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SPM SEMINAR 2019

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PART 2

SAINS

RAKAMAN SEMINAR



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SEMINAR NOTES (MASTERING QUESTION 10 of PAPER 2)

1. How to answer the HYPOTHESIS?

- A simple statement that shows a _____ between the _____ and _____ of the experiment.
- **Do not** use these words/phrases to relate the MV and the RV:
 - (i) MV **affects** RV
 - (ii) RV is **affected** by MV
 - (iii) RV **depends** on MV
- **Relationship between MV & RV. Can be a wrong relationship, since it is just a hypothesis!*
- 2 common ways of writing a hypothesis (check Seminar part 1).
- Try not to copy directly the “Statement” in the question, but do a little bit of alteration/change.
- As long as you are able to identify the correct MV & RV from the statement, you should be fine.

2. How to answer the AIM?

- Identify the PROPERTY/CHARACTERISTIC/RV to be investigated and the DIFFERENT SUBSTANCES/MVs used of the experiment.
- From there, make the AIM using this **template**:
 “To study the PROPERTY/CHARACTERISTIC/RV of/for the SUBSTANCES/MVs”
 e.g : “To study the ELASTICITY of the SYNTHETIC RUBBER and the NATURAL RUBBER.”

3. How to answer the VARIABLES?

- List down all the THREE variables correctly, examiner will only be looking at TWO correct variables listed.
- The PROPERTY in the Aim will be the RV of the experiment, while the SUBSTANCE will be the MV.
- Need to only identify the CV.

4. How to answer the LIST OF APPARATUS & MATERIALS?

- **MUST** copy ALL the apparatus/materials that are already listed in the question!
- Need to add TWO/THREE more **must have** apparatus/materials. Examples:
 - i) for experiment that involves heating – bunsen burner/tripod stand/wire gauze/
 - ii) for experiment that involves measuring/transferring liquid chemicals – dropper/measuring cylinder/beaker/test tube/
 - iii) for experiment that involves bacteria – type of bacteria (Bacillus subtilis)/inoculation wire/cellophane tape/
- * ALL the apparatus/materials that you have listed MUST be shown/mentioned in the PROCEDURE section!

5. How to answer the PROCEDURE/METHOD?

- STEP 1: sketch a diagram for the set-up of the apparatus and material first.
- STEP 2: write a simple statement to explain the diagram that you have drawn.
- STEP 3: state what factor is being FIXED (CV) in the experiment.
- STEP 4: state what factor is being MEASURED/OBSERVED (RV) in the experiment.
- STEP 5: state what factor is being MANIPULATED (MV) in the experiment.
- Must be in NUMBERED form!

6. How to answer the TABULATION OF DATA?

- Draw a **TABLE** to record the MV and the RV of the experiment (MV in the 1st column, RV in the 2nd column).
- Include any unit of measurement **at the header of the table** for variable that has measurement.
- Complete the column for the MV, but leave the RV column empty.

SEMINAR NOTES (MASTERING QUESTION 11 of PAPER 2)

1. How to answer the DIFFERENCES?

- Best to be in a Table form.
- Compare the same characteristic one at a time.

2. How to answer the COMMON CHARACTERISTICS?

- Do not depend on Figure for the answers, but use back the characteristics listed in question (a) as the answers.
- Choose 2 best characteristics because these characteristics will be used back to answer question the “Initial Concept”, and (b)(v) “Actual Concept” question.

3. How to answer the INITIAL CONCEPT?

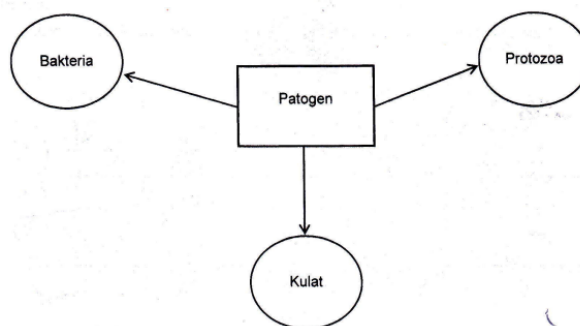
- Use the 2 characteristics listed earlier to make the initial concept.
- Template: “(1st characteristic) and (2nd characteristic) is the (CONCEPT)”
eg: “(Producing new substances) and (irreversible reactions) are (CHEMICAL REACTIONS)”

4. How to answer the FINAL/ACTUAL CONCEPT?

- Again, use back the 2 characteristics to derive the final/actual concept, but this time state the concept first, the followed by the 2 characteristics.
- Use this template: “(CONCEPT) are (1st characteristic) and (2nd characteristic)”
e.g: “(CHEMICAL REACTIONS) are reactions that are (irreversible) and (produce new substances)”

5. How to answer the INFORMATION?

- Identify and write the information about the “CONCEPT” involved from the diagram.
- Must include ALL the particulars/examples shown/given in the diagram
- e.g:



Q: Write the information from the diagram.

A: Bacteria, fungus, and protozoa (the examples shown/given) are PATHOGENS (the concept).

SAMPLE QUESTIONS
SECTION C (Question 10)

You would need to use your own writing pad to write the answers for this Section.

1 Study the following statement / *Kaji pernyataan berikut*

The presence of antibiotic affects the growth of microorganisms
Kehadiran antibiotic memberikan kesan ke atas pertumbuhan bakteria

- (a) Suggest one hypothesis to investigate the above statement.
Cadangkan satu hipotesis yang sesuai untuk mengkaji pernyataan di atas. [1 mark]
- (b) You are given sterile nutrient agar, bacteria culture and other apparatus.
Anda dibekalkan dengan agar-agar nutrient steril, kultur bakteria dan radas lain.
Describe an experiment to test your hipotesis based on the following criteria.
Huraikan satu eksperimen untuk membuktikan hipotesis itu berpandukan kriteria berikut:
- * Aim of the experiment / *Tujuan eksperimen* [1 mark]
 - * Identification of variables / *Mengenalpasti pembolehubah* [2marks]
 - * List of apparatus and materials / *Senarai radas dan bahan* [1mark]
 - * Procedure or method / *Prosedur* [4 marks]
 - * Tabulation of data / *Penjadualan data* [1 mark]

2 Study the following statement / *Kaji pernyataan berikut*

An alloy is harder than pure metals
Aloi lebih keras daripada logam tulennya

- (a) Suggest one hypothesis to investigate the above statement.
Cadangkan satu hipotesis yang sesuai untuk mengkaji pernyataan di atas. [1 mark]
- (b) Brass is an alloy containing copper. You are given a copper block, brass block, steel ball and other apparatus.
Tembaga adalah aloi yang mengandungi kurum. Anda dibekalkan dengan blok kuprum, blok tembaga, bola keluli dan radas lain.
Describe an experiment to test your hipotesis based on the following criteria.
Huraikan satu eksperimen untuk membuktikan hipotesis itu berpandukan kriteria berikut:
- * Aim of the experiment / *Tujuan eksperimen* [1 mark]
 - * Identification of variables / *Mengenalpasti pembolehubah* [2marks]
 - * List of apparatus and materials / *Senarai radas dan bahan* [1mark]
 - * Procedure or method / *Prosedur* [4 marks]
 - * Tabulation of data / *Penjadualan data* [1 mark]

3 Study the following statement / *Kaji pernyataan berikut*

Atomic substances and molecular substances have different electrical conductivity
Bahan atom dan bahan molekul mempunyai sifat kekonduksian elektrik yang berbeza

- (a) Suggest one hypothesis to investigate the above statement.
Cadangkan satu hipotesis yang sesuai untuk mengkaji pernyataan di atas. [1 mark]
- (b) Using Describe an experiment to test your hipotesis based on the following criteria.
Huraikan satu eksperimen untuk membuktikan hipotesis itu berpandukan kriteria berikut:
- * Aim of the experiment / *Tujuan eksperimen* [1 mark]
 - * Identification of variables / *Mengenalpasti pembolehubah* [2marks]
 - * List of apparatus and materials / *Senarai radas dan bahan* [1mark]
 - * Procedure or method / *Prosedur* [4 marks]
 - * Tabulation of data / *Penjadualan data* [1 mark]

SECTION C (Question 11)

You would need to use your own writing pad to write the answers for this Section.

- 1 (a) State **four** differences between endocrine system and nervous system.
Namakan empat perbezaan antara system endokrin dan system saraf.

[4 marks]

- (b) Diagram 1 shows the characteristics of the endocrine system.
Rajah 1 menunjukkan ciri-ciri sistem endokrin.

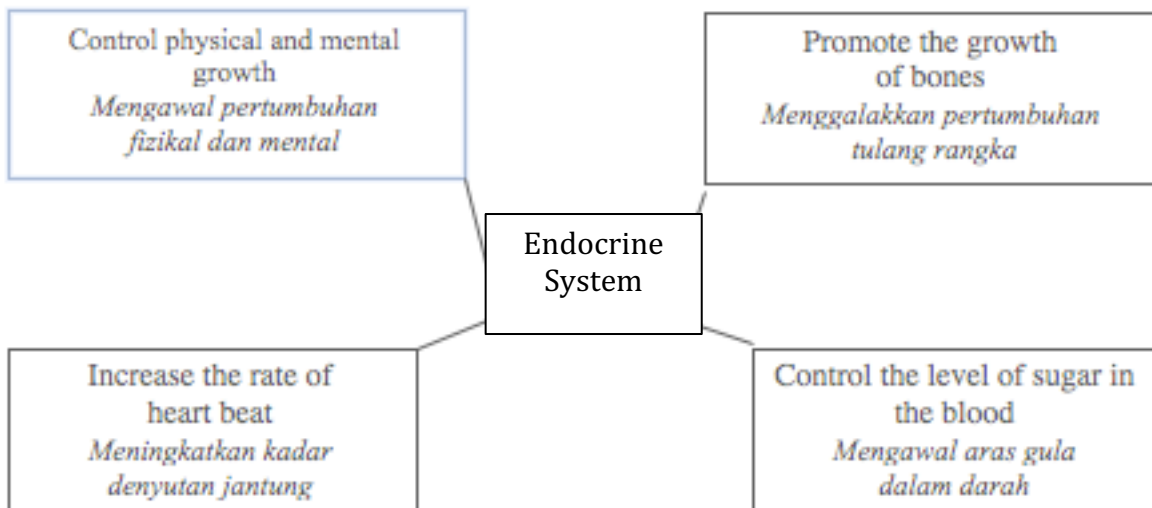


Diagram 1

Study the information in Diagram 1. Explain how you could derive the concept of endocrines system based on the information in the diagram .

Kaji maklumat di dalam Rajah 1. Terangkan bagaimana anda membina suatu konsep berkenaan sistem endokrin berdasarkan maklumat dalam Rajah 1.

Your explanation of the concept must be based on the followings:

Penerangan anda tentang konsep itu hendaklah berdasarkan kepada perkara berikut:

- Identify two common characteristics
Kenal pasti dua ciri sepunya
- Construct initial concept
Membina konsep awal
- Give other examples and other examples in relation to the concept
Memberikan contoh lain dan bukan contoh yang berkaitan dengan konsep
- Explain the actual concept
Menjelaskan konsep sebenar

[6 marks]

- 2 (a) Different types of food are processed using different types of food processing and packaging technology. State **four** reasons why food is processed.
Jenis makanan yang berlainan mempunyai kaedah memproses dan membungkus yang berlainan. Nyatakan empat sebab kenapa makanan diproses. [4 marks]
- (b) Figure 2 shows a food processing method.
Rajah 2 menunjukkan kaedah memproses makanan..

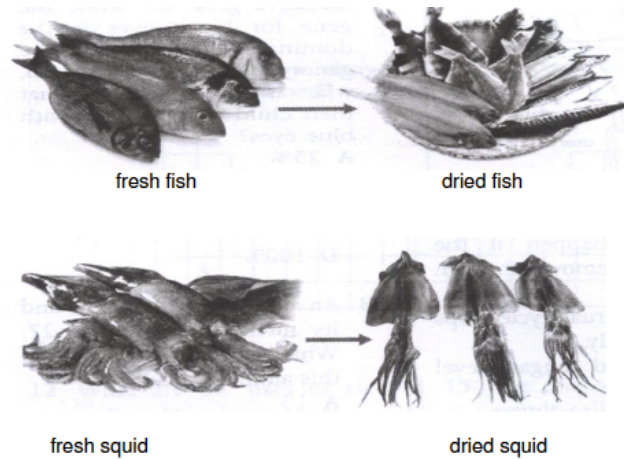


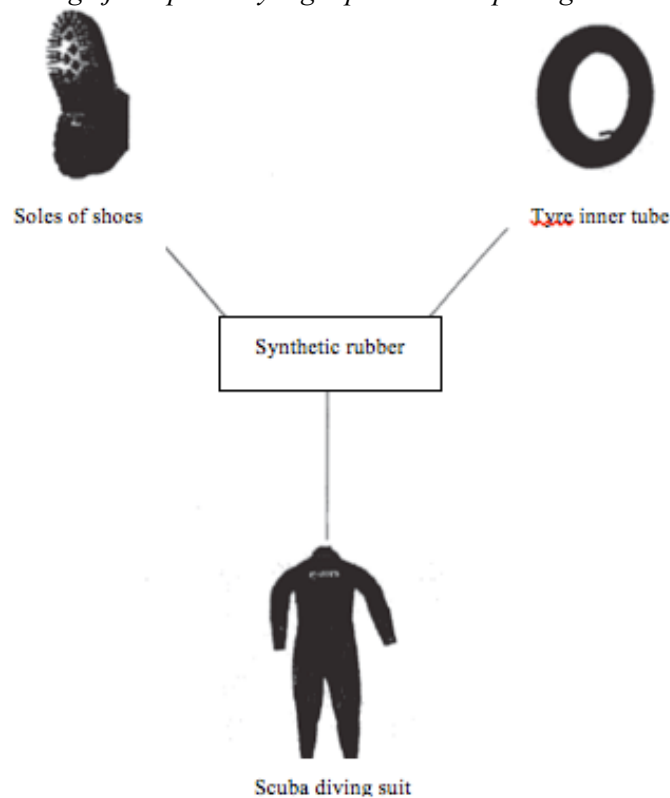
Figure 2

Study the information in Figure 1 and explain the concept of processed food. Your answer should include the following:

Kaji maklumat dalam Rajah 2 dan terangkan konsep makanan terproses. Jawapan anda hendaklah berdasarkan aspek-aspek berikut:

- (i) Identify **two** common characteristics.
Kenalpasti dua ciri persamaan [2 marks]
- (ii) Relate the common characteristics to construct the initial concept of processes food.
Kaitkan ciri-ciri persamaan dengan konsep awal tentang makanan terproses. [1 mark]
- (iii) Give **one** example and **one** non-example of processed food by this method.
Berikan satu contoh produk dan satu contoh bukan produk yang yang diproses menggunakan kaedah ini. [2 marks]
- (iv) State the actual concept of processed food.
Nyatakan konsep sebenar makanan terproses. [1 mark]

- 3 (a) State **two** differences between natural rubber and synthetic rubber. Give one example of product made from each type of the rubbers.
Nyatakan dua perbezaan antara getah asli dan getah sintetik. Berikan satu contoh produk yang diperbuat daripada setiap satu jenis getah tersebut. [4 marks]
- (b) Figure 1 shows three types of products made of synthetic rubber.
Rajah 1 menunjukkan tiga jenis produk yang diperbuat daripada getah sintetik.



Study the products in Figure 3 and construct the concept of synthetic rubber

Your answer should be based on the following aspects:

Kaji produk-produk pada Rajah 3 untuk menghasilkan konsep bagi getah sintetik.

Jawapan anda hendaklah berdasarkan aspek-aspek berikut:

- (i) Identify **two** common characteristics.
Kenalpasti dua ciri persamaan [2 marks]
- (ii) Give **one** other products made of synthetic rubber.
Berikan satu lagi produk yang diperbuat daripada getah sintetik. [1 mark]
- (iii) Give **one** non-example of synthetic rubber.
Berikan satu contoh produk yang bukan diperbuat daripada getah sintetik. [1 mark]
- (iv) Construct the initial concept of synthetic rubber.
Bina konsep asal bagi getah sintetik. [1 mark]
- (v) Relate the common characteristics to construct the concept of synthetic rubber.
Kaitkan ciri persamaan untuk menghasilkan konsep bagi getah sintetik. [1 mark]

BONUS QUESTIONS!**SECTION B, PAPER 2**

- 1 Figure 3 shows the change in the level of antibodies in Najib's body after he was injected twice with a chicken pox vaccine.
Rajah 3 menunjukkan perubahan ke atas aras antibodi di dalam tubuh Najib selepas dia disuntik sebanyak dua kali oleh vaksin cacar air.

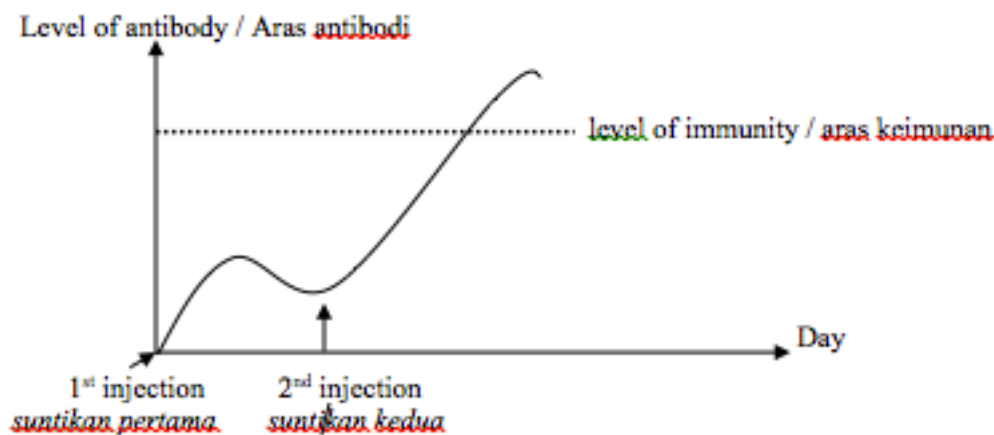


Diagram 2

- (a) What is a “vaccine”? / Apakah “vaksin”?

 _____ [2 marks]
- (b) What happens to Najib's body after the vaccination?
Apakah yang berlaku kepada tubuh Najib selepas vaksinasi?
 _____ [1 mark]
- (c) Why Najib needs to be injected twice with the vaccine?
Kenapakah Najib perlu disuntik dengan vaksin ini sebanyak dua kali?
 _____ [2 marks]
- (d) What type of immunity is represented by the graph in Figure 3?
Apakah jenis keimunan yang diwakili oleh graf di dalam Rajah 3?
 _____ [1 mark]
- (e) State the meaning of “level of immunity”. / Nyatakan maksud “aras keimunan”.
 _____ [2 marks]
- (f) Name two other diseases that can be prevented through vaccination.
Nyatakan dua penyakit lain yang boleh dicegah dengan vaksinasi.
 _____ [2 marks]

- 2 Figure 2.1 shows an experiment to study the mixture of different types of coloured lights.
Rajah 2.1 menunjukkan eksperimen untuk mengkaji percampuran cahaya yang berlainan warna.

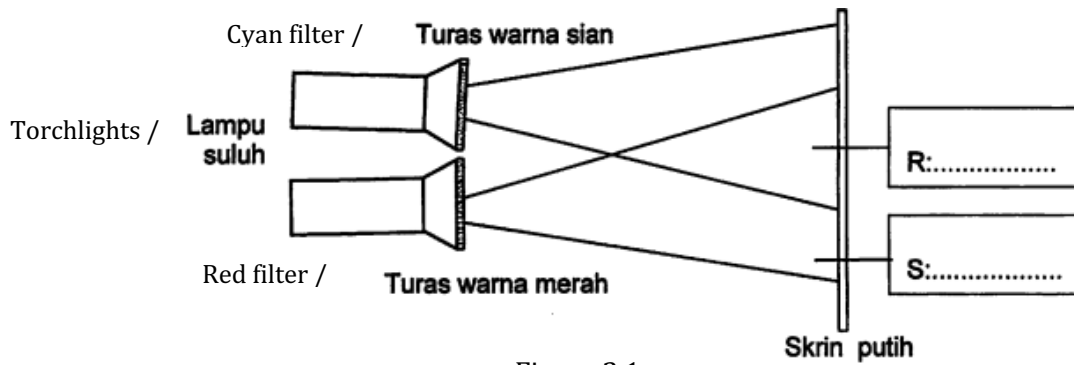


Figure 2.1

- (a) Write the type of colour produces at area R and S / *Tuliskan warna yang keihatan pada kawasan R dan S.* [2 marks]
 (b) Based on Figure 2.1, state the primary colour / *Berdasarkan Rajah 2.1, nyatakan warna primer.*

[1 mark]

- (c) Figure 2.2 shows a flowering plant put in rooms with different coloured lights.

Rajah 2.2 menunjukkan pokok bunga yang diletakkan di dalam bilik yang mempunyai cahaya yang berlainan warna.

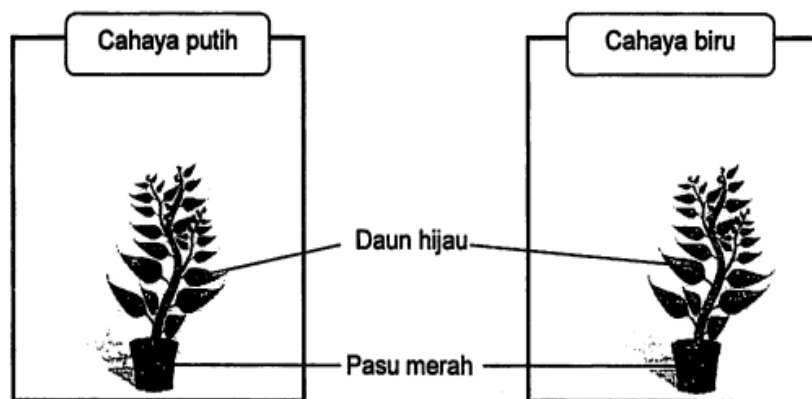


Figure 2.2

Based on Figure 2.2, state the colour of the leaf and the pot under a white light.

Berdasarkan Rajah 2.2, nyatakan warna daun dan pasu di bawah cahaya putih.

- (i) Leaf _____
 (ii) Pot _____

[2 marks]

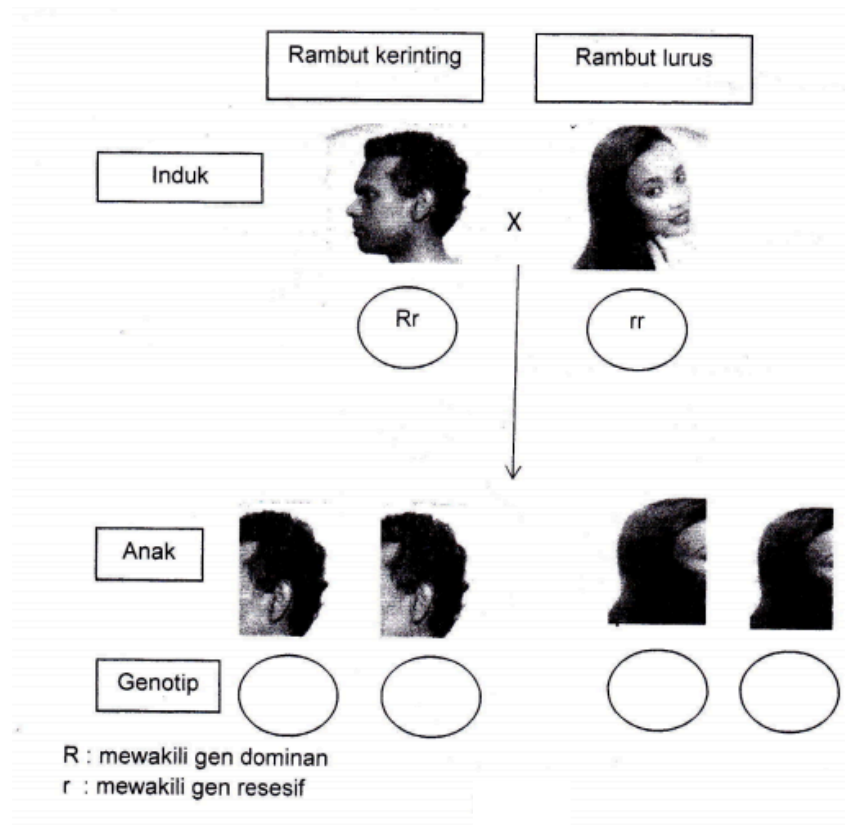
- (d) Mark (✓) at the colour seen on the leaf under the blue light.

Tandakan (✓) pada warna yang kelihatan pada daun di bawah cahaya biru.

Hijau	Merah	Hitam	Putih

[1 mark]

- 3 Figure 3.1 shows the types of hair that might be inherited by a child from the parents.
Rajah 3.1 menunjukkan jenis rambut yang mungkin diwarisi oleh seorang dari kedua ibu bapa beliau.



Rajah 3.1

- (a) Write the genotype of the children in the spaces provided in Diagram 3.1.
Tuliskan genotip anak-anak di dalam ruang yang disediakan pada Rajah 3.1. [2 marks]
- (b) Which hair type is a recessive trait?
Jenis rambut yang manakah adalah resesif? [1 mark]
- _____
- (c) State the type of variation for this inheritance / *Nyatakan jenis variasi bagi pewarisan ini.* [1 mark]
- _____
- (d) Give one example for the second type of variation / *Berikan satu contoh untuk jenis variasi yang kedua.* [1 mark]
- _____
- (e) Which part of the cell does the information about variation being stored?
Bahagian manakah pada sel yang menyimpan maklumat tentang variasi? [1 mark]
- _____
- (f) State one importance of variation / *Nyatakan satu kepentingan variasi.* [1 mark]
- _____

[1 mark]

KEJAYAAN selalu tidak datang bergolek,
Tapi datang dengan usaha tanpa jemu,
Datang dengan seribu pengorbanan,
Datang dengan pengajaran daripada kegagalan,

Tapi apabila *KEJAYAAN* itu datang,
Ia membawa seribu kemanisan,
Apatah lagi bila ia datang pada masa yang sangat diperlukan.

Oleh demikian,
Jangan pernah putus asa,
Jangan pernah mengeluh nasib diri,
Dan jangan pernah jemu mengharap kurniaan Ilahi,
Kerana *KEJAYAAN* itu tetap akan datang,
Cuma cepat atau lambat itu yang menjadi persoalan,
Kerana hanya DIA yang maha mengetahui,
Bila *KEJAYAAN* itu patut sampai,
Dan pada masa ia sampai,
Itulah detik yang paling
Sesuai.

Semoga apa yang telah anda pelajari dan ikuti di sepanjang siri Seminar SPM BACfreeschool ini, akan membuahkan kejayaan & kemanisan hidup.

Cikgu ucapkan SELAMAT BERJAYA di dalam peperiksaan SPM yang akan datang, especially in the SCIENCE subject!

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?

- | | |
|---------------------------------------|--|
| ☐ Bahasa Malaysia | ☐ Kimia |
| ☐ English | ☐ Chemistry |
| ☐ Sejarah | ☐ Fizik |
| ☐ Sains | ☐ Physics |
| ☐ Science | ☐ Matematik Tambahan |
| ☐ Matematik | ☐ Additional Maths |
| ☐ Mathematics | ☐ Perniagaan |
| ☐ Biologi | ☐ Prinsip Perakaunan |
| ☐ Biology | ☐ 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?

- ☐ Ya
Yes
- ☐ 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 <i>Very Low</i>	Rendah <i>Low</i>	Sederhana <i>Intermediate</i>	Tinggi <i>High</i>	Sangat Tinggi <i>Very High</i>
☐	☐	☐	☐	☐

5. Nilai cara penyampaian guru bagi subjek ini.

Rate the teacher's delivery of the subject.

Sangat Tidak Menarik <i>Very Uninteresting</i>	Tidak Menarik <i>Not Interesting</i>	Sederhana <i>Intermediate</i>	Menarik <i>Interesting</i>	Sangat Menarik <i>Very Interesting</i>
☐	☐	☐	☐	☐

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

Rate your satisfaction level with the notes given.

Sangat Tidak Berpuashati <i>Very Unsatisfied</i>	Tidak Berpuashati <i>Not Satisfied</i>	Sederhana <i>Intermediate</i>	Berpuashati <i>Satisfied</i>	Sangat Berpuashati <i>Very Satisfied</i>
☐	☐	☐	☐	☐

7. Nilai tahap kebergunaan isi kandungan seminar.

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

Sangat Tidak Berguna <i>Not Very Useful</i>	Tidak Berguna <i>Not Useful</i>	Sederhana <i>Intermediate</i>	Useful Berguna	Sangat Useful <i>Very Useful</i>
☐	☐	☐	☐	☐

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?