

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

4551/2

Biologi

KERTAS 2

August 2008

2 ½ jam



## JABATAN PELAJARAN TERENGGANU

PEPERIKSAAN PERCUBAAN 2008  
SIJIL PELAJARAN MALAYSIA

## BIOLOGI

Kertas 2

Dua jam tiga puluh minit

## JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. Kertas soalan ini mengandungi tiga bahagian :  
**Bahagian A Bahagian B dan Bahagian C.**
2. Jawab semua soalan dalam Bahagian A. Jawapan kepada Bahagian A hendaklah ditulis dalam ruang jawapanyang disediakan
3. Jawab dua soalan dari Bahagian B dan jawapan kepada Bahagian B hendaklah ditulis dalam ruang bergaris yang disediakan dibahagian akhir kertas soalan. Anda diminta menjawab dengan lebih terperinci untuk Bahagian B, Jawapan mestilah jelas dan logik. Dalam jawapan anda,persamaan,gambar rajah, jadual , graf dan cara lain yang sesuai untuk menjelaskan jawapan anda boleh digunakan.
4. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
5. Markah yang diperuntukkan bagi setiap soalan atau ceraiian soalan ditunjukkan dalam kurungan.
6. Sekiranya anda hendak membatalkan sesuatu jawapan, buat garisan di atas jawapan itu.
7. Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram. Walau bagaimanapun, langkah mengira perlu ditunjukkan
8. Masa yang dicadangkan untuk menjawab Bahagian A ialah 90 minit, Bahagian B 60 minit.
9. Semua kertas jawapan hendaklah diserahkan di akhir peperiksaan.

Kod Pemeriksa			
Bahagian	Soalan	Markah Penuh	Markah
A	1	13	
	2	12	
	3	12	
	4	12	
	5	11	
B	6	20	
	7	20	
	8	20	
	9	20	
Jumlah			

Kertas soalan ini mengandungi 21 halaman bercetak.

4551/2

TURN OVER

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**INFORMATION FOR CANDIDATES**

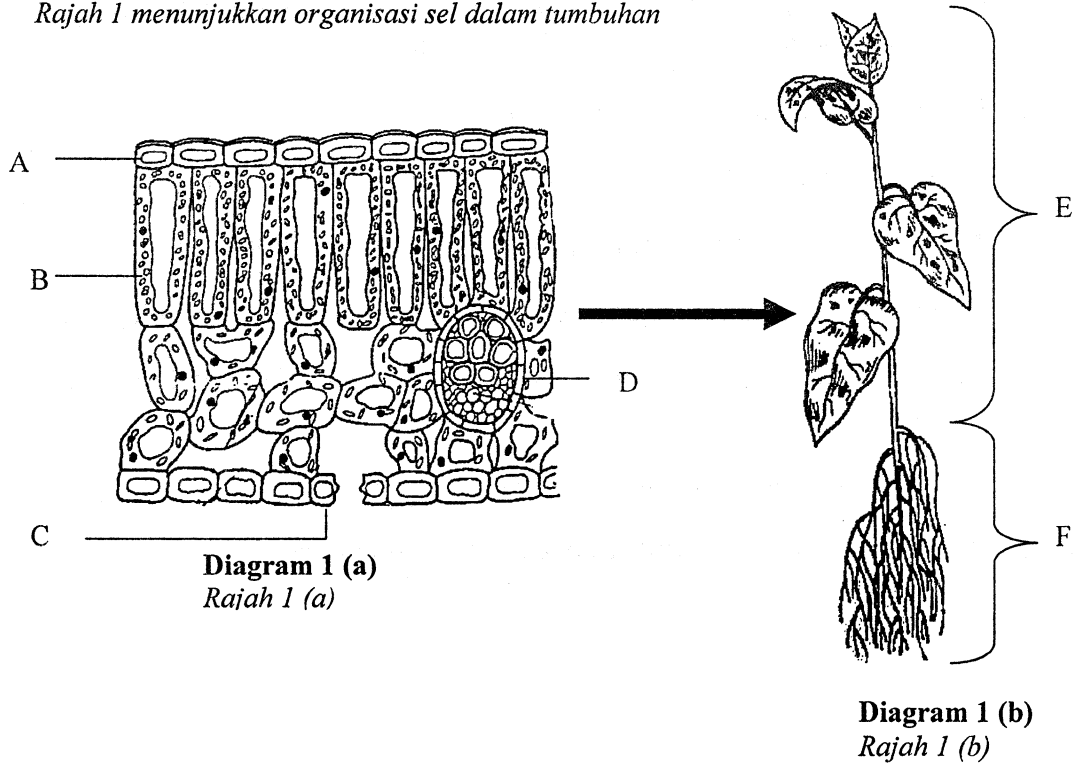
1. *This question paper consists of three sections :  
**Section A and Section B***
2. *Answer all questions in **Section A**. Write your answers for Section A clearly in the spaces provided in the question paper*
3. *Answer two questions from **Section B**. Write your answer for **Section B** on the lines paper in detail. You may use equations, diagrams, tables, graphs and other suitable methods to explain your answer.*
4. *Show your working, it may help you to get marks.*
5. *If you wish to cancel any answer, neatly cross out the answer.*
6. *The diagrams in the questions are not drawn to scale unless stated.*
7. *Marks allocated for each questions or part question are shown in brackets*
8. *The time suggested to complete **Section A** is 90 minutes, **Section B** 60 minutes.*
9. *You may use a non-programmable scientific calculator*
- 10 *Hand in this question paper at the end of the examination*

**Section A**  
**Bahagian A**

[60 marks]  
[60 markah]

Answer **all** question in this section  
*Jawab semua soalan dalam bahagian ini*

- 1. Diagram 1 shows cell organisation in a plant.  
*Rajah 1 menunjukkan organisasi sel dalam tumbuhan*



- (a) Name **three** different types of cells shown in Diagram 1(a)  
*Namakan tiga jenis sel yang ditunjukkan dalam*

A: .....

B: .....

C: .....

[2 marks]

(b) State the function for each cell.  
*Nyatakan fungsi bagi setiap sel*

B: .....

.....

C: .....

.....

[ 2marks]

(c) Explain adaptive features of the cell in tissue D in transportation of substances in plant.  
*Terangkan ciri penyesuaian sel-sel dalam tisu D dalam pengangkutan bahan-bahan dalam tumbuhan.*

Xylem :

.....

.....

.....

Phloem :

.....

.....

.....

[4marks]

(d) By using Diagram 1(b), explain the advantage of system E and F for terrestrial plant.  
*Dengan menggunakan Rajah 1(b), terangkan kelebihan sistem E dan F pada tumbuhan daratan*

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[4marks]

2. Diagram 2 shows two individuals, P and Q, in two different situations. P is in a vigorous activity while Q is at rest. Processes of R and S occurs in a human muscle cell.

Rajah 2 menunjukkan dua individu, P dan Q, dalam dua situasi yang berbeza. P sedang melakukan satu aktiviti cergas manakala Q berada dalam keadaan rehat. Proses R dan S berlaku dalam satu sel otot manusia.

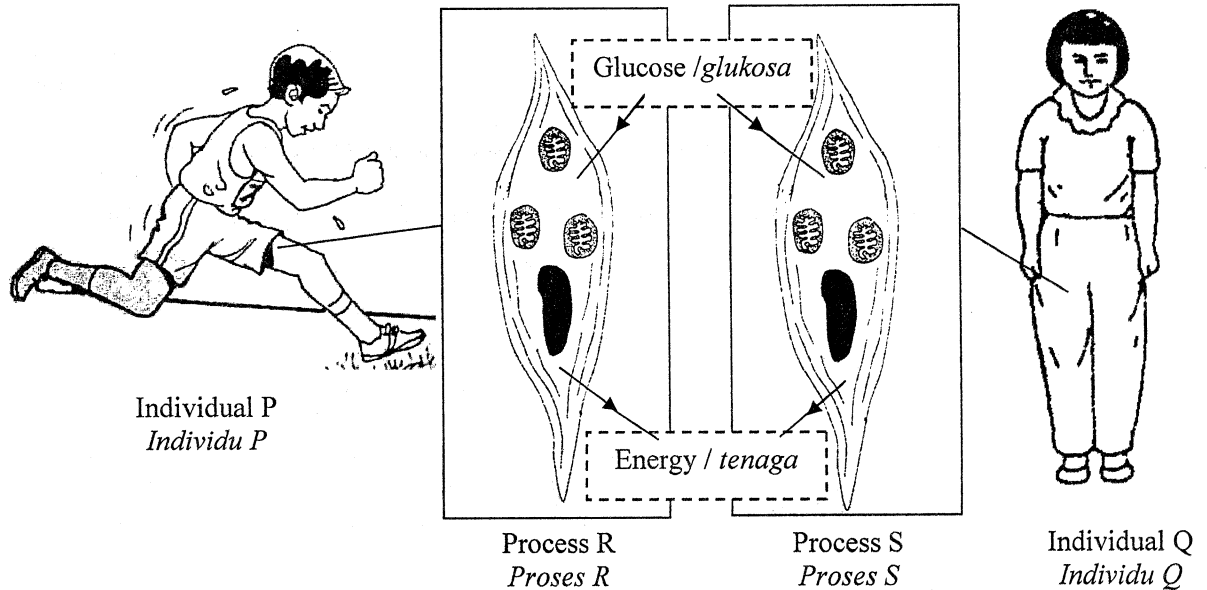


Diagram 2  
Rajah 2

- (a) (i) Based on Diagram 2, name the processes R and S.  
Berdasarkan Rajah 2, namakan proses R dan S.

Process / Proses R: .....

Process / Proses S: .....

[2 marks]

- (ii) Explain how processes R and S occur in Diagram 2.  
Terangkan bagaimana proses R dan S berlaku dalam Rajah 2.

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[4 marks]

- (b) Write the chemical equations for processes R and S.  
*Tuliskan persamaan kimia untuk proses R dan S.*

[2 marks]

- (c) Based on Diagram 2, explain the differences between the processes R and S.  
*Berdasarkan Rajah 2, terangkan perbezaan di antara proses R dan S.*

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[2 marks]

- (d) Individual P has just completed a 400 metre tract event. His leg muscles are painful due to muscle fatigue. Explain why.  
*Individu P baru sahaja menamatkan acara larian 400 meter. Dia mengalami kelesuan otot rangka di kakinya. Terangkan mengapa.*

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.....

[2 marks]

3. Our circulatory system plays a big role as a transport system. It also has an important function in our body defence against diseases. Table 1 shows a body's defence mechanism.

*Sistem peredaran darah kita memainkan peranan besar sebagai suatu sistem pengangkutan. Ianya juga penting dalam sistem pertahanan badan untuk melawan penyakit. Jadual 1 menunjukkan sistem pertahanan badan.*

Body's Defence <i>Pertahanan Badan</i>	
Types of defences <i>Jenis pertahanan</i>	Lines of defences <i>Barisan pertahanan</i>
First line defence <i>Pertahanan pertama</i>	Skin and mucous <i>Kulit dan mukus</i>
Second line defence <i>Pertahanan kedua</i>	A: .....
Third line defence <i>Pertahanan ketiga</i>	B: .....

Table 1 / *Jadual 1*

- a) (i) Based on Table 1, state the defence mechanism in A and B.  
*Berdasarkan Jadual 1, nyatakan mekanisma pertahanan dalam A dan B* [2 marks]
- (ii) Describe briefly how A plays its role in body's defences.  
*Huraikan secara ringkas bagaimana A memainkan peranannya dalam pertahanan badan.*

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[3 marks]

- b) In third line defence, B produces antibody. Give the meaning of antibody.  
*Dalam pertahanan ketiga, B menghasilkan antibodi. Beri maksud antibodi.*

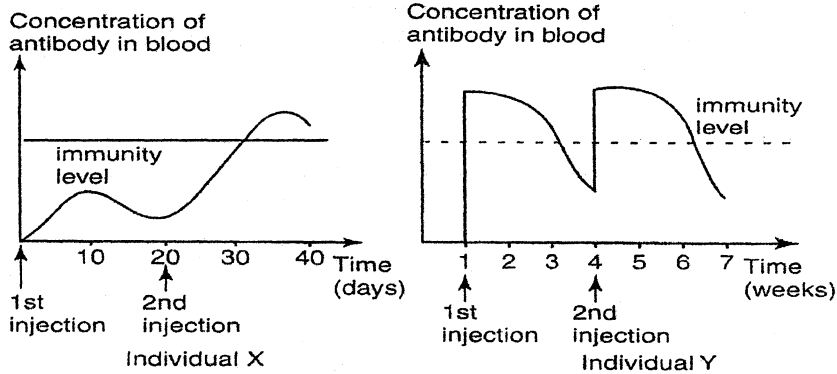
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[1 mark]

c) The antibodies are specific action in immunity. The graph shows the changes in the amount of antibodies of individual X and Y.

*Antibodi bertindak secara spesifik dalam imuniti. Graf menunjukkan perubahan jumlah antibodi pada individu X dan Y.*



Why is a second injection required by individual X and Y?

*Mengapakah suntikan kedua diperlukan oleh individu X dan Y*

X: .....

.....

Y: .....

.....

[ 2 marks ]

d) Give two differences between the types of immunity obtained by individual X and Y.  
*Berikan dua perbezaan antara jenis imuniti yang diperolehi individu X dan Y*

i. ....

.....

ii. ....

.....

[ 2 marks ]

e) Ali was bitten by a snake and becomes unconscious. Explain how you can save Ali.  
*Ali dipatuk ular dan menyebabkan dirinya tidak sedar. Terangkan bagaimanakah cara hendak menyelamatkan Ali.*

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[2 marks]



4.

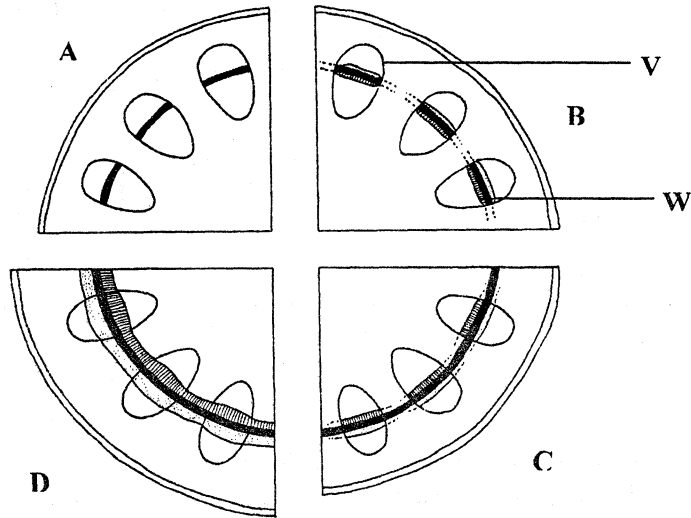


Diagram 4  
Rajah 4

Diagram 4 shows the stages of growth in the dicotyledonous plants. A, B, C and D are the stages of growth.

Rajah 4 menunjukkan tahap pertumbuhan pada satu batang tumbuhan dikotilidon. A, B, C dan D adalah tahap pertumbuhan.

(a)(i) Name the type of growth that produced the stage A.  
Namakan jenis pertumbuhan yang menghasilkan tahap A.

.....  
[1 mark]

(ii) Explain how the type of growth that your mention in (a) (i) happens until performed the stage A.

Terangkan bagaimana jenis pertumbuhan yang anda nyatakan di (a)(i) berlaku sehingga terbentuk tahap A.

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[3 marks]

(b)(i) Name the tissue V and tissue W  
*Namakan tisu V dan tisu W.*

Tissue V: .....

Tissue W: .....

[2 marks]

(ii) Differentiate between tissue V and W in form of their function.  
*Bezakan antara tisu V dan tisu W dari segi fungsi masing-masing.*

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[1 mark]

(c)(i) Name the tissue that involved in the growth from stage A to stage D.  
*Namakan jenis tisu yang terlibat dalam pertumbuhan dari tahap A sehingga D.*

.....

[1 mark]

(ii) Describe how the activity of tissue that your name in (c) (i) has produced the growth from stage A to then stage D.  
*Huraikan bagaimana aktiviti tisu yang anda namakan di (c)(i) di atas menghasilkan pertumbuhan dari tahap A sehingga ke tahap D.*

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[2 marks]

(d) Explain one necessity of growth that shown in Diagram 4.  
*Terangkan satu keperluan pertumbuhan yang ditunjukkan pada Rajah 4.*

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[2 marks]

5. Diagram 5 shows a schematic diagram of regulating blood glucose level in human body.  
*Rajah 5 menunjukkan rajah skema proses kawalatur gula darah dalam badan manusia*

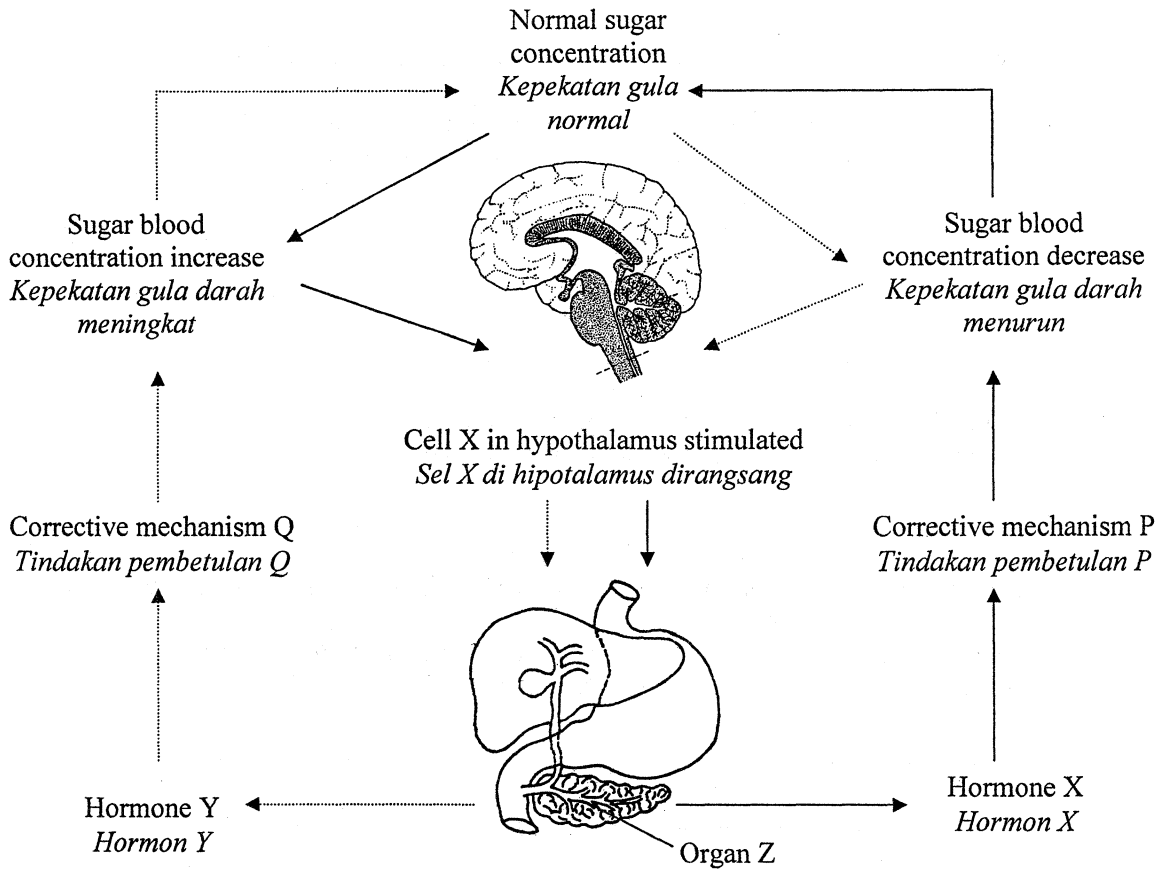


Diagram 5  
*Rajah 5*

- a)(i) Name organ Z.  
*Namakan organ Z.*

.....  
 [1 mark]

- (ii) State hormone X and hormone Y secreted by organ Z.  
*Nyatakan hormon X dan hormon Z yang dirembeskan oleh organ Z.*

Hormone X : .....

Hormone Y : .....

[2 marks]

- b) Explain how a group of Langerhans cell in organ Z reacts in the regulation of glucose content in human blood.  
*Terangkan bagaimana tindakan kelompok sel Langerhans dalam organ Z terhadap kawal atur kandungan glukosa dalam darah manusia*

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[3 marks]

- c) A man found that his urine shown positive result when tested with Benedict's solution.  
*Seorang lelaki telah mendapati air kencingnya adalah positif dalam ujian dengan larutan Benedict.*

- (i) State the health problem faced by the man mentioned above.  
*Nyatakan masalah kesihatan lelaki tersebut berdasarkan maklumat di atas.*

.....

[1 mark]

- (ii) Suggest an action need to be taken by that man to avoid his health problem in (c) (i)  
*Cadangkan satu tindakan yang perlu diambil oleh lelaki tersebut untuk mengatasi masalah kesihatannya pada (c)(i).*

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[1 mark]

- d) Explain how the corrective mechanism Q in Diagram 5 if the blood sugar level increase in a healthy person.  
*Terangkan bagaimanakah tindakan pembedahan Q pada Rajah 5 sekiranya kandungan gula darah meningkat pada seseorang yang sihat.*

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[2 marks]

e) Organ Y also involves in digestion process. Explain the function of organ Y in digestion of fats.

*Organ Y juga terlibat dalam proses pencernaan. Huraikan fungsi organ Y dalam pencernaan lemak.*

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[2 marks]

**Section B**  
**Bahagian B**

[40 marks]  
[40 markah]

Answer **any** two questions from this section  
Jawab mana-mana **dua** soalan daripada bahagian ini

6. Diagram 6 shows part of a nitrogen cycle.  
Rajah 2 menunjukkan sebahagian kitar nitrogen.

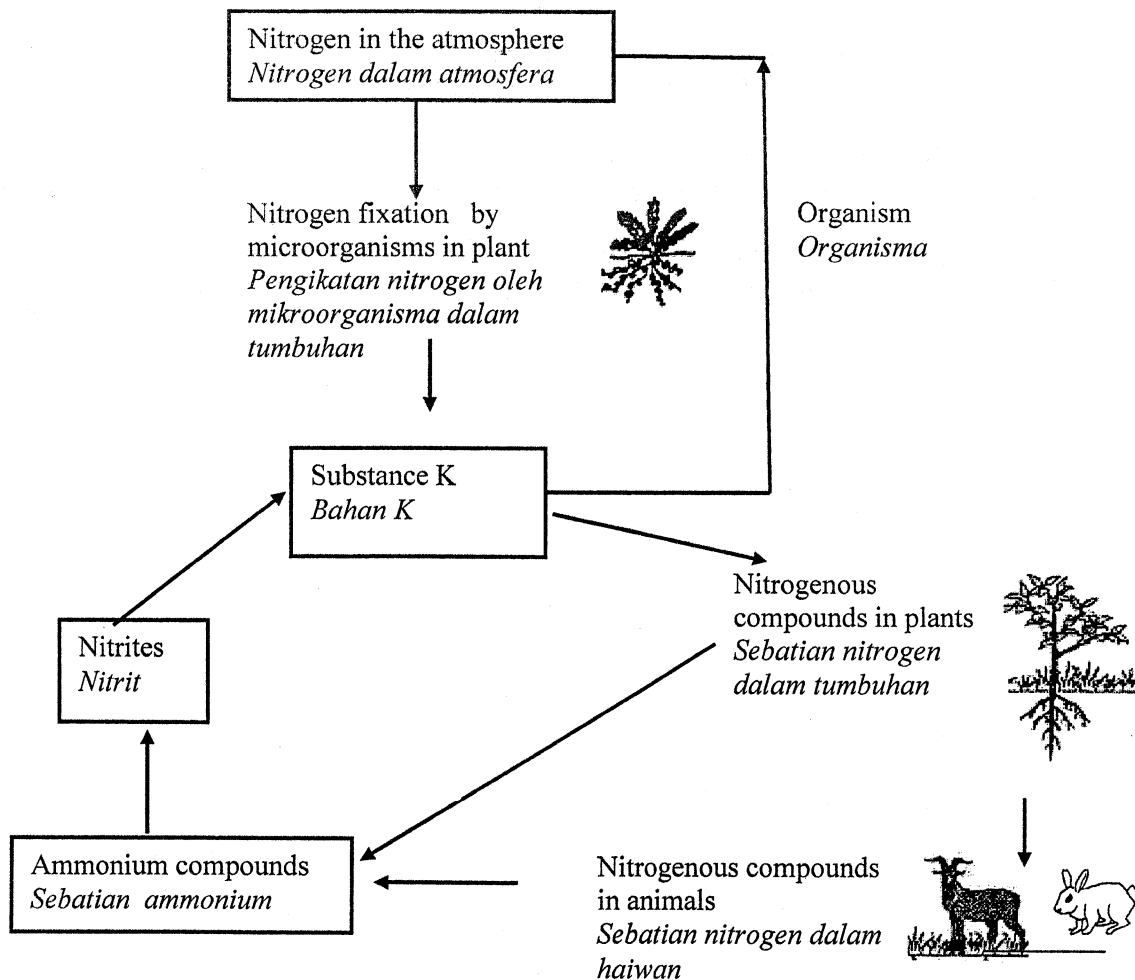


Diagram 6 / Rajah 6

- (a) (i) The atmospheric nitrogen cannot be absorbed directly by plants. Based on Diagram 6, state **two** form of nitrogenous compounds that can be absorbed directly by plants and explain how a deficiency of substances K in the soil affects the growth of the plants.

*Gas nitrogen di dalam atmosfera tidak boleh diserap secara langsung oleh tumbuh-tumbuhan. Berdasarkan rajah 6, nyatakan dua bentuk sebatian nitrogen yang boleh diserap secara langsung oleh tumbuh-tumbuhan dan terangkan bagaimana kekurangan bahan K dalam tanah memberi kesan terhadap pertumbuhan tumbuhan.*

[4 marks]

- (ii) Based on Diagram 6, explain the role of the microorganism in nitrogen cycle.

*Berdasarkan Rajah 6, terangkan peranan mikroorganisma di dalam kitar nitrogen.*

[6 marks]

- (b) Explain the role of useful microorganism

*Terangkan peranan mikroorganisma yang berfaedah*

- (i) in the alimentary canal of termites  
*di dalam salur penghadaman anai-anai*
- (ii) in the digestive system in humans  
*di dalam sistem penghadaman manusia*
- (iii) in decomposition process  
*di dalam proses penguraian*

[10 marks]

7. Diagram 7 shows three types of neurone in individual A.  
*Rajah 7 menunjukkan tiga jenis neuron dalam individu A*

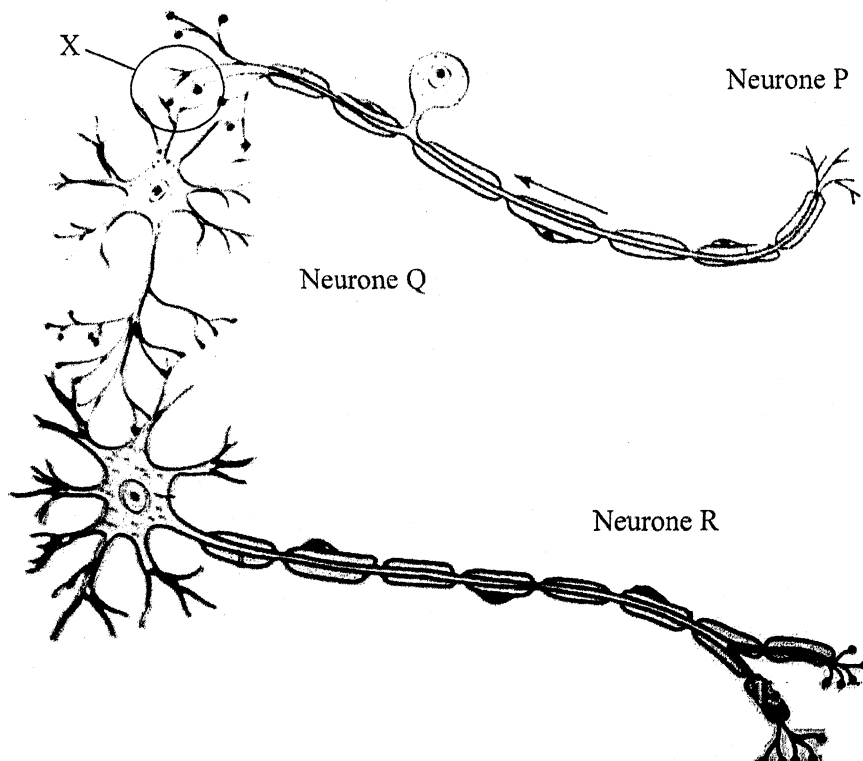


Diagram 7a  
*Rajah 7a*

- a) Describe the process X in Diagram 7a  
*Huraikan proses X dalam Rajah 7a.*

[4 marks]

After an accident, individual A doesn't experience any response to hot object.

*Selepas satu kemalangan, individu A tidak mengalami sebarang reaksi apabila terkena objek panas.*

- b) Explain the above situation.  
*Terangkan situasi tersebut di atas.*

[6 marks]



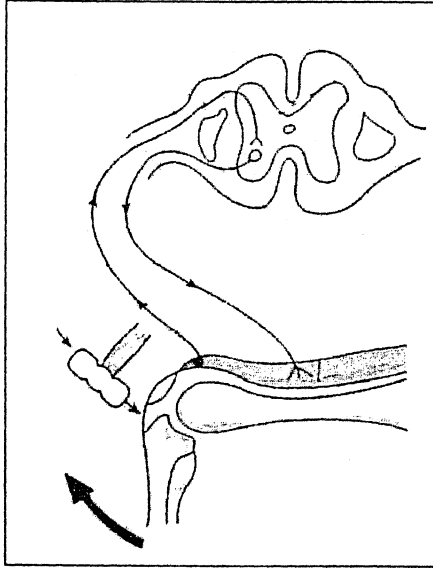


Diagram 7(b)(i)  
Rajah 7(b)(i)

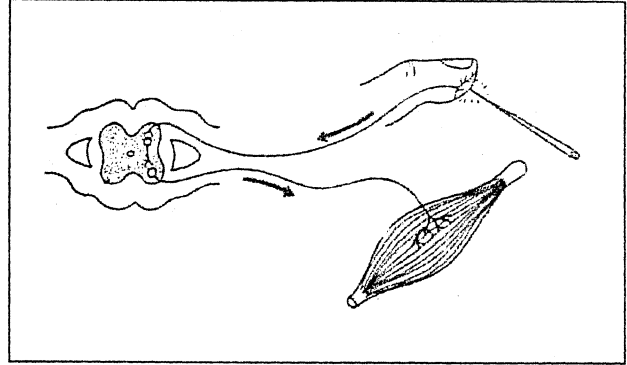


Diagram 7(b)(ii)  
Rajah 7(b)(ii)

(c) Explain the differences between reflex arc in Diagram 7(b)(i) and 7(b)(ii).  
*Terangkan perbezaan di antara arka reflex dalam Rajah 7(b)(i) dan 7(b)(ii).*

[10 marks]

8 (a) Diagram 8(a) shows the formation of the embryo sac in the ovule, while diagram 8(b) shows the formation of pollen grain in the anther in a flowering plant (angiosperm)

*Rajah 8(a) menunjukkan pembentukan pundi embrio di ovul, manakala Rajah 8(b) menunjukkan proses pembentukan butir debunga di anter pada tumbuhan berbunga (angiosperma).*

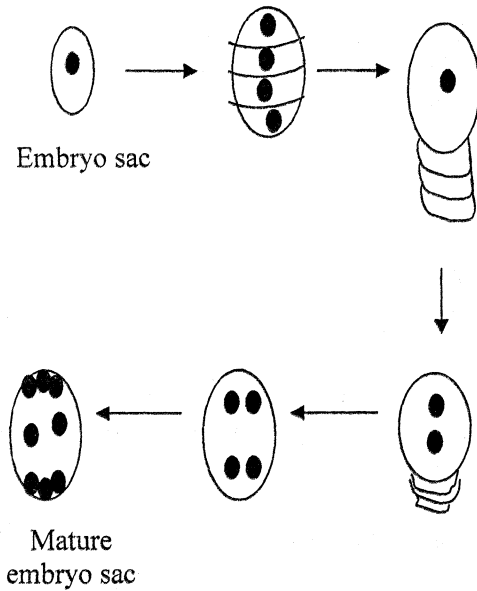


Diagram 8(a)  
Rajah 8(a)

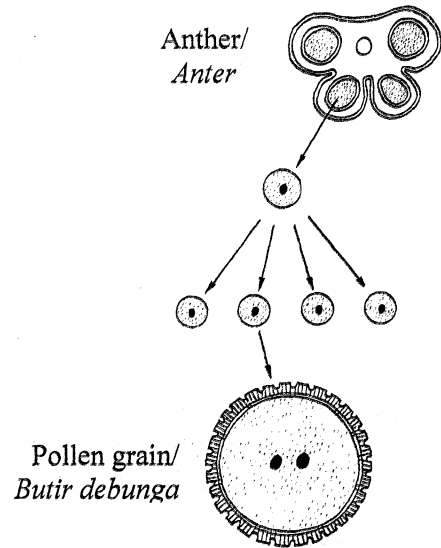


Diagram 8(b)  
Rajah 8(b)

Based on the above Diagrams, explain how the formation of the embryo sac and pollen grain process occurs.

*Berdasarkan Rajah di atas, jelaskan bagaimana proses pembentukan pundi embrio dan butir debunga berlaku.*

[10 marks]

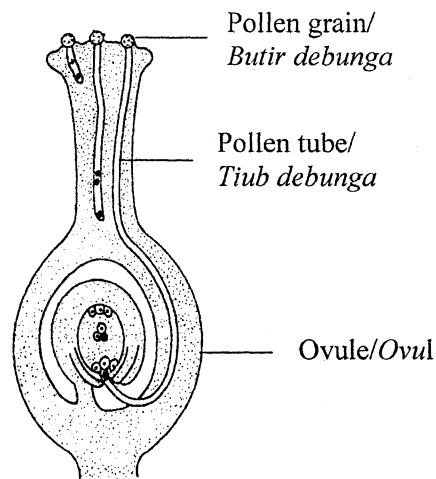


Diagram 8(c)  
Rajah 8(c)

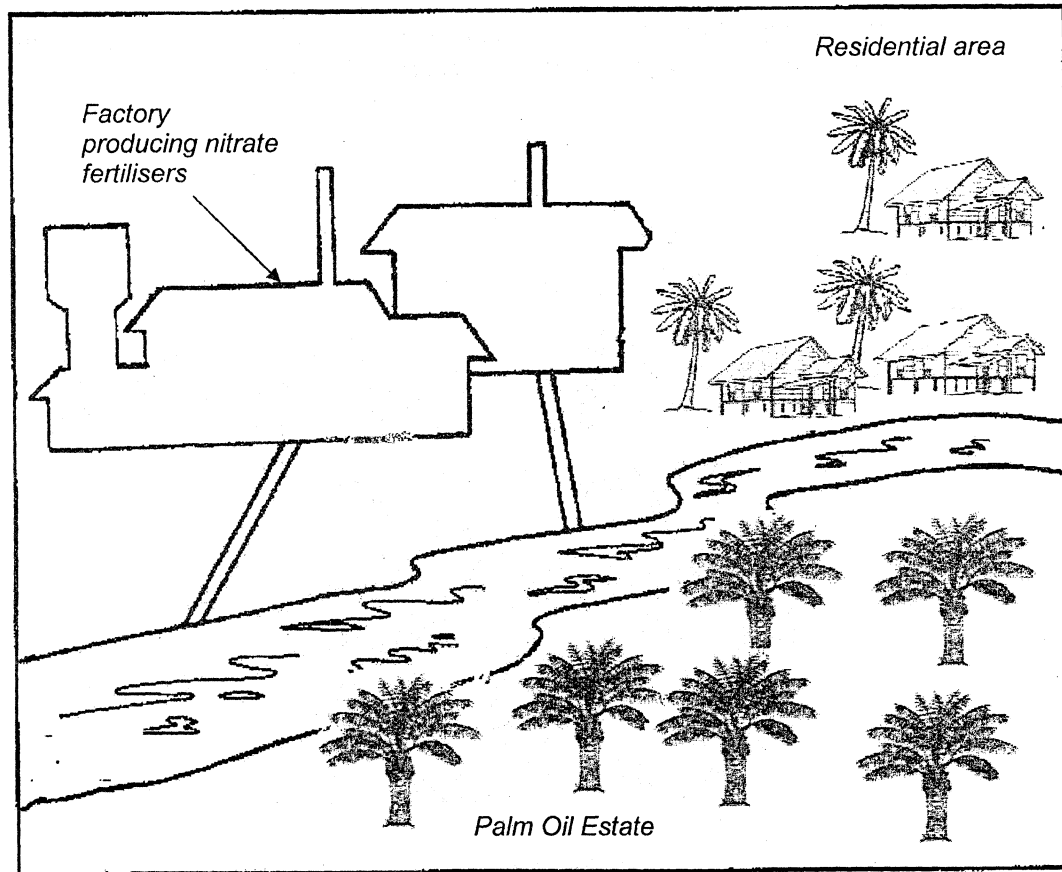
- (b) Diagram 8(c) shows the fertilization in a flowering plant (angiosperms).  
Based on Diagram 8(c), describe how pollination leads to the formation of fruit and seed in a flowering plant (angiosperms).

*Rajah 8(c) menunjukkan proses persenyawaan yang berlaku pada tumbuhan berbunga (angiosperma)*

*Berdasarkan Rajah 8(c), jelaskan bagaimana perdebungaan membentuk buah dan biji pada tumbuhan berbunga (angiosperma)*

[10 marks]

9. (a) Diagram 9.1 shows a river in one area.  
*Rajah 9.1 menunjukkan sebatang sungai di satu kawasan.*



*Diagram 9.1*

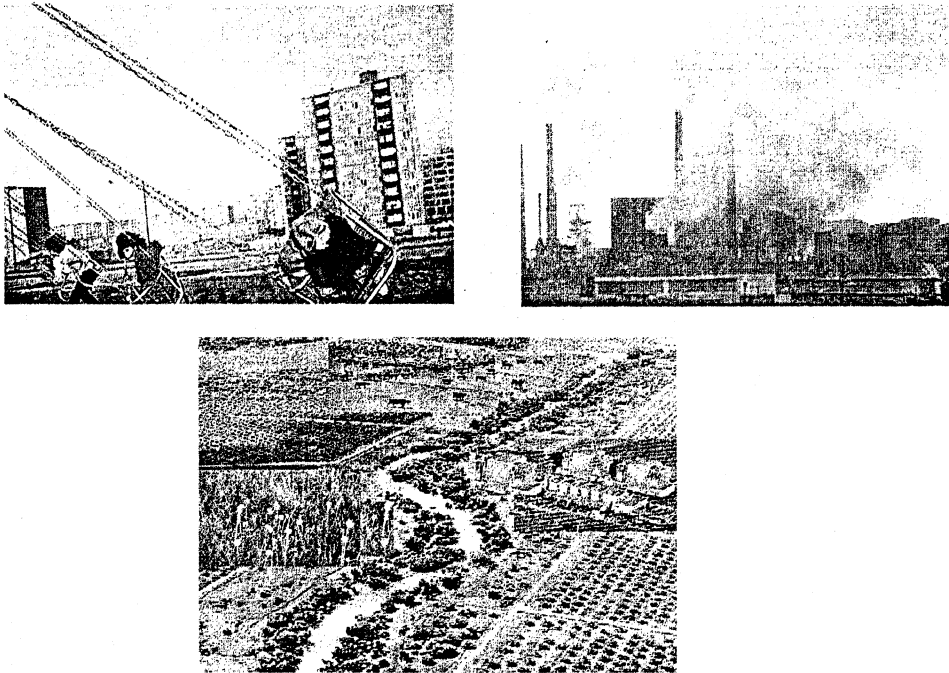
Based on Diagram 9.1 describe the effect of activities to the river. Explain the effects of this condition on the aquatic organisms in the river.

*Berdasarkan Diagram 9.1 huraikan kesan aktiviti ke atas sungai tersebut. Terangkan kesan keadaan sungai itu keatas organisma akuatik di dalam sungai tersebut.*

[10 marks]

- (b) Diagram 9.2 shows evidences of development, urbanization and industrial practices. It is needed to develop the rises of human population

*Diagram 9.2 menunjukkan bukti-bukti pembangunan, urbanisasi dan aktiviti-aktiviti perkilangan. Ia merupakan keperluan apabila populasi manusia meningkat.*



**Diagram 9.2**  
*Rajah 9.2*

Justify the effects of unplanned development into the ecosystem.  
*Justifikasikan kesan pembangunan yang tidak terancang terhadap ekosistem.*

[10 marks]

**END OF QUESTION PAPER**