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SPM SEMINAR 2019

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PART 1

SCIENCE

VIDEO PEMBELAJARAN LENGKAP DI

Tingkatan 4



Tingkatan 5



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YOU CAN GET AT LEAST AN A- FOR SCIENCE SPM??? I KID YOU NOT.

1. It is so so EASY to get an **A** for SCIENCE SPM! – you will agree with me once we are done with this workshop. ☺
2. It is so so NOT EASY to fail SCIENCE SPM! – again, you will agree with me once we are done with this workshop. ☺
3. DRILL, DRILL and DRILL your **PAPER 1!** Anything from the syllabi can come out, do not SPOT the questions, it is USELESS and a WASTE OF TIME! ☺
4. Maintain a score of **AROUND 35/50** for **Paper 1!** PRACTICE, PRACTICE & PRACTICE until it is consistent! (Caution, janganlah target ngam-ngam 30 markah jer, targetlah lebih-lebih sikit) ☺
5. MASTER the **Scientific Process Skills** to score around **17-18 marks** (kalau boleh, skorlah full 20 marks) for **SECTION A of Paper 2.**
6. MASTER the answering techniques for **QUESTION 10 of Paper 2 (also involves the Scientific Process Skills)**, it is a **COMPULSORY** question to be answered, every single year! Get a score of **around 7-8 marks** for this question (again, kalau boleh dapatkan full 10 marks).
7. MASTER the answering techniques for either **QUESTION 11 or QUESTION 12**. Score another **7-8 marks** for this question [kalau boleh skor lah.....(sambung sendiri)]
8. If all goes well, you only need to get around **18/30 marks** for **Section B** (that is lebih sikit daripada SEPARUH of the total marks!) to secure an A-! Takkan tak boleh kot??? ☺
9. 35 marks (Paper 1) + 18 marks (Sect A, Paper 2) + 18 marks (Sect. B, Paper 2) + 7 marks (Q10, Paper 2) + 7 marks (Q11/Q12, Paper 2) = **85/120 = 71%!!!**

Sudah A- maaaa, silap-silap boleh jadi A or A+!

Nak Ke Tak Nak??? ☺

FORMAT INSTRUMEN PENTAKSIRAN BAGI MATA PELAJARAN SAINS MULAI TAHUN 2005

BIL	PERKARA	KERTAS 1 (1511/1)	KERTAS 2 (1511/2)
01	Jenis Instrumen	Ujian Objektif	Ujian Objektif
02	Jenis Item	Item Objektif Pilih Jawapan <ul style="list-style-type: none"> • aneka pilihan • aneka gabungan Setiap item mempunyai 4 pilihan jawapan	Item subjektif <ul style="list-style-type: none"> • Item berstruktur • Item Respons Terbuka • Item Respons Tertutup
03	Bilangan Soalan	50 (Jawab semua)	Bahagian A 4 (jawab semua) 20 markah Bahagian B 5 (Jawab semua) 30 markah Bahagian C <ul style="list-style-type: none"> • 1 (wajib) 10 markah • 2 atau 3 (pilih 1) 10 markah
04	Jumlah Markah	50	70
05	Cara Memberi Respons	Ditanda pada borang OMR	Ditulis pada ruangan kertas soalan
06	Tempoh Ujian	1 jam 15 minit	2 jam 30 minit
07	Wajaran Konstruk	Pengetahuan : 25 Pemahaman : 15 Aplikasi : 10	Pengetahuan : 20 Pemahaman : 14 Kemahiran Saintifik : 30 Aplikasi : 6
08	Contoh Item berdasarkan Konstruk	Rujuk contoh soalan LP	Rujuk contoh soalan LP
09	Pemarkahan	Dikotomus (markah 1 atau 0)	Analitikal
10	Cakupan Respons	Konstruk di taksir pada semua konteks	Konstruk di taksir pada semua kontek

SEMINAR NOTES (MASTERING SECTION A of PAPER 2)**1. Making & Stating the OBSERVATION.**

- ONLY state what you can see from the diagram by stating the MV and the RV of the diagram. RV must be stated with value-nilai ukuran.

2. Stating the PROBLEM STATEMENT.**3. Stating the HYPOTHESIS?**

- a simple statement that shows the _____ between the _____ and _____ of the experiment.
- 2 common ways of writing a hypothesis:
 - ii) "Stating the relationship between the MV & RV"
 - ii) "Choose one of the MVs/Sets, and state the value of the RV for that MV/Set."

4. Stating the VARIABLES?

- Variables are _____ that _____
- There are _____ types of variables in any experiment.

5. Stating the INFERENCE?

- What is inference?

6. Stating the OPERATIONAL DEFINITION?

- Defining the “word” based on the experiment conducted, which involves the MV & the RV.
- Template that can be used:
(word to be defined) is the (RV) and is affected by the (MV).

7. Drawing the GRAPHS.

- Read the question carefully for the **type of graph** that you need to draw:
 - i) Draw a graph – means the usual **Line Graph**
 - ii) Draw a bar graph – means a **Bar Graph** (and NOT a histogram). Apa bezanya?

8. Additional Notes:

- i) Stating a relationship:
 - Use the variables requested by the question (normally they will ask you to state a relationship between the MV & the RV of the experiment).
 - Statement will be similar to the 1st format of stating a Hypothesis (involving relationship between the MV & RV).
- ii) Making a prediction:
 - Analyze the data from the question/the plotted graph to determine the predicted value.
 - Take a referral value from the data/graph.
 - Prediction must either be :
 - i) “Remains the same as (the value)”
 - ii) “More than (the value)
 - iii) “Less than (the value)

SAMPLE QUESTIONS
SECTION A, PAPER 2 (part 1)

- 1 Diagram 1 shows the set up of apparatus to investigate the purification of copper using electrolysis. Copper which is deposited on one of the electrode is weighed.

Rajah 1 menunjukkan susunan radas untuk mengkaji penulenan kuprum dengan kaedah elektrolisis. Kuprum yang terenap pada salah satu elektrod ditimbang.

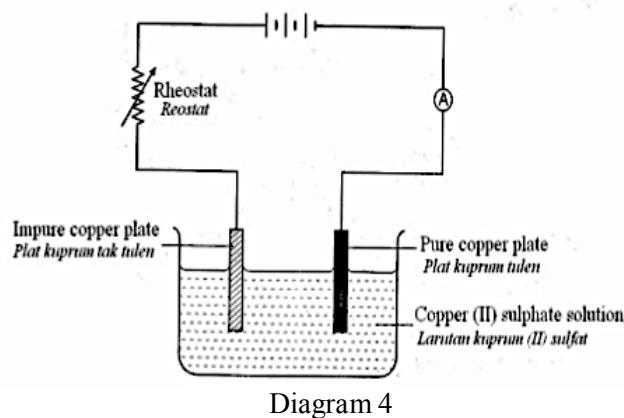


Table 1 shows the mass of copper deposited when 0.5 A is used.

Jadual 1 menunjukkan jisim kuprum yang terenap apabila 0.5 A digunakan.

Time (minutes) <i>Masa (minit)</i>	Mass of copper deposited (g) <i>Jisim kuprum terenap (g)</i>
2	0.3
4	0.6
6	0.9
8	1.2
10	
12	1.8

Table 1

- (a) State one observation of this experiment/ Nyatakan satu pemerhatian bagi eksperimen ini.

.....

[1 mark]

- (b) State the hypothesis for the experiment above/Nyatakan hipotesis bagi eksperimen ini.

.....

[1 mark]

- (c) State the variables of this experiment.

Nyatakan pembolehubah-pembolehubah dalam eksperimen ini.

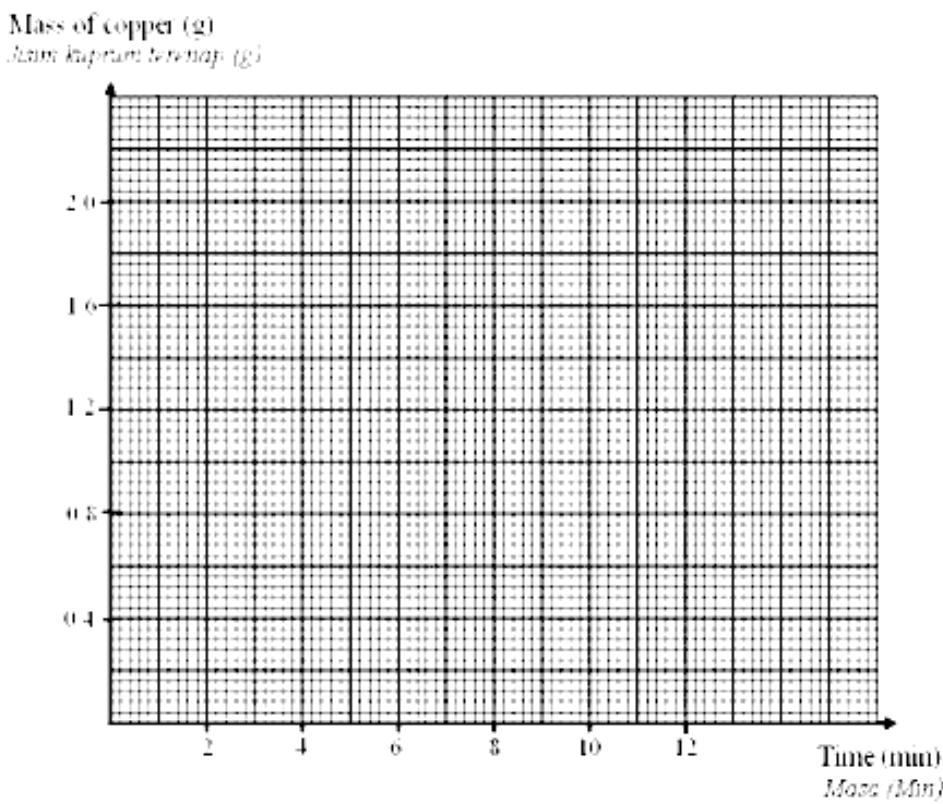
Manipulated:

Responding:

Constant:

[2 marks]

- (d) Based on Table 1, draw a graph of mass of copper deposited against time.
Berdasarkan Jadual 1, lukiskan graf jisim kuprum yang terenap melawan masa.



[2 marks]

- (d) Using the graph, determine the mass of copper deposited at the 10th minutes.
Dengan menggunakan graf, tentukan jisim kuprum yang terenap pada minit ke-10.

.....

[1 mark]

- (e) State the relationship between the mass of copper deposited with time.
Nyatakan hubungan di antara jisim kuprum yang terenap dengan masa

.....

.....

[1 mark]

- 2 Table 2 shows the result of an experiment to show the reaction between 3.0 g zinc with 100 cm^3 dilute hydrochloric acid.

Jadual 2 menunjukkan keputusan eksperimen hasil tindak balas antara 3.0 g logam zink dengan 100 cm^3 asid hidroklorik cair.

Time/minutes Masa/minit	0	1	2	3	4	5	6
Volume of gas/ cm^3 <i>Isipadu gas / cm³</i>	0	27	46	57	64	67	67

Table 2

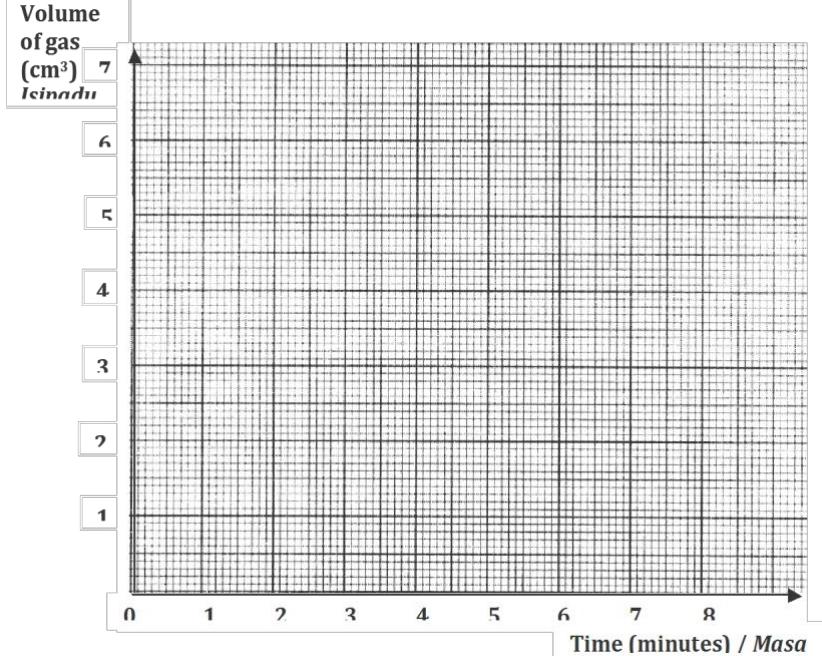
- (a) State the hypothesis for this experiment.

Nyatakan hipotesis dalam eksperimen di atas.

[1 mark]

- (b) Plot a graph of gas volume against time based on Table 2.

[2 marks]



- (c) Based on the graph that you have plotted, determine the volume of the gas released at $2\frac{1}{2}$ minute.

Berdasarkan graf anda, tentukan isipadu gas yang terbebas pada masa $2\frac{1}{2}$ minit.

[1 mark]

- (d) Predict the volume of gas released at 7 minutes.

Ramalkan isipadu gas yang terbebas pada minit ke 7.

[1 mark]

- 3 Diagram 3 shows the information on the blood groups collected from 30 students in a class.
(Rajah 3 menunjukkan maklumat tentang kumpulan darah yang dikumpul daripada 30 orang pelajar di dalam satu kelas)

A	A	AB	A	B	O	B	B	B	A
AB	O	A	B	A	A	AB	O	A	O
A	B	B	O	B	B	AB	A	B	A

Diagram 3

- (a) Complete Table 3 based on the information in Diagram 3.
(Lengkapkan Jadual 3 berdasarkan maklumat dalam Rajah 3)

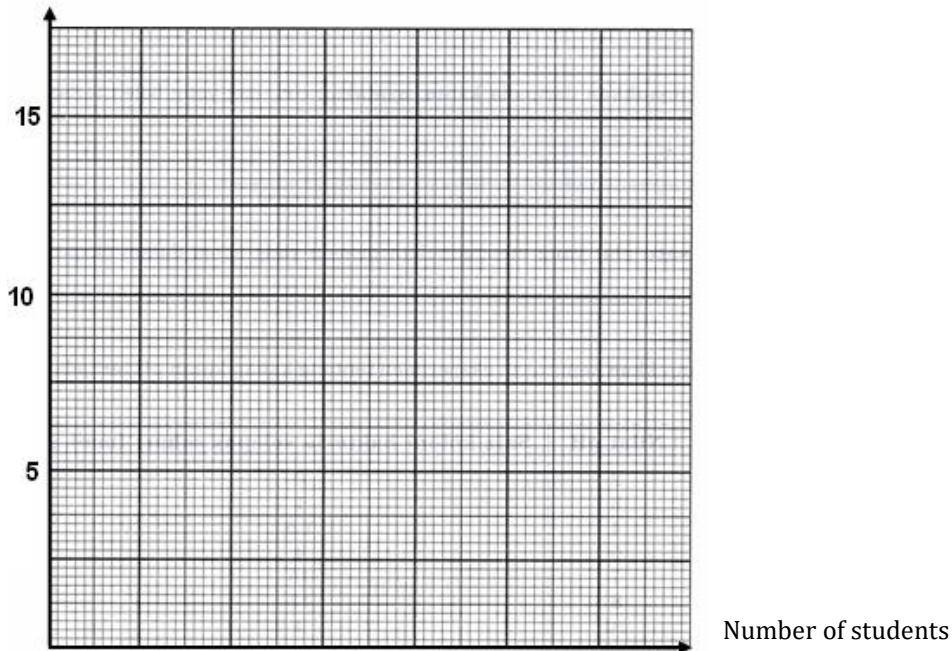
Type of blood group <i>(Jenis kumpulan darah)</i>	A	B	AB	O
Number of students <i>(Bilangan pelajar)</i>				

Table 3

[2 marks]

- (b) Draw a bar chart using the data in Table 3.
(Lukis carta bar menggunakan data dalam Jadual 3)

[2 marks]

Blood group/*Kumpulan darah*

- (c) Based on the bar chart in (b), state the type of variation for the blood group.
(Berdasarkan carta bar di (b), nyatakan jenis variasi bagi kumpulan darah)

..... [1 mark]

- 4 The weight of male students in Form 5 Alpha are recorded in the table below.

Berat badan pelajar lelaki dalam kelas Tingkatan 5 Alfa dicatatkan di dalam jadual di bawah.

Weight of students/kg <i>Berat badan pelajar / kg</i>									
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 4.

Dengan menggunakan data di atas, lengkapkan Jadual 4.

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

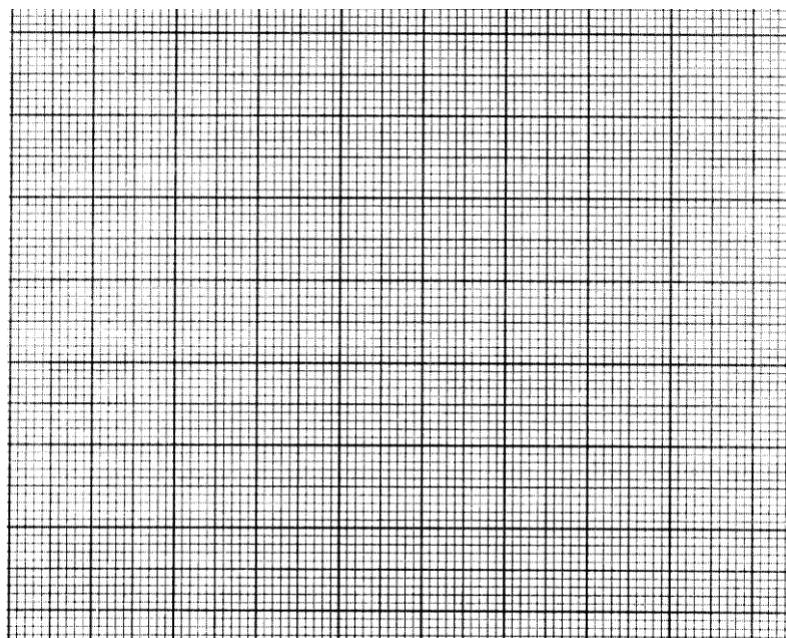
Table 4

[2 marks]

- (b) By using the result in Table 4, draw a bar graph the number of student against the weight.

Dengan menggunakan keputusan yang diperolehi dalam Jadual 3, lukiskan satu graf bar bilangan pelajar melawan berat badan.

Number of students/Bilangan pelajar



Weight/*Berat badan (kg)*

[2 marks]

- (c) From the graph in (b), state the type of variation that shown by the weight of students.

Daripada graf yang diperolehi di (b), tentukan jenis variasi yang ditunjukkan oleh berat badan pelajar.

.....

[1 mark]

SAMPLE QUESTIONS
SECTION A, PAPER 2 (part 2)

- 1 Diagram 1 shows an experiment to study the weight of plasticine in air and water.
Rajah 1 menunjukkan eksperimen untuk mengkaji berat plastisin di udara dan di dalam air.

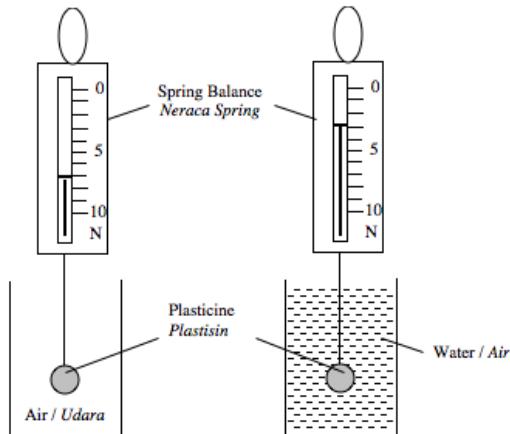


Diagram 1

- (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 inferensi berdasarkan pemerhatian dalam 4(b).

.....
[1 mark]

- (d) State the operational definition for weight.
Nyatakan definisi operasi bagi berat.

.....
[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]

- 2 Diagram 2 shows an experiment to study the effect of impurities on boiling point of distilled water.
Rajah 2 menunjukkan eksperimen untuk mengkaji kesan bendasing ke atas takat didih air suling.

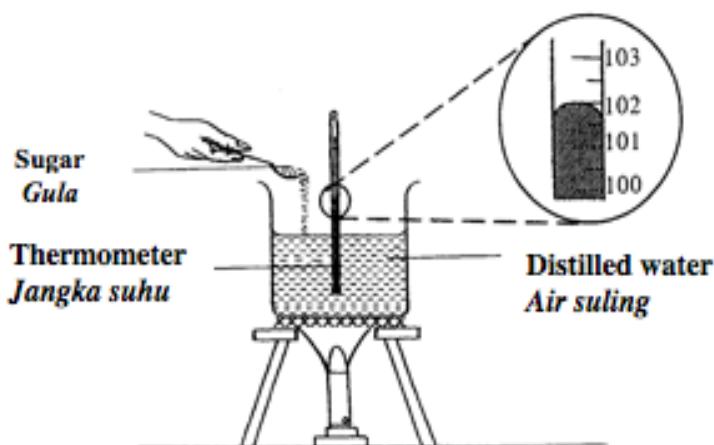


Diagram 2

The results obtained are recorded in Table 2
Keputusan yang diperolehi dicatatkan dalam Jadual 2

Substance <i>Bahan</i>	Boiling point/ $^{\circ}\text{C}$ <i>Takat didih/$^{\circ}\text{C}$</i>
Distilled water / Air suling	100
Distilled water + sugar / Air suling + gula

Table 2

- (a) State the observation of the experiment.
..... [1 mark]
- (b) Based on the above experiment, complete Table 2
Berdasarkan eksperimen di atas, lengkapkan Jadual 2. [1 mark]
- (c) State the responding variable in this experiment.
Nyatakan pembolehubah yang bergerak balas dalam eksperimen itu.
..... [1 mark]
- (d) Write the inference for the above experiment.
Tuliskan inferens berdasarkan keputusan eksperimen di atas
..... [1 mark]
- (e) What is the operational definition for distilled water?
Apakah definisi secara operasi bagi air suling?
..... [1 mark]
- (f) If distilled water added with sugar is cooled, predict the freezing point of this substance.
Jika air suling bercampur dengan gula disejukkan, ramalkan takat beku bahan tersebut.
..... [1 mark]

- 3 Diagram 3 shows an experiment to find the relationship between lens thickness and its image distance.
Rajah 3 menunjukkan eksperimen untuk mengkaji hubung kait antara ketebalan kanta dengan jarak imejnya

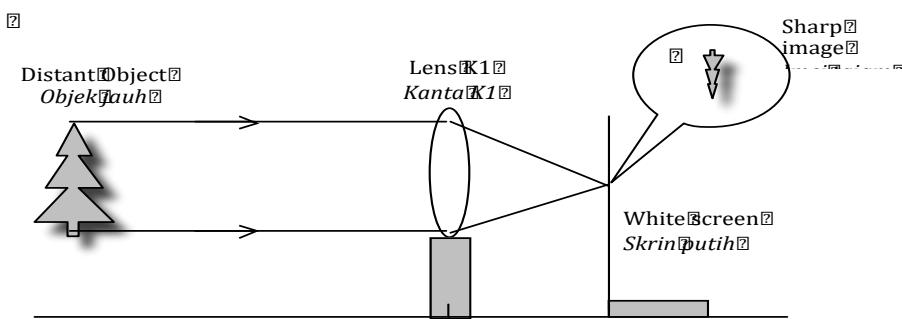


Diagram 3

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 3.

Menggunakan satu objek jauh melalui kanta K1, skrin dilaraskan supaya menghasil satu imej tajam. Eksperimen itu diulang dengan menggunakan kanta K2 dan K3 yang mempunyai ketebalan berbeza. Jarak imej setiap kanta dicatatkan. Keputusan yang perolehi seperti dalam Jadual 3.

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

Table 3

- (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 3.
Ukur dan catat jarak imej bagi kanta K1 dalam Jadual 3.

[1 mark]

- (c) Based on Table 3, which of the lenses is the thinnest?
Berdasarkan Jadual 3, kanta manakah paling nipis?

.....

[1 mark]

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

.....

[1 mark]

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

.....

[1 mark]

- 4 Diagram 4 shows a magnifying lens which is used to view an object.
(Rajah 4 menunjukkan kanta pembesar yang digunakan untuk melihat sesuatu objek)

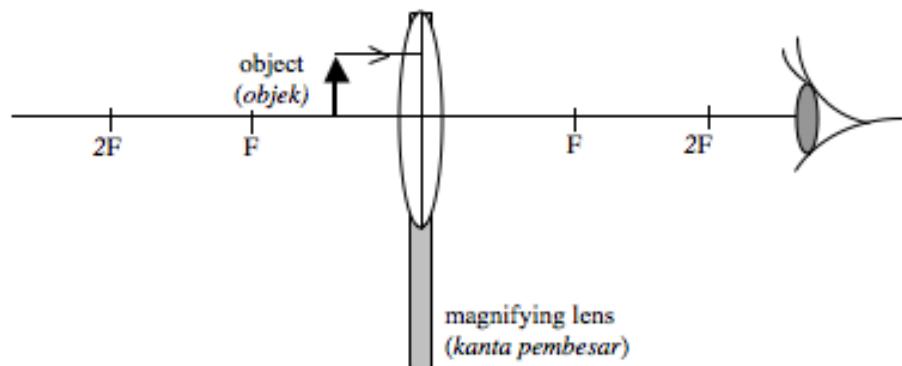
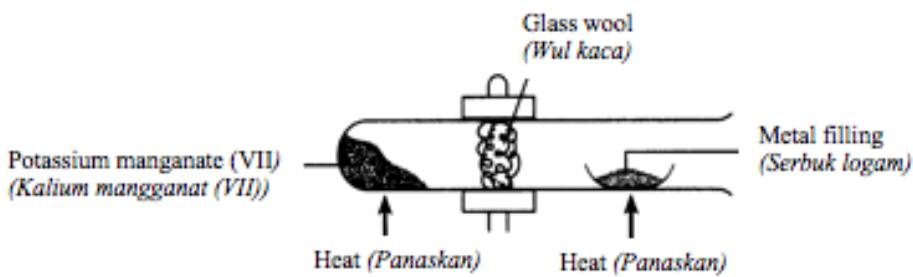


Diagram 4

- (a) Complete the Diagram 4 to show the formation of the image by the magnifying lens
(Lengkapkan Rajah 4 untuk menunjukkan pembentukan imej oleh kanta pembesar)
[2 marks]
- (b) Measure the size of the image.
(Ukur saiz imej yang terhasil)
-
..... [1 mark]
- (c) State **two** characteristics of the image formed.
(Nyatakan **dua** ciri imej yang terbentuk)
- 1.....
2.....
..... [2 marks]

- 5 Diagram 5 shows an experiment to study the reactivity of metals when react with oxygen.
(Rajah 5 menunjukkan satu eksperimen untuk mengkaji kereaktifan logam bila bertindak balas dengan oksigen)



Three types of metals X, Y and Z are used and the results are shown in the Table 5.
(Tiga jenis logam iaitu X, Y dan Z telah digunakan dan keputusan pemerhatian ditunjukkan dalam Jadual 5.)

Metal/Logam	Observation/Pemerhatian <i>(Condition of burning/Keadaan keterbakaran)</i>
X	Burns with bright light / Terbakar dengan nyalaan terang
Y	Glow dimly / Membara malap
Z	Burns moderately / Terbakar sederhana

Table 5

- (a) Write down **one** inference that can be made from observation in Table 5.
(Tuliskan satu inferensi yang boleh dibuat berdasarkan pemerhatian pada Jadual 5)

.....
..... [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 5, arrange the reactivity of the metals from the most reactive to the least reactive.
(Berdasarkan keputusan dalam Jadual 5, 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]

Sila lengkapkan borang penilaian bagi Seminar SPM yang telah anda hadiri. Penilaian anda dapat membantu kami memahami tahap keberkesanan program ini dan seterusnya membolehkan kami meningkatkan kualiti perkhidmatan kami di masa hadapan.

Terima kasih!

Please fill up this form for the session that you are attending. Your evaluation will help us improve our service and help us understand the effectiveness of this program.

Thank you!

1. Nombor Telefon

Phone Number

2. Apakah subjek bagi seminar yang sedang anda sertai sekarang?

What is the seminar's subject that you're attending now?

- | | |
|---------------------------------------|--|
| <input type="radio"/> Bahasa Malaysia | <input type="radio"/> Kimia |
| <input type="radio"/> English | <input type="radio"/> Chemistry |
| <input type="radio"/> Sejarah | <input type="radio"/> Fizik |
| <input type="radio"/> Sains | <input type="radio"/> Physics |
| <input type="radio"/> Science | <input type="radio"/> Matematik Tambahan |
| <input type="radio"/> Matematik | <input type="radio"/> Additional Maths |
| <input type="radio"/> Mathematics | <input type="radio"/> Perniagaan |
| <input type="radio"/> Biologi | <input type="radio"/> Prinsip Perakaunan |
| <input type="radio"/> Biology | <input type="radio"/> Ekonomi |

3. Pernahkah anda menonton mana-mana video BACfreeschool (sebelum ini dikenali sebagai EduNation)?

Have you ever watched any BACFreeschool's (previously known as EduNation) videos?

- | |
|-----------------------------------|
| <input type="radio"/> Ya
Yes |
| <input type="radio"/> Tidak
No |

4. Nilai kefahaman guru terhadap isi kandungan yang diajar bagi subjek ini.

Rate the teacher's understanding of this particular subject.

Sangat Rendah

Very Low

Rendah

Low

Sederhana

Intermediate

Tinggi

High

Sangat Tinggi

Very High

5. Nilai cara penyampaian guru bagi subjek ini.

Rate the teacher's delivery of the subject.

Sangat Tidak Menarik

Very Uninteresting

Tidak Menarik

Not Interesting

Sederhana

Intermediate

Menarik

Interesting

Sangat Menarik

Very Interesting

6. Nilai tahap kepuasan terhadap nota tambahan yang telah diberikan.

Rate your satisfaction level with the notes given.

Sangat

Tidak Berpuashati

Very Unsatisfied

Tidak Berpuashati

Not Satisfied

Sederhana

Intermediate

Berpuashati

Satisfied

Sangat Berpuashati

Very Satisfied

7. Nilai tahap kebergunaan isi kandungan seminar.

Rate the usefulness of the seminar's content to your SPM preparation.

Sangat Tidak Berguna

Not Very Useful

Tidak Berguna

Not Useful

Sederhana

Intermediate

Useful

Berguna

Sangat Useful

Very Useful

8. Bagi pendapat anda, 3 jam untuk satu sesi seminar adalah...

In your opinion, 3 hours per session is...

terlalu pendek.
too short.

bersesuaian.
just right.

terlalu panjang.
too long.

9. Adakah anda mempunyai sebarang maklum balas/komen bagi meningkatkan prestasi kami?

Do you have any additional comments, questions, or concerns you would like to share?