(c)(i)



4(c)(ii)



4(c)(iii)



Total



Lihat sebelah
SULIT

- 5 Diagram 5.1 shows an apparatus used to separate the fraction of petroleum on a small scale and to study their properties.

Rajah 5.1 menunjukkan radas yang digunakan untuk mengasingkan secara ringkas pecahan-pecahan petroleum untuk mengkaji ciri-cirinya.

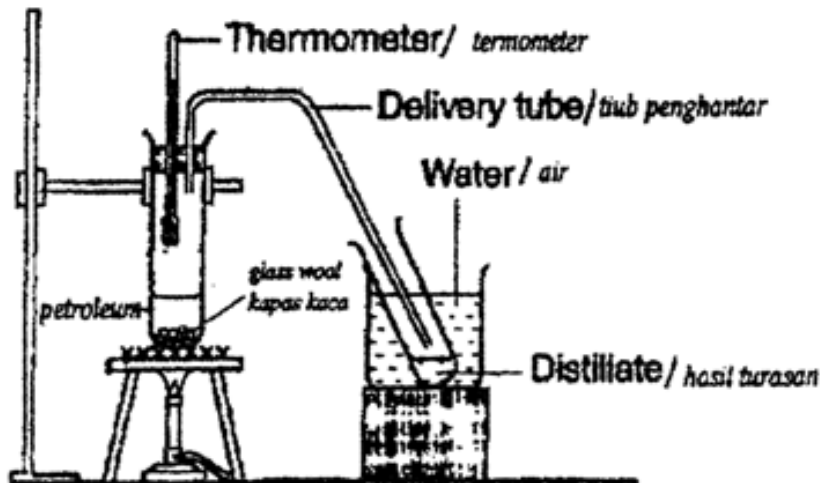


Diagram 5.1
Rajah 5.1

The fraction are collected in three test tubes as shown in table 5.2

Pecahan dikumpulkan dalam tiga tabung uji seperti dalam Jadual 5.2

Fraction <i>Pecahan</i>	Temperature <i>Suhu</i>	Combustibility level <i>Tahap Kebolehbakaran</i>	Amount of soot <i>Jumlah jelaga</i>	Colour of fraction <i>Warna pecahan</i>
First <i>Pertama</i>	Below/bawah 120°C	High <i>Tinggi</i>	None <i>Tiada</i>	Clear <i>Jernih</i>
Second <i>Kedua</i>	120°C - 170°C	Medium <i>Sederhana</i>	A little <i>Sedikit</i>	Pale yellow <i>Kuning pucat</i>
Third <i>Ketiga</i>	170°C - 220°C	Low <i>Rendah</i>	A lot <i>Banyak</i>	Yellow <i>Kuning</i>

Table / *Jadual* 5.2

(a) (i) State one physical property of the fraction that was first produced by this experiment?
Nyatakan satu sifat fizikal bagi pecahan pertama yang dihasilkan dalam eksperimen ini?

5(a)(i)

1

[1 mark]

(ii) Predict amount of soot produced at the fourth fraction
Ramalkan jumlah jelaga yang dihasilkan pada pecahan keempat

5(a)(ii)

1

[1 mark]

(b) Describe the relationship between the viscosity of the fractions and the temperature at which it is collected?
Terangkan hubungan di antara kelikatan pecahan dan suhu bila mana ia dikumpulkan?

5(b)

1

[1 mark]

(c) Diagram 5.2 shows the distillation tower.
Rajah 5.2 menunjukkan menara penyulingan

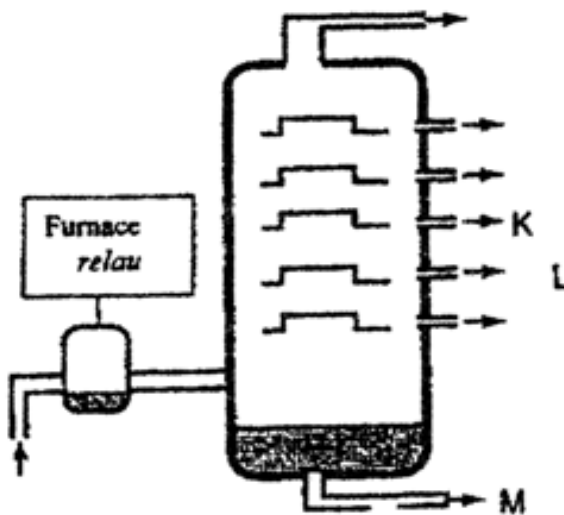


Diagram 5.2
Rajah 5.2

- (c) State the differences between K and M in the aspects of colour and viscosity?
Nyatakan perbezaan di antara K dan M dari aspek warna dan kelikatan?

.....
.....
[2 marks]

5 (c)

2

- (d) What should be done to the crude oil to produce bitumen?
Apa yang perlu dilakukan kepada minyak mentah untuk menghasilkan bitumen?

.....
[1 mark]

5 (d)

1

- (e) Why is a housekeeper prefer to use natural gas as a fuel for cooking rather than kerosene?
Kenapa suri rumah lebih gemar menggunakan gas asli sebagai bahan api untuk memasak berbanding dengan kerosene?

.....
[1 mark]

5 (e)

1

- (f) Why is natural gas is transported in the form of liquid?
Kenapakah gas asli diangkut di dalam bentuk cecair?

.....
[1 mark]

5 (f)

1

Total

8

For Examiner use
Untuk kegunaan pemeriksa

QUESTION 6
SOALAN 6

Diagram 6.1 and 6.2 shows two power stations to generate electrical energy
Rajah 6.1 dan 6.2 menunjukkan 2 stesen kuasa untuk menjana tenaga elektrik

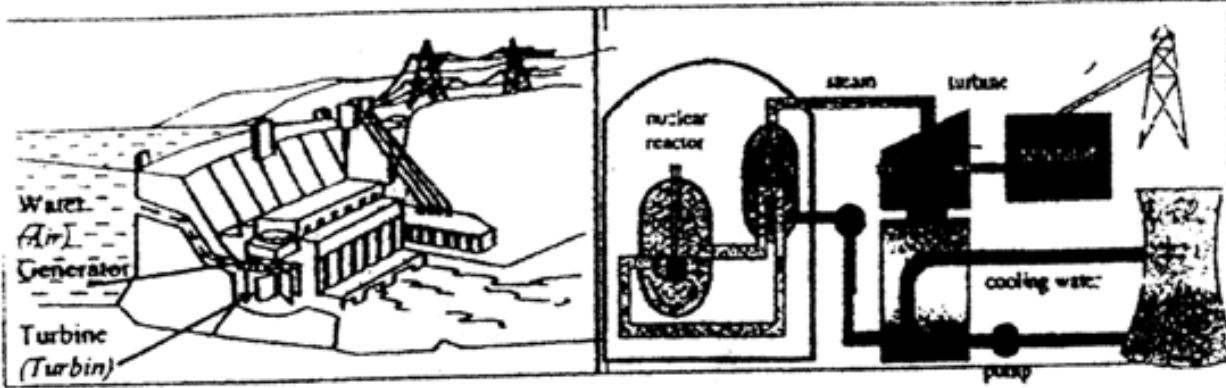


Diagram 6.1
Rajah 6.1

Diagram 6.2
Rajah 6.2

- a) i) Describe the generation of electrical energy as shown in diagram 6.1? Begin your explanation with
Huraikan penjanaan tenaga elektrik seperti ditunjukkan dalam rajah 6.1. Mulakan penerangan anda dengan

Water flowing
Air mengalir

.....
.....
.....

[2 marks]

6(a)(i)

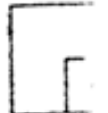


- ii) State the difference in sources of energy used to generate electrical energy between the power station in diagram 6.1 and 6.2
Nyatakan perbezaan dalam sumber-sumber tenaga digunakan untuk menjana tenaga elektrik antara stesen kuasa dalam rajah 6.1 and 6.2

.....
.....

[1 mark]

6(a)(ii)



- b) Diagram 6.3 shows electrical power transmission and distribution system.
Rajah 6.3 menunjukkan sistem penghantaran dan pengagihan kuasa elektrik

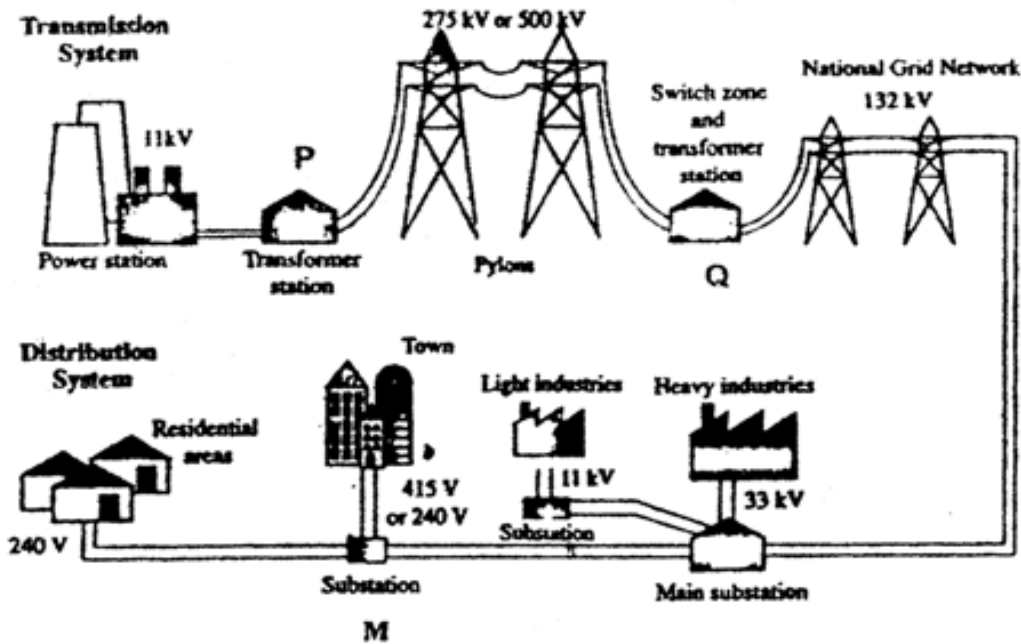


Diagram 6.3
Rajah 6.3

- i) What is the difference between the role of transformers P and Q?
Apakah perbezaan peranan antara transformer P dan Q?

6(b)(i)

1

[1 mark]

- ii) Diagram 6.4 shows a model of a transformer
Rajah 6.4 menunjukkan satu model transformer

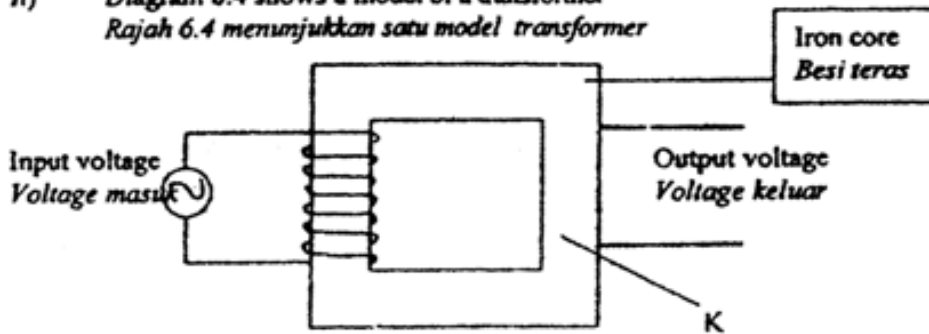


Diagram 6.4
Rajah 6.4

Draw the number turns of wire at K in the diagram 6.4 that represent transformer in substation M
Lukis bilangan lititan wayar pada K dalam rajah 6.4 yang mewakili transformer di sub stesen M

6(b)(ii)

1

[1 mark]

Lihat sebelah
SULIT

- iii) Based on diagram 6.3 why does electrical power transmit through the pylons at high voltage?
 Berdasarkan rajah 6.3 mengapakah tenaga elektrik dihantar melalui pylon pada voltan tinggi?

.....

.....

[1 mark]

For Examiner's use
Uraian
Jawapan

6(b)(ii)

1

- c) Diagram 6.5 shows an electrical wire system at home
 Rajah 6.5 menunjukkan sistem pendawaian di rumah.

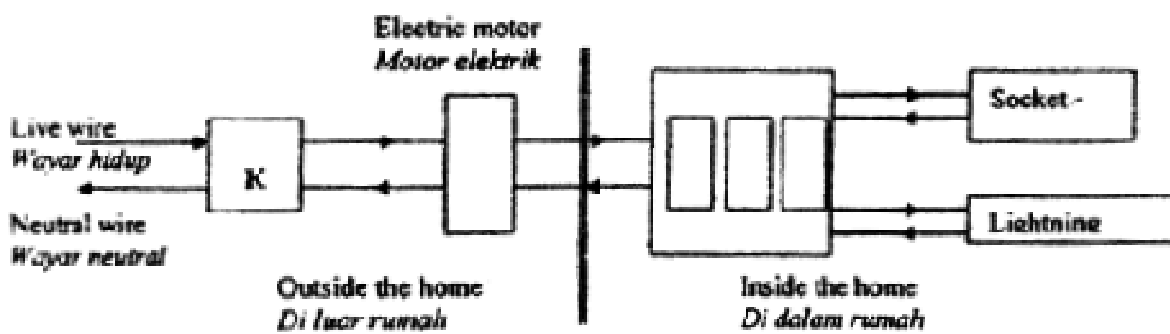


Diagram 6.5
Rajah 6.5

- i) What will happen to the device in box K, if 500V of voltage flows through it?
 Apakah yang berlaku kepada alat dalam kotak K jika voltan 500V mengalir melaluinya?

.....

.....

- ii) State a reason for your answer in c(i)
 Nyatakan sebab bagi jawapan dalam c (i)

.....

.....

[2 marks]

6(c)(i)

1

6(c)(ii)

1

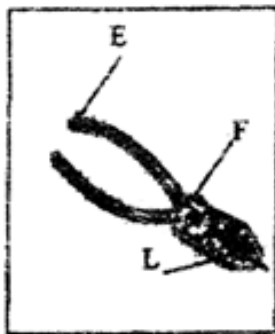
Total

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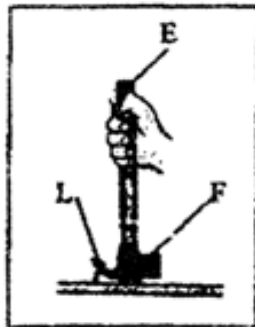
Lihat sebelah
SULIT

SECTION B
(20 marks)
Answer all questions

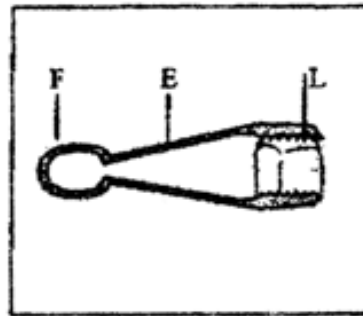
7. Diagram 7 shows tools using levers which are labelled as P, Q, R, S and T
Rajah 7 menunjukkan alatan yang menggunakan tuas yang dilabelkan P, Q, R, S dan T



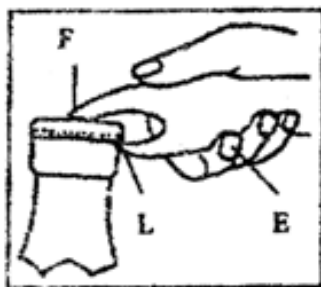
P



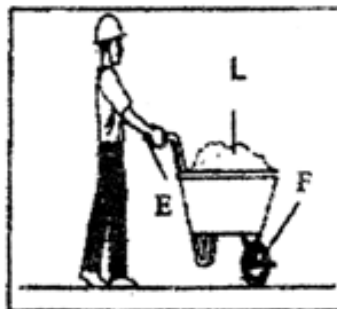
Q



R



S



T

Diagram 7
Rajah 7

Based on your observation in Diagram 7,
Berdasarkan pemerhatian anda dalam Rajah 7

(a) State one characteristic of any four of tools P, Q, R, S and T based on the position of load, fulcrum and effort

Nyatakan satu ciri mana-mana empat alatan P, Q, R, S dan T berdasarkan kedudukan beban, fulkrum dan daya

P:

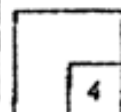
Q:

R:

S:

T:

7(a)

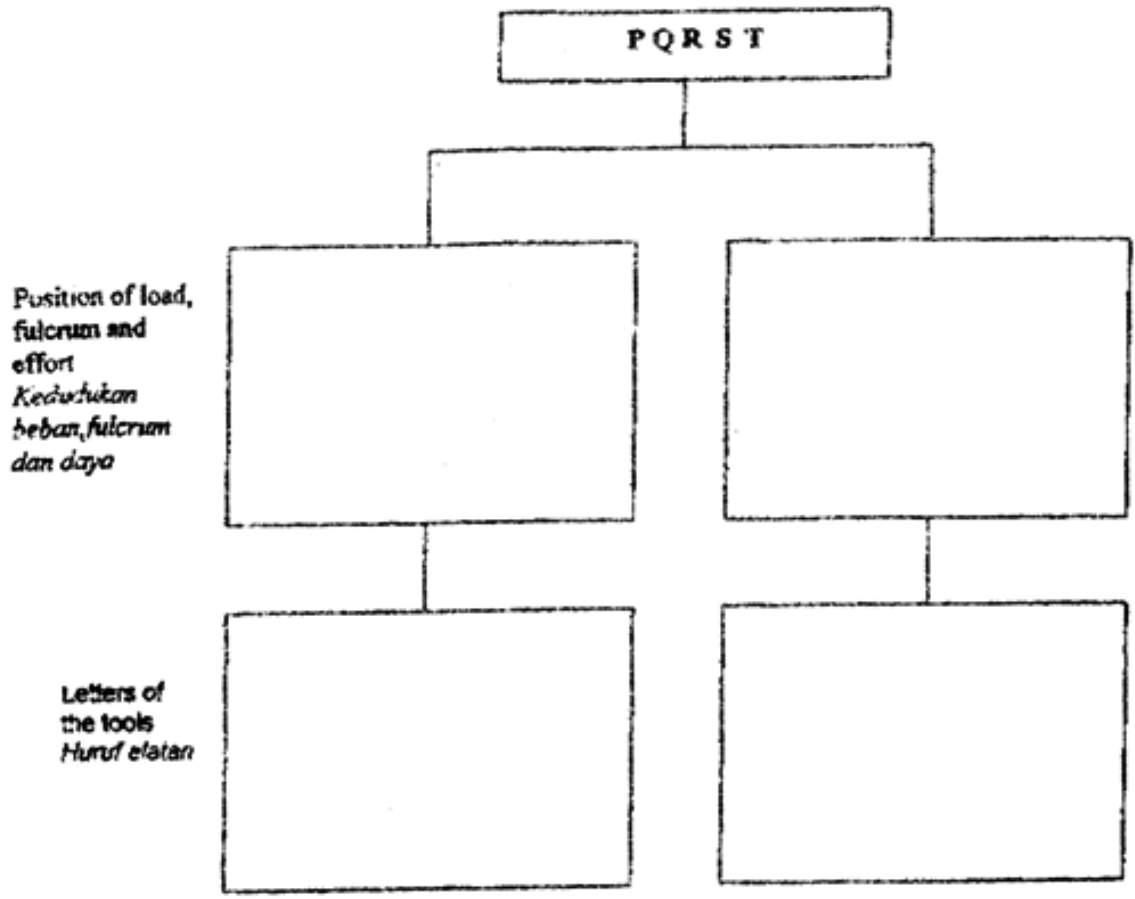


[4 marks]

Lihat sebelah

SULIT

b) Classify the tools P,Q,R,S and T based on the position of the load, fulcrum and effort.
Kelaskan alat P,Q,R,S dan T berdasarkan kedudukan beban, fulcrum dan daya.



[4 marks]

7(b)
4

Total
8

Diagram 8.1 shows stages in a seed germination.

Rajah 8.1 menunjukkan peringkat-peringkat percambahan satu biji benih.

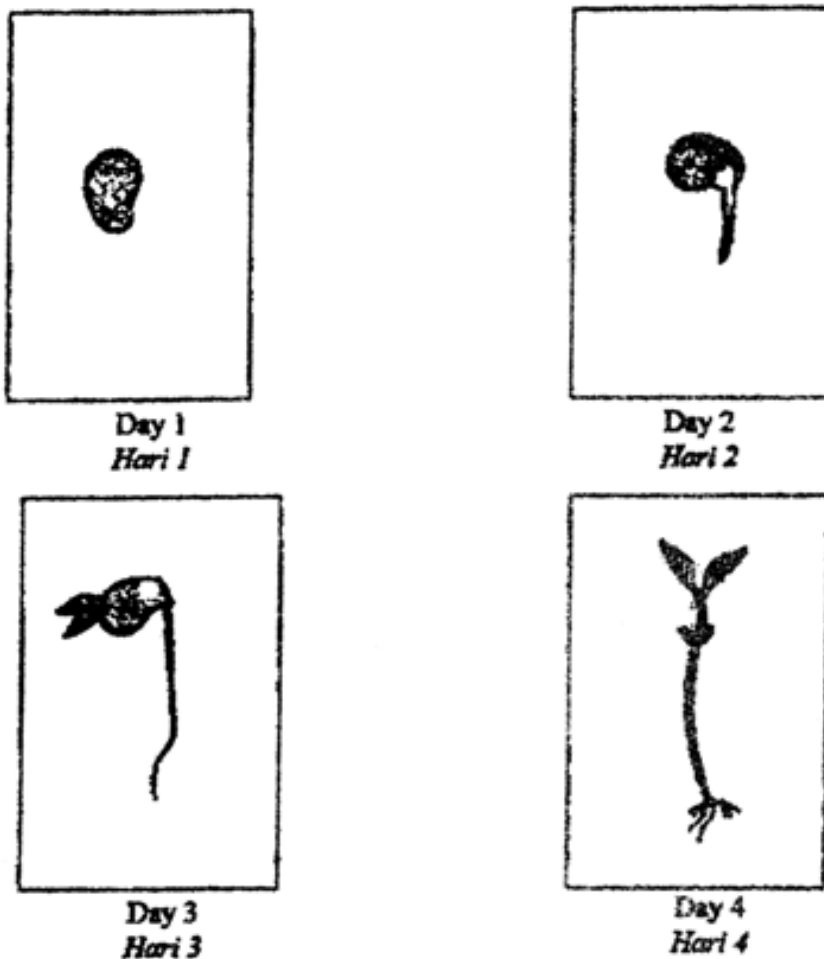


Diagram 8.1
Rajah 8.1

a) Based on Diagram 8.1;
Eerdasarkan Rajah 8.1;

- (i) State one difference of physical change between the first and second day of germination .
Nyatakan satu perbezaan perubahan fizikal pada hari pertama dan kedua percambahan..

.....
[1 mark]

6(a)(i)

1

(ii) What inference can be made?
Apakah inferens yang boleh dibuat?

.....
[1 mark]

(iii) Predict the size of cotyledons on the fifth day of germination.
Ramalkan saiz kotiledon pada hari ke lima percambahan.

.....
[1 mark]

(b) Diagram 8.2 shows the radicle's length according to days of germination.
Rajah 8.2 memaparkan panjang radikel mengikut hari percambahan.

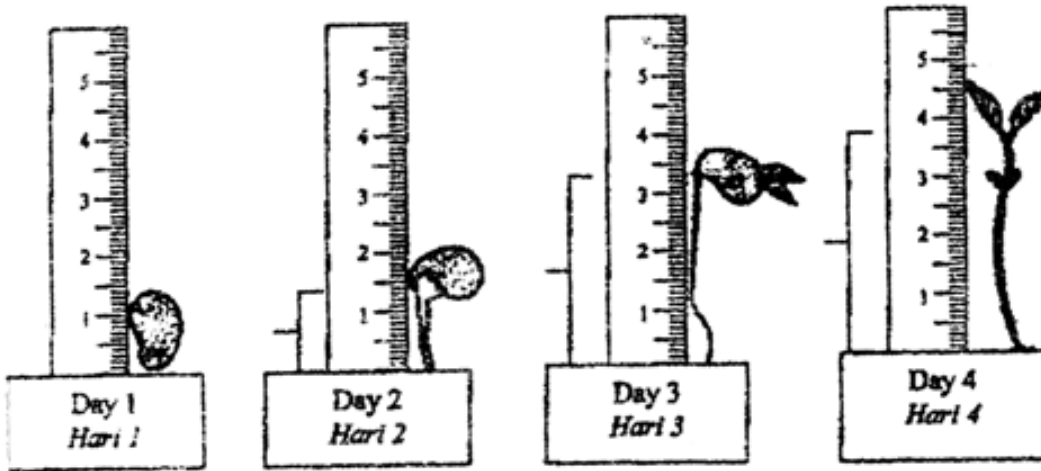


Diagram 8.2
Rajah 8.2

Based on Diagram 8.2 record the length of radicle in Table 8.3.
Berdasarkan Rajah 8.2, catatkan panjang radikel dalam Jadual 8.3.

Time (Day) <i>Masa (Hari)</i>	1	2	3	4
Length of radicle(cm) <i>Panjang radikel (cm)</i>				

Table 8.3
Jadual 8.3

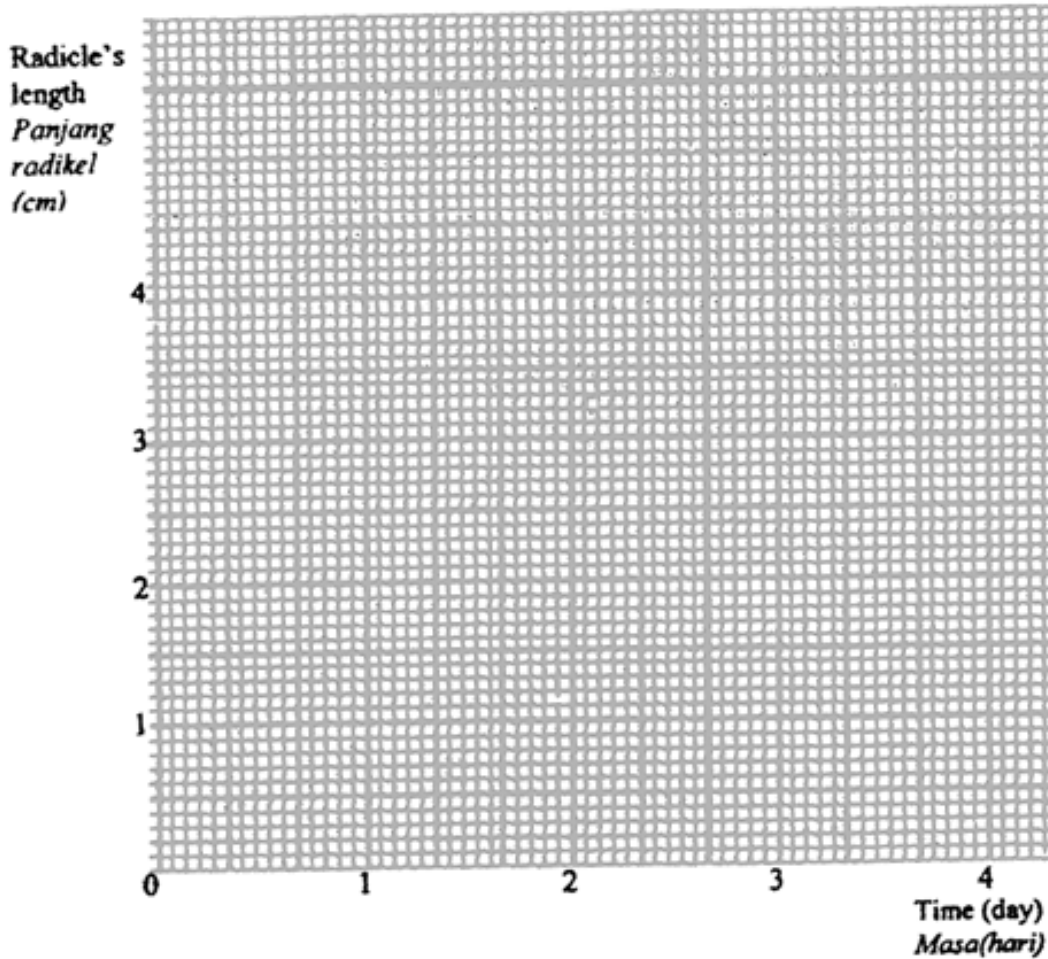
[2 marks]

6(a)(ii)

6(a)(iii)

6(b)

- (c) Based on Table 8.3 draw a graph of the radicle's length against time.
Berdasarkan Jadual 8.3, lukis graf panjang radikel melawan masa.

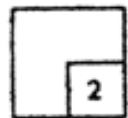


[2 marks]

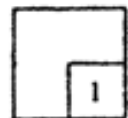
- (d) Based on the graph, state the relationship between the radicle's length and time.
Berdasarkan graf, nyatakan hubungan antara panjang radikel dan masa.

..... [1 mark]

6(c)



6(d)



- (c) Diagram 8.4 and Table 8.5 show a set of apparatus used in an experiment to study the factors affecting germination of seeds and the results.
Rajah 8.4 dan jadual 8.5 menunjukkan satu set radas digunakan di dalam eksperimen mengkaji faktor-faktor yang mempengaruhi percambahan biji benih dan keputusannya.

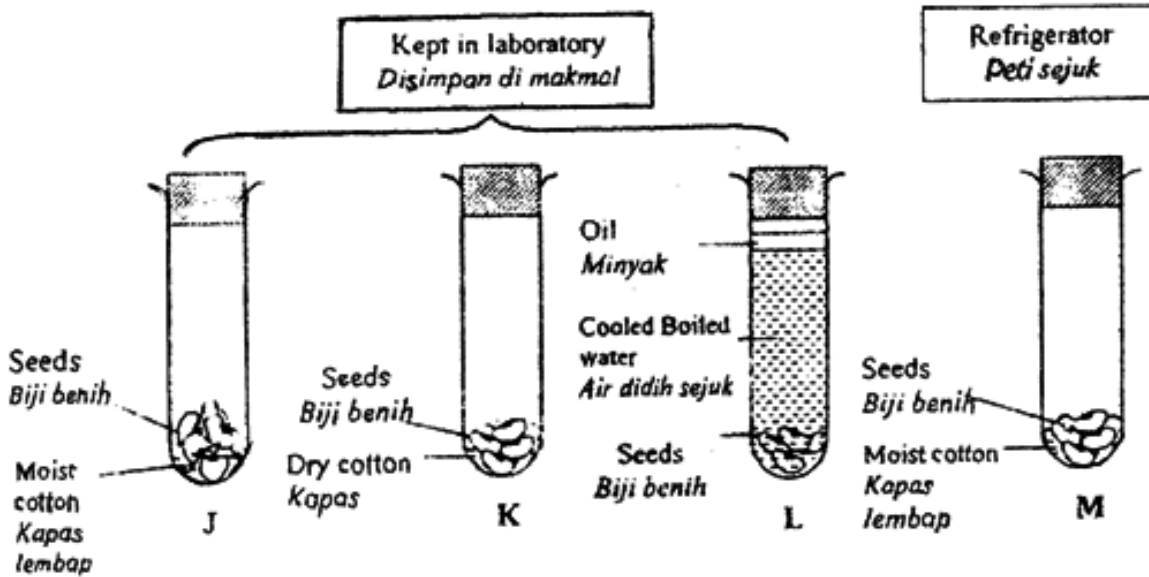


Diagram 8.4
Rajah 8.4

Test tube <i>Tabung uji</i>	Observation <i>Pemerhatian</i>
J	Seeds germination <i>Biji benih bercambah</i>
K	Seeds do not germinate <i>Biji benih tidak bercambah</i>
L	Seeds do not germinate <i>Biji benih tidak bercambah</i>
M	Seeds do not germinate <i>Biji benih tidak bercambah</i>

Table 8.5
Jadual 8.5

e) Based on figure 8.4 and table 8.5;
Berdasarkan Rajah 8.4 dan Jadual 8.5;

(i) State the variables involved in this experiment.
Nyatakan pembolehubah yang terlibat dalam eksperiment ini.

Manipulated variable <i>Pembolehubah yang dimanipulasi</i>	
Responding variable <i>pembolehubah yang bergerakbalas</i>	
Controlled variable <i>pembolehubah yang dimalarkan</i>	Type of seed <i>Jenis biji benih</i>

[2 marks]

(ii) State the action taken which enables the seed to germinate.
Nyatakan tindakan yang diambil yang membolehkan bijibenih bercambah.

.....
[1 mark]

(iii) What can you observe to determine the germination occurred?
Apakah yang boleh diperhatikan bagi menentukan percambahan berlaku?

.....
[1 mark]

6 (c)(i)

2

6 (c)(ii)

1

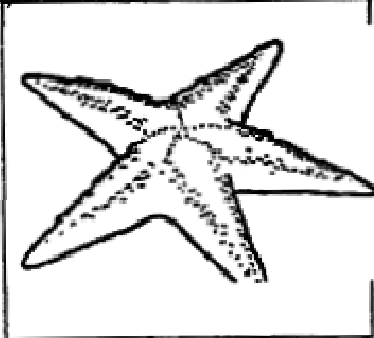
6 (c)(iii)

1

Total

12

MARKING SCHEME
PEPERIKSAAN PERCUBAAN TAHUN 2008
SCIENCE PMR 55/2

Question	Rubric	Marks
1	<p>[Able to state the method P, Q and R in Diagram 1 correctly]</p> <p>(a) P: Electrolysis Q: Filtration R: Evaporation</p> <p>[Able to match the method of separation and their uses]</p> <p>(b) P: To separate break down compound into its element <i>Menguraikan sebatian kepada unsure-unsurnya</i> Q: To separate an insoluble solid from liquid <i>Mengasingkan bahan pepejal tak terlarut dari cecair</i> R: To separate a dissolved solid from a liquid <i>Mengasingkan bahan pepejal terlarut dari cecair</i></p>	<p style="text-align: center;">3</p> <p style="text-align: center;">3</p>
2	<p>i) Student be able to name any two types of skeleton Answer : P : Hydrostatic Q : Endoskeleton R : Endoskeleton</p> <p>ii) Student be able to give the reason why organism P die when loses too much water to its surrounding. Sample answer : -no support system</p> <p>b) Student be able to state what can make animal Q support its body weight Sample answer - Water surrounding - Water bouncy</p> <p>c) Student be able to to mark (X) on diagram 2.2</p> <div style="text-align: center;">  </div>	<p style="text-align: center;">2</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p>

	<p>d) Student able to state the function of structure J Sample answer :</p> <p>To protect internal organ/support body weight/prevent the loss of water from the body</p>	1
3	<p>(a) (i.) Stomach (ii)To digest protein // to produce gastric juice</p> <p>(b) esophagus Small intestine</p> <p>(c) (i) Amino acid fat (ii) Absorption of excess water <i>digested food</i> (and mineral salt)</p>	1 1 1 2 1
4	<p>(a) (i) Move closer to the test tube (ii) Living things use oxygen during respiration.</p> <p>(b) grasshopper (all insects)</p> <p>(c) (i) Less than 30 second. (ii) Bell jar Q has many candles that need more oxygen. (iii) To allow more oxygen enter to support combustion.</p>	1 1 1 1 1 1
5	<p>Student is able to state the properties of the first fraction (a) burns easily / highly combustible // no soot // (colour of fraction is) clear</p> <p>(b) Student is able to relate between viscosity and temperature : viscosity of fraction increases as the temperature increases // the higher the temperature the higher the viscosity (of fraction)</p> <p>(c) Student is able to state the differences between M and K : M is darker in colour and more viscous compared to K // K is lighter in colour and less viscous compared to M</p> <p>(d) A student is able to state the temperature of L : Between 250 ° C – 300 ° C</p> <p>(e) Student is able to state the advantage of natural gas : no soot (cleaner) // burns easily</p> <p>(f) Students is able to state the advantage of transporting natural gas in liquid form : space saving //cost saving //easy handling</p>	1 1 1 1 1 1
6	a (i) Able to describe the generation of electrical energy	

	<p>Sample answer :</p> <p>With high speed Rotate the turbine / generator</p> <p>(ii) Able to state the difference in sources of energy used to generate electrical energy</p> <p>Sample answer :</p> <p>Power station in diagram 6.1 used water and power station in diagram 6.2 used nuclear reaction / radioactive substances</p> <p>Note : Both must be mentioned</p> <p>b) (i) Able to state the difference between the role of transformer P and Q</p> <p>Sample answer : P : increases the voltage Q : decreases the voltage</p> <p>Note : Both must be mentioned</p> <p>(ii) Able to draw number turns of wire at K</p> <p>Sample answer :</p> <div data-bbox="459 1205 810 1451" data-label="Diagram"> </div> <p>Number of wire less than number of wire at input voltage</p> <p>(iii) Able to state why the electrical power transmit through the pylons at high voltage</p> <p>Sample answer : To reduce the lost of electrical energy</p> <p>c) i) Able to state what will happen to the device in the box K</p> <p>Sample answer :</p> <p>Melt / cut off</p> <p>ii) Able to state a reason for answer (melt / cut off)</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
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- a) i. Testa emerges during the second day but not on the first day/
Testa breaks on the second day but not on the first day
ii. Time influence the length of radicle//size of cotyledons
iii. Becomes smaller//falls off

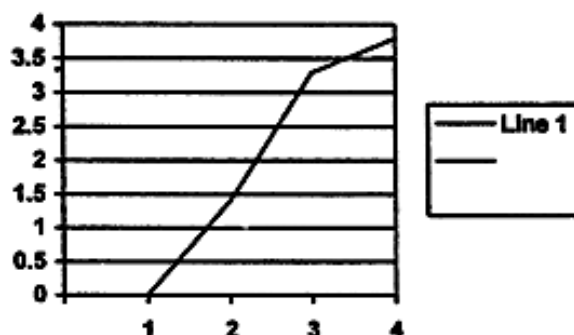
1
1

b)

Time(Day) <i>Time (Hari)</i>	1	2	3	4
Radicle's length (cm) <i>Panjang radikel (cm)</i>	0.0	1.4	3.3	3.8

2

c)



2

At least 3 points correct

1

-1

Correct line curve -1

- (d) The radicle's length increases as time increases

1

(e) (i)

Manipulated variable <i>Pembolehubah dimanipulasi</i>	Conditions for seed germination/ Presence of air, water and warmth <i>Keadaan untuk percambahan/ Kehadiran udara, air dan suhu sesuai</i>	
Responding variable <i>Pembolehubah bergerakbalas</i>	Germination of seeds <i>Percambahan biji benih</i>	1
Controlled variable <i>Pembolehubah yang dimalarkan</i>	Type of seed <i>Jenis biji benih</i>	1

- (ii) The seeds are put into test tube J/contains water, air and warmth

- (iii) The radicle/shoots emerge