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

MODUL PENINGKATAN PRESTASI MURID TINGKATAN 5
TAHUN 2025

BIOLOGI

KERTAS 2

2 JAM 30 MINIT

JANGAN BUKA MODUL INI SEHINGGA DIBERITAHU

ARAHAN

MAKLUMAT UNTUK CALON

1. *Tulis **nama** dan **tingkatan** anda pada ruang yang disediakan.*
2. *Modul ini mengandungi **tiga** bahagian: **Bahagian A**, **Bahagian B** dan **Bahagian C**.*
3. *Jawapan hendaklah ditulis pada ruang jawapan yang disediakan di dalam Modul ini.*
4. *Modul ini adalah dalam dwibahasa.*
5. *Jawapan boleh ditulis dalam bahasa Melayu atau bahasa Inggeris.*
6. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
7. *Kerja mengira anda mestilah ditunjukkan.*
8. *Modul ini hendaklah diserahkan kepada pengawas peperiksaan pada akhir peperiksaan.*

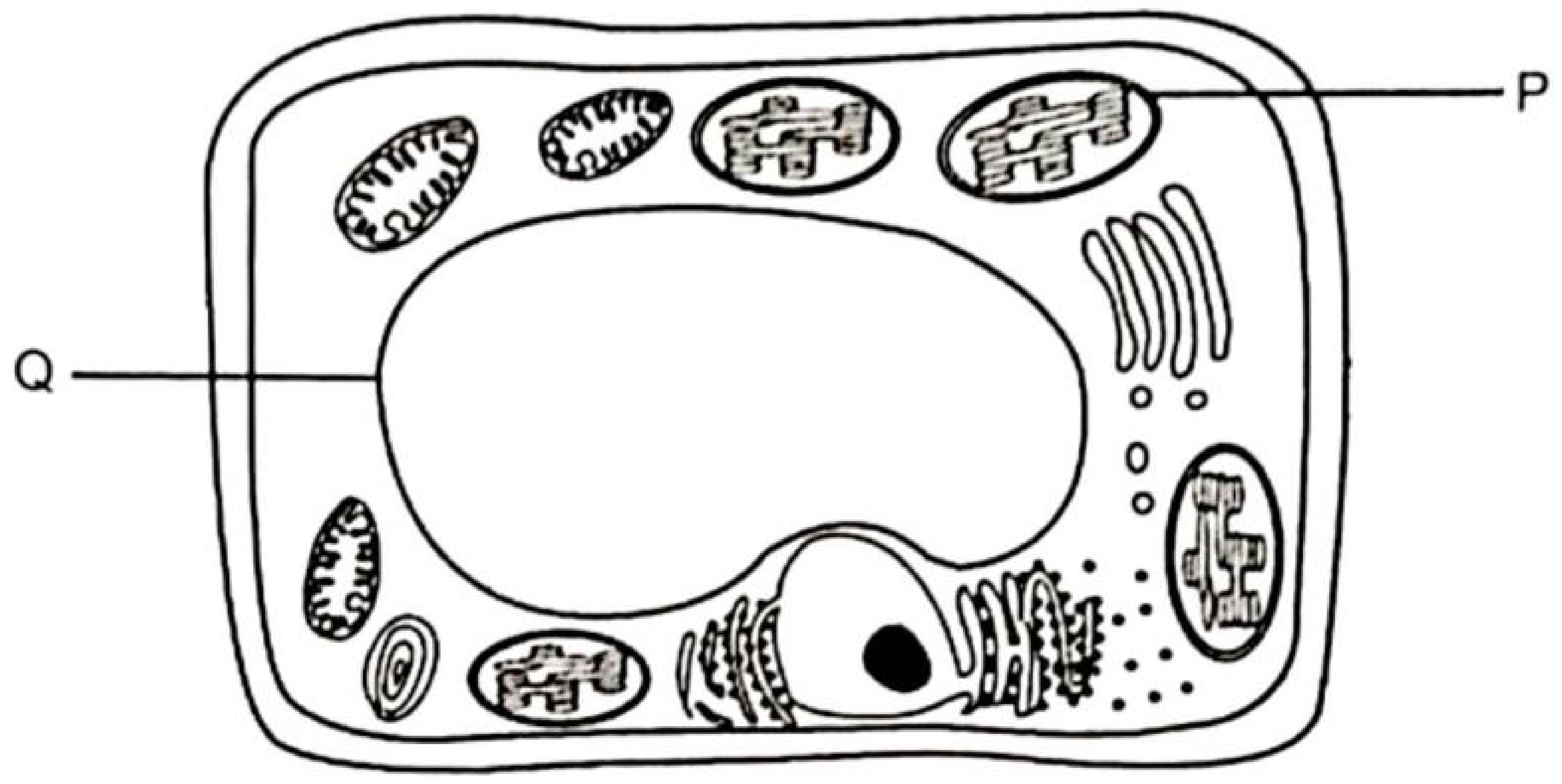
Untuk Kegunaan Pemeriksa			
Bahagian	Soalan	Markah Penuh	Markah Diperoleh
A	1	6	
	2	6	
	3	7	
	4	7	
	5	8	
	6	8	
	7	9	
	8	9	
B	9	20	
	10	20	
C	11	20	
		Jumlah	

BAHAGIAN A

[60 markah]

Jawab **semua** soalan.

1. Rajah 1.1 menunjukkan satu sel tumbuhan.
Diagram 1.1 shows a plant cell.



Rajah 1.1
Diagram 1.1

(a) (i) Label Jasad Golgi pada Rajah 1.1
Label Golgi apparatus on Diagram 1.1

[1 markah]
[*1 mark*]

(ii) Nyatakan nama komponen P dan Q.
State the name of component P and Q.

P: ....

Q: ....

[2 markah]
[*2 marks*]

(iii) P mempunyai pigmen yang terdapat pada membran tilakoid.
Nyatakan fungsi pigmen tersebut.
P has pigment found on the thylakoid membrane.
State the function of the pigment.

....

[1 markah]
[*1 mark*]

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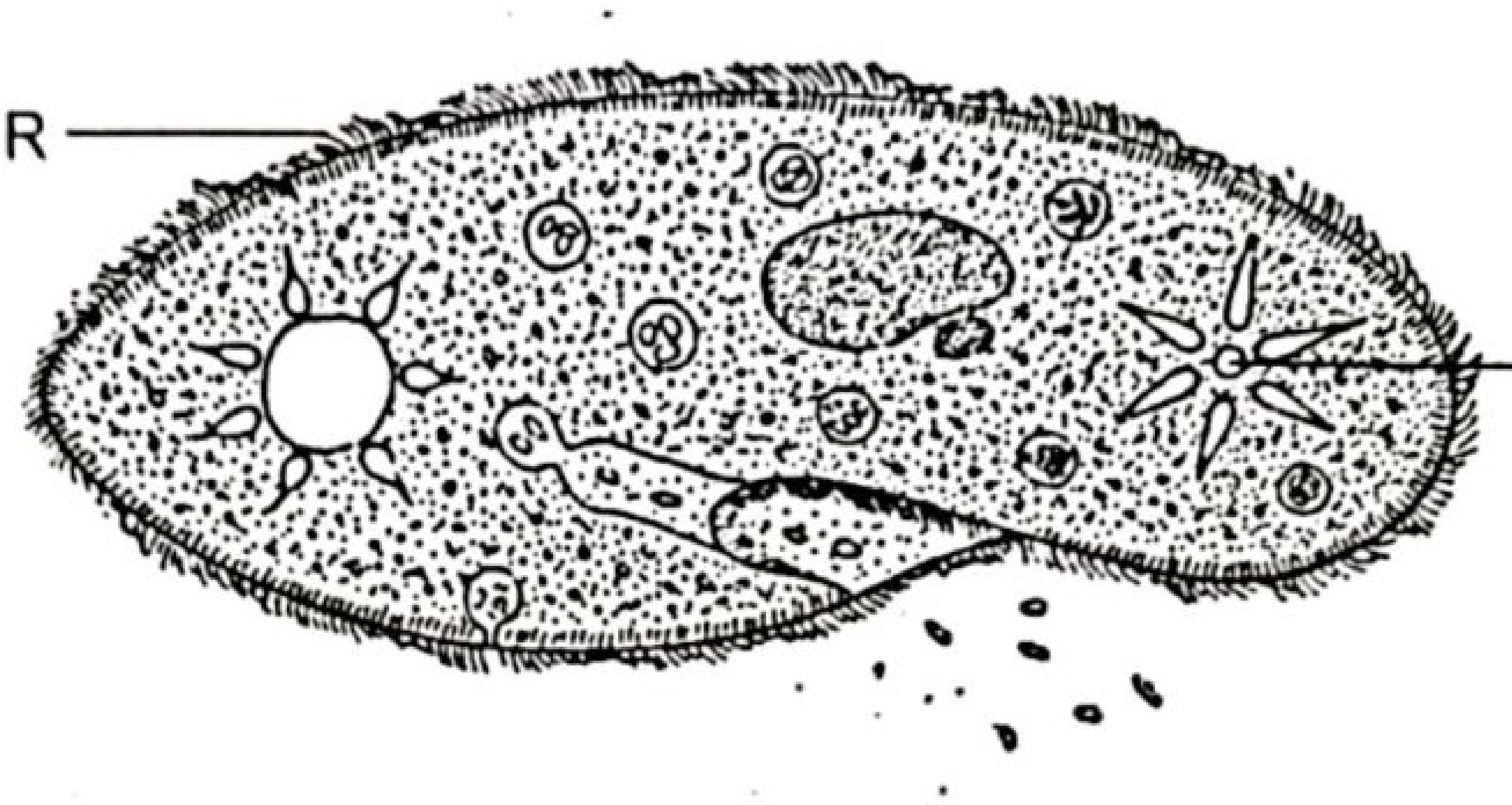
(b) Rajah 1.2 menunjukkan sejenis protozoa yang hidup dalam air tawar.
Diagram 1.2 shows a type of protozoa that lives in fresh water.



Rajah 1.2
Diagram 1.2

(i) Nyatakan peranan komponen sel S bagi memastikan kemandirian protozoa ini dalam habitatnya.
State the role of cell component S to ensure the survival of the protozoa in its habitat.

....

....

[1 markah]
[*1 mark*]

(ii) Kolam di mana protozoa tersebut hidup mengalami perubahan nilai pH akibat tumpahan sejenis bahan kimia.
Huraikan **satu** peranan struktur R apabila menghadapi keadaan tersebut.
The pond inhibited by the protozoa undergoes change in pH value due to the spillage of a type of chemical substance.
Describe ***one*** *role of structure R when facing the condition.*

....

....

....

[1 markah]
[*1 mark*]

2. (a) Hubungan yang sangat rapat antara satu organisma dengan organisma yang lain dikenali sebagai simbion.

Tuliskan nama jenis simbion ke dalam Jadual 1.

The very close relationship between one organism and another organism is known as symbiont.

Write the name of symbiont type into Table 1.

Jenis Simbion ***Symbiont type***	**Penerangan** ***Explanation***
	Organisma yang hidup di dalam perumah. *Organisms that live inside the host.*
	Organisma yang hidup di luar perumah. *Organisms that live outside the host.*

Jadual 1

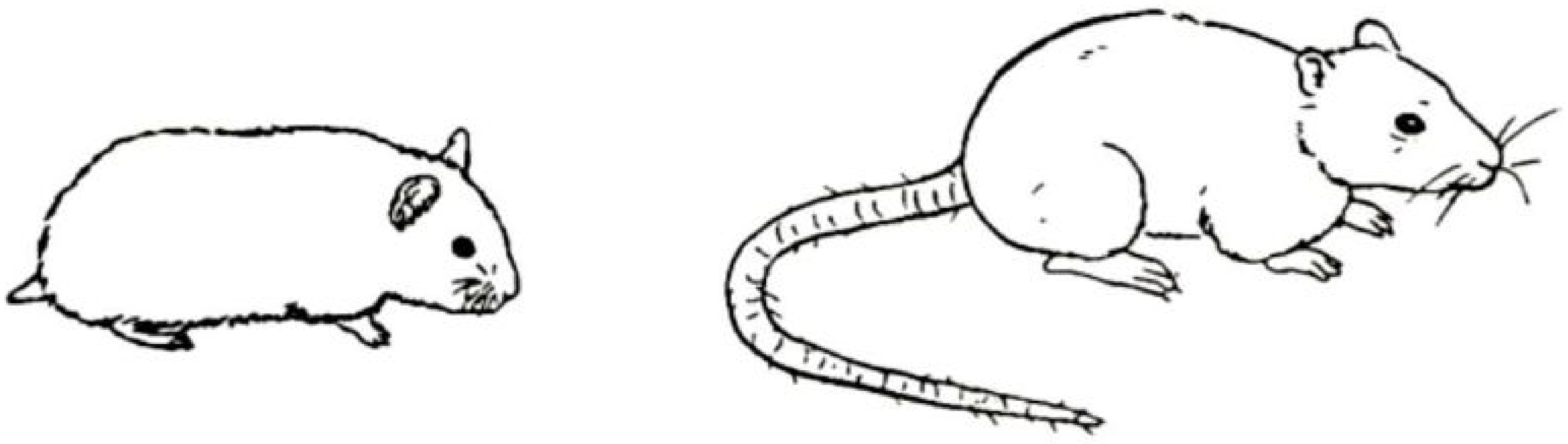
Table 1

[2 markah]

[*2 marks*]

(b) Rajah 2.1 menunjukkan dua haiwan rodensia yang mempunyai morfologi yang hampir sama.

Diagram 2.1 shows two rodents which have similar morphologies.



Rajah 2.1

Diagram 2.1

Huraikan **satu** ciri yang diguna oleh saintis untuk menentukan kedua-dua haiwan adalah spesies yang berbeza.

*Describe **one** characteristic used by scientists to determine that both animals are different species.*

....

....

....

[1 markah]

[*1 mark*]

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(c) Rajah 2.2 menunjukkan interaksi antara kulat dan batang pokok yang mati.
Diagram 2.2 shows the interaction between fungi and the dead tree trunk.

Rajah 2.2
Diagram 2.2

(i) Berdasarkan Rajah 2.2, nyatakan peranan fungi dalam mengekalkan keseimbangan alam sekitar.
Based on Diagram 2.2, state the role of fungi in maintaining the balance of environment.

....

[1 markah]
[*1 mark*]

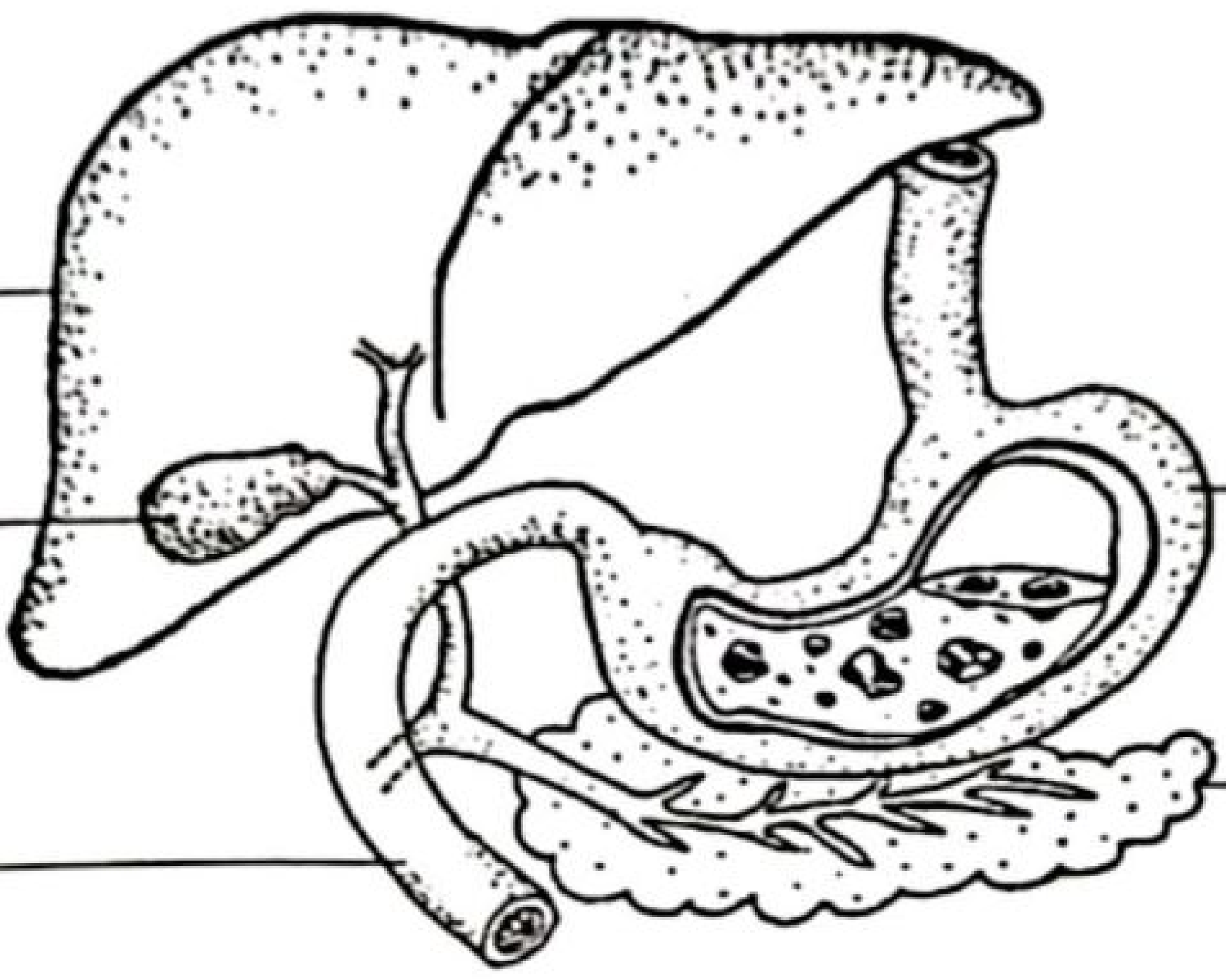
(ii) Pentachlorophenol (PCP) adalah sejenis bahan kimia yang boleh membunuh fungi. Seorang petani telah menyembur bahan tersebut di kebun pertaniannya. Terangkan kesan tindakan beliau ke atas hasil pertaniannya.
Pentachlorophenol (PCP) is a type of chemical that can kill fungi. A farmer sprays the chemical in his farm area. Explain the effect of his action on the crop yield.

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

[2 markah]
[2 *marks*]

3. (a) Rajah 3.1 menunjukkan komponen yang terlibat dalam proses pencernaan.

Diagram 3.1 shows the components involved in the digestion process.



Rajah 3.1

Diagram 3.1

(i) Nyatakan peranan organ X dalam pencernaan lipid di duodenum.

State the role of organ X in digestion of lipid in duodenum.

....

[1 markah]

[*1 mark*]

(ii) Nyatakan pH di Y.

State the pH in Y

....

[1 markah]

[*1 mark*]

(iii) Nyatakan kesan pengambilan jus lemon berlebihan ke atas pencernaan lipid di Y.

State the effect of excessive consumption of lemon juice on the digestion of lipid in Y.

....

[1 markah]

[*1 mark*]

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(b) Lemak tepu dianggap tidak sihat. Terangkan.

Saturated fats are considered unhealthy. Explain.

....

....

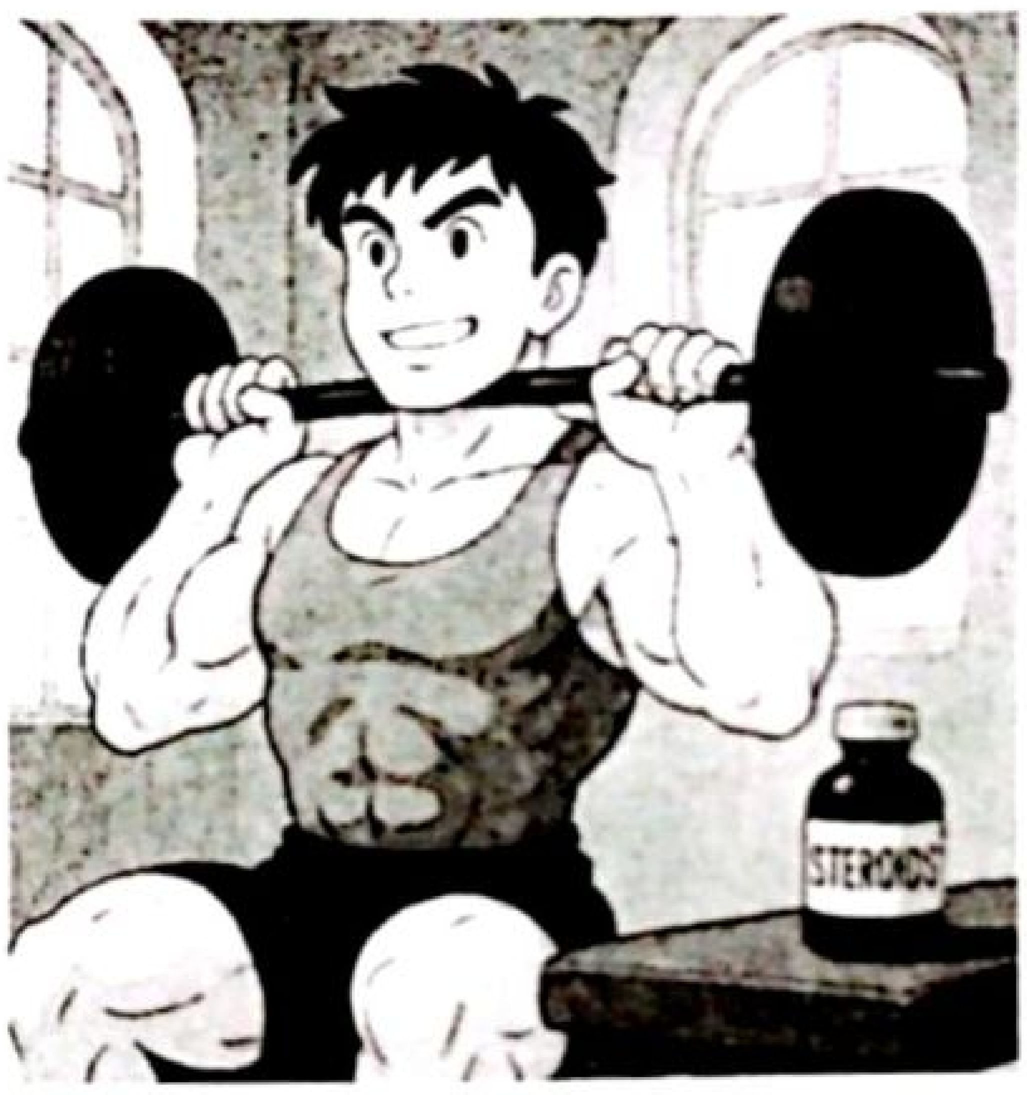
....

[2 markah]

[*2 marks*]

(c) Rajah 3.2 menunjukkan seorang individu yang sedang menjalani latihan angkat berat.

Diagram 3.2 shows an individual who is undergoing weightlifting exercises.



Rajah 3.2

Diagram 3.2

Pengambilan steroid sintetik secara jangka panjang menyebabkan isu kesihatan kepada individu tersebut. Terangkan.

The intake of synthetic steroids in long term causes the health issue toward the individual. Explain.

....

....

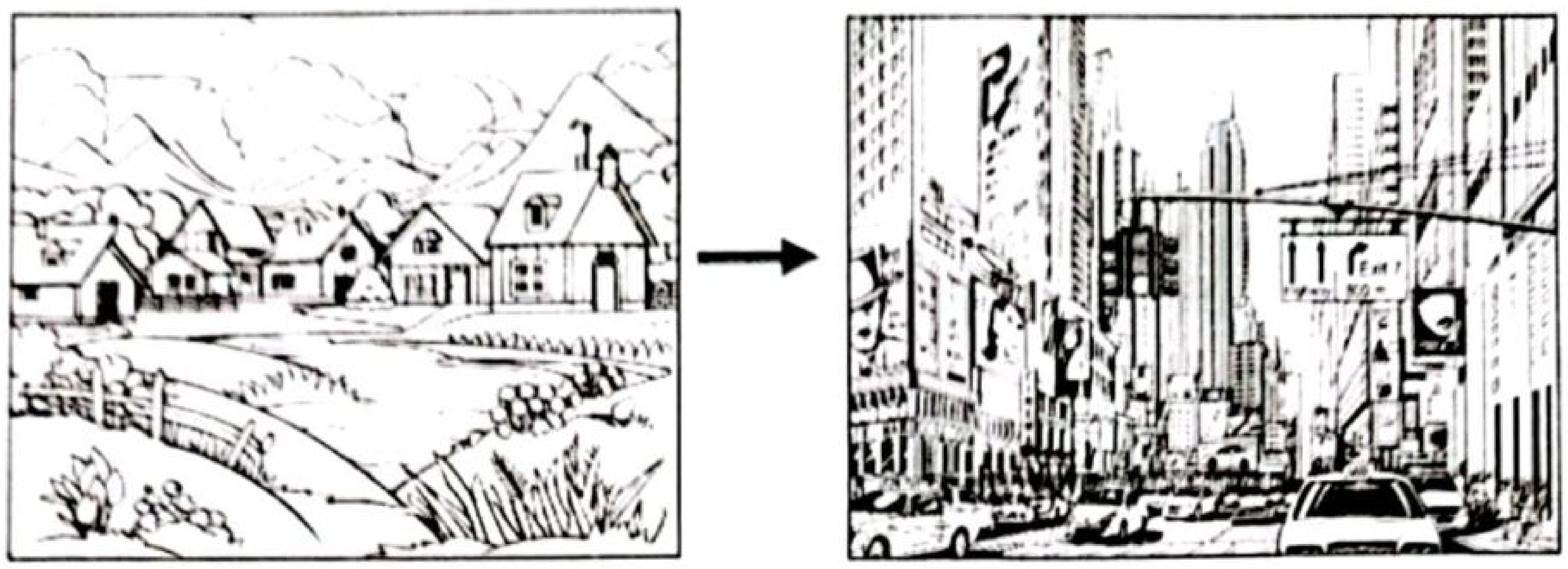
....

[2 markah]

[*2 marks*]

4. (a) Rajah 4.1 menunjukkan perubahan yang berlaku di bandar K.

Diagram 4.1 shows the changes that occurred in town K.



Rajah 4.1

Diagram 4.1

(i) Berdasarkan Rajah 4.1, nyatakan perubahan yang berlaku di bandar K.

Based on Diagram 4.1, state the change that occurred in town K.

....

[1 markah]

[*1 mark*]

(ii) Terangkan kesan negatif yang timbul dari segi sekuriti makanan apabila berlaku perubahan di kawasan K.

Explain the negative effects that arise in terms of food security when changes occur in area K.

....

....

....

[2 markah]

[*2 marks*]

(iii) Nyatakan **dua** komponen sekuriti makanan yang perlu diambil berat untuk mengatasi kesan negatif di a(i).

*State **two** components of food security that need to be considered to overcome the negative effects in a(i).*

....

....

[2 markah]

[*2 marks*]

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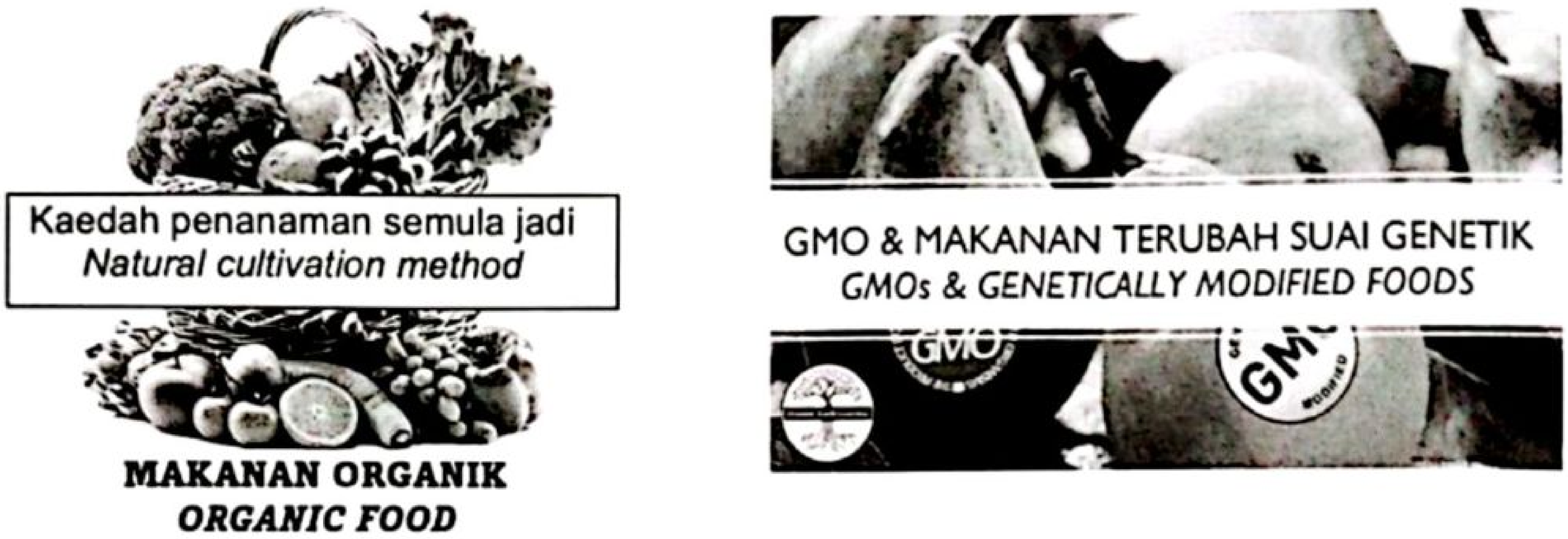
(b) Ledakan populasi menyebabkan permintaan terhadap makanan meningkat. Bagi mengatasi masalah ini, dua kaedah penanaman yang ditunjukkan dalam Rajah 4.2 telah dijalankan.
The population explosion has led to an increase in demand for food. To overcome this problem, two methods of cultivation that shown in Diagram 4.2 have been implemented.



Rajah 4.2
Diagram 4.2

Nyatakan dua perbezaan antara kedua-dua kaedah penanaman makanan dalam Rajah 4.2.
State two differences between the two methods of growing food in Diagram 4.2.

....

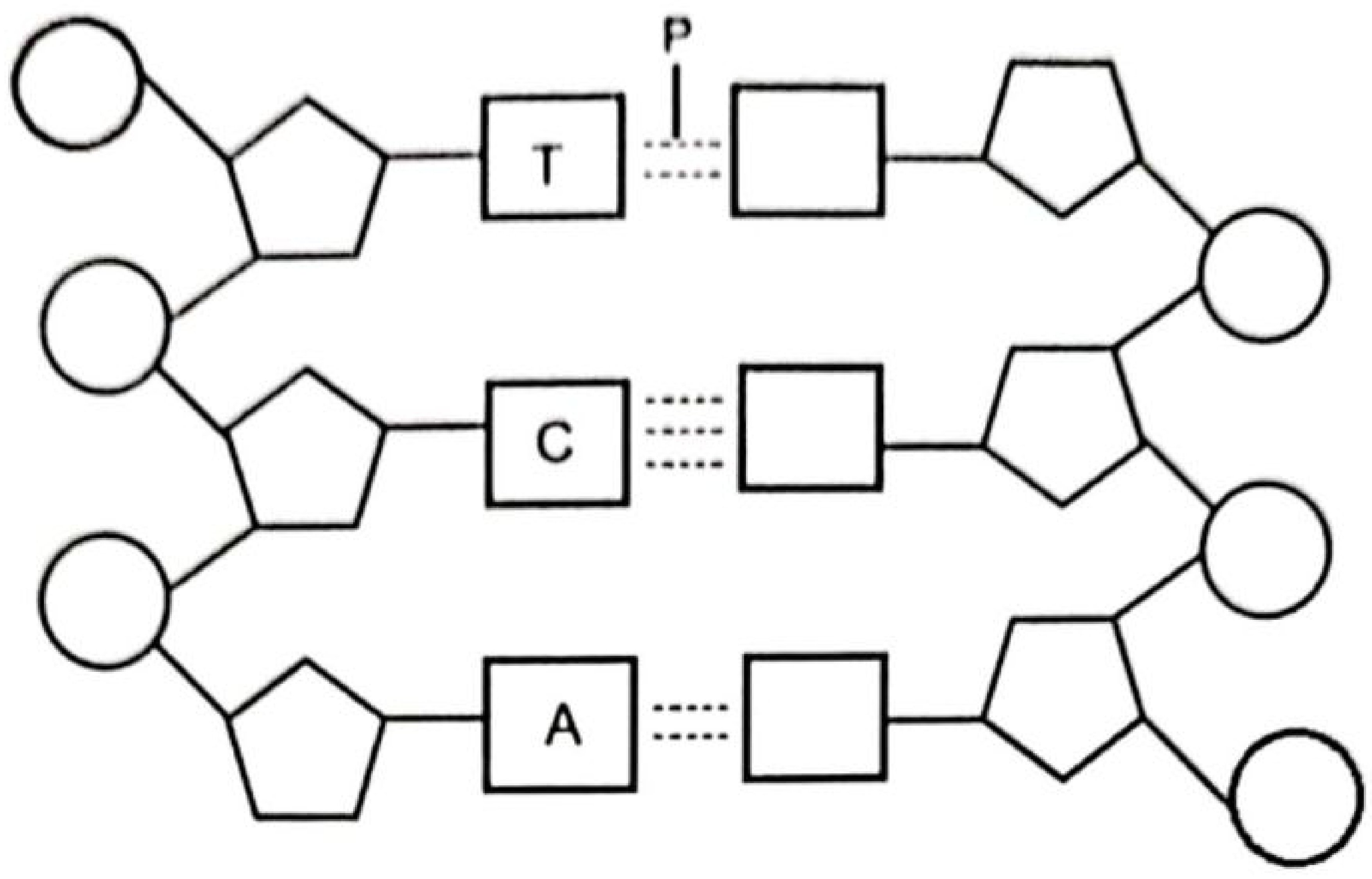
....

....

....

[2 markah]
[2 marks]

5. (a) (i) Rajah 5.1 menunjukkan sebahagian rantai DNA.
Diagram 5.1 shows a part of DNA chain.



Rajah 5.1
Diagram 5.1

Lengkapkan bes bernitrogen pada Rajah 5.1.
Complete the nitrogenous base on Diagram 5.1.

[1 markah]
[*1 mark*]

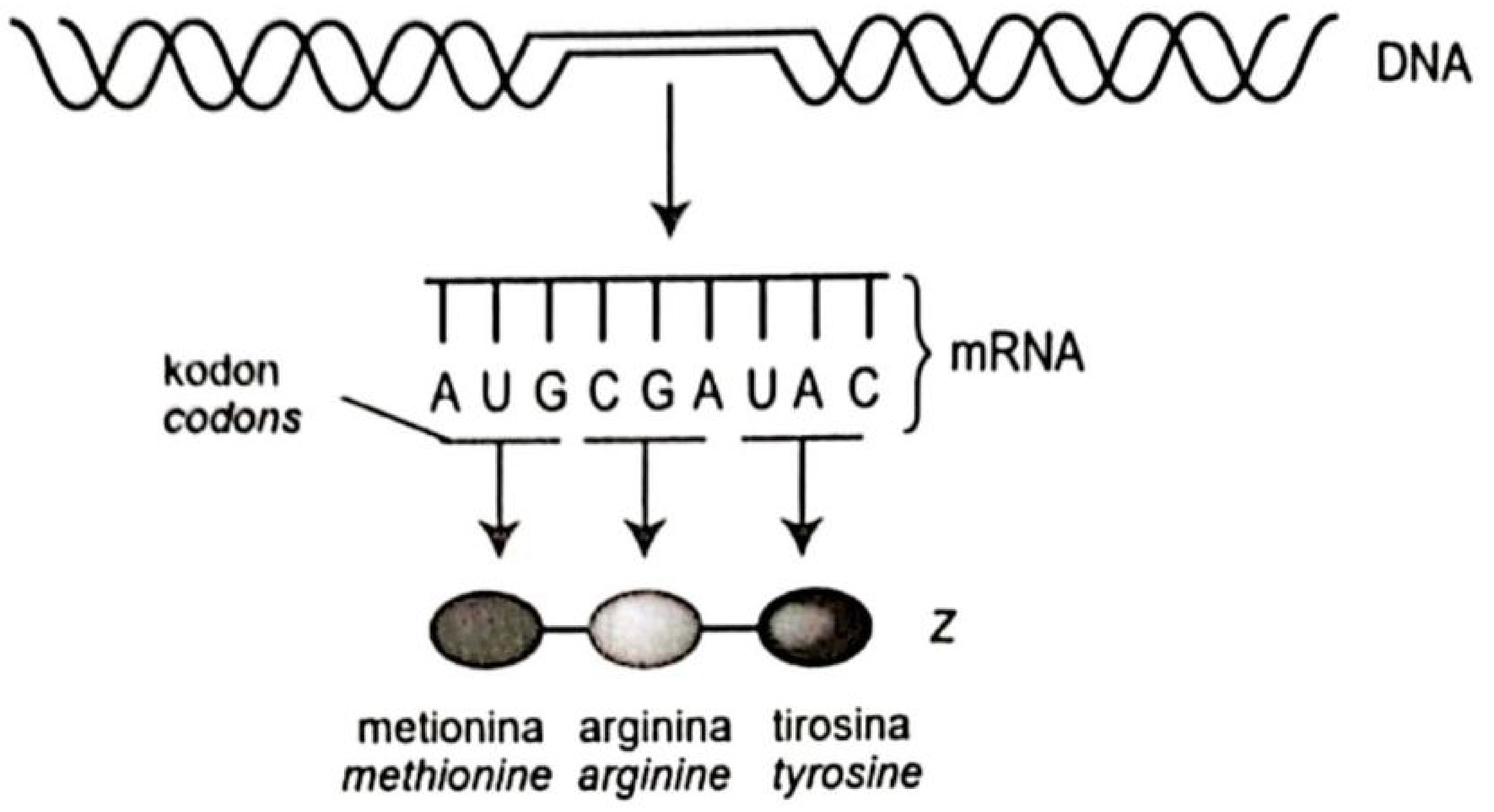
(ii) Nyatakan nama ikatan P.
State the name of bond P.

....

[1 markah]
[*1 mark*]

(b) (i) Rajah 5.2 menunjukkan langkah-langkah mensintesis polipeptida.

Diagram 5.2 shows the steps involved in polypeptide synthesis.



Rajah 5.2
Diagram 5.2

(i) Berdasarkan Rajah 5.2, nyatakan mengapa struktur RNA lebih pendek daripada struktur DNA.

Based on Diagram 5.2, state why the RNA structure is shorter than the DNA structure.

....

....

[1 markah]

[*1 mark*]

(ii) Mutasi gen boleh mempengaruhi struktur Z. Terangkan.

Gene mutation can affect the structure of Z. Explain.

....

....

....

[2 markah]

[*2 marks*]

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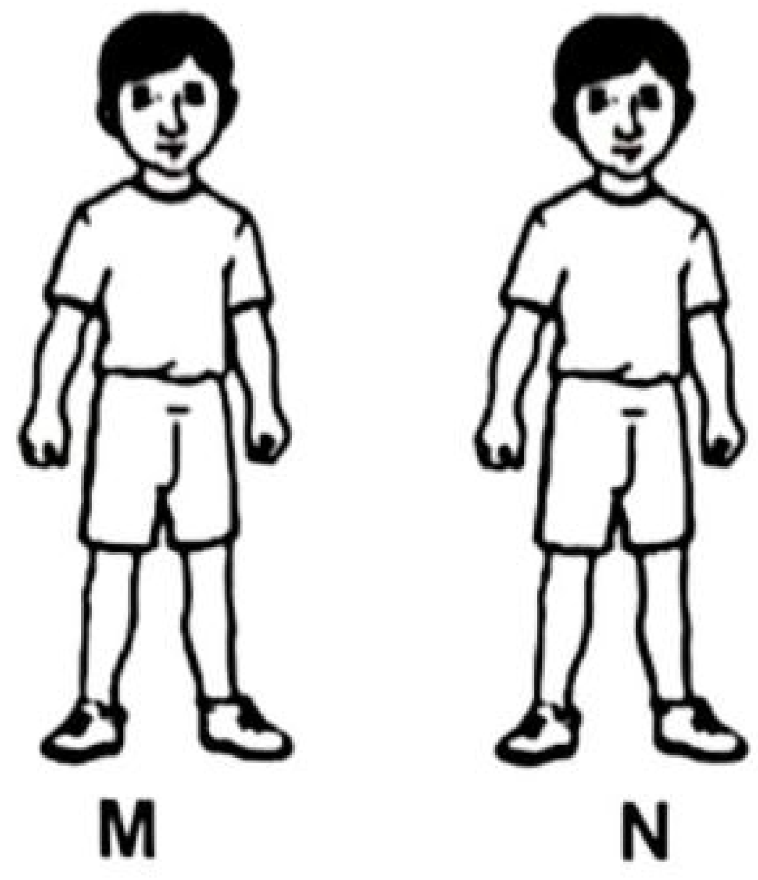
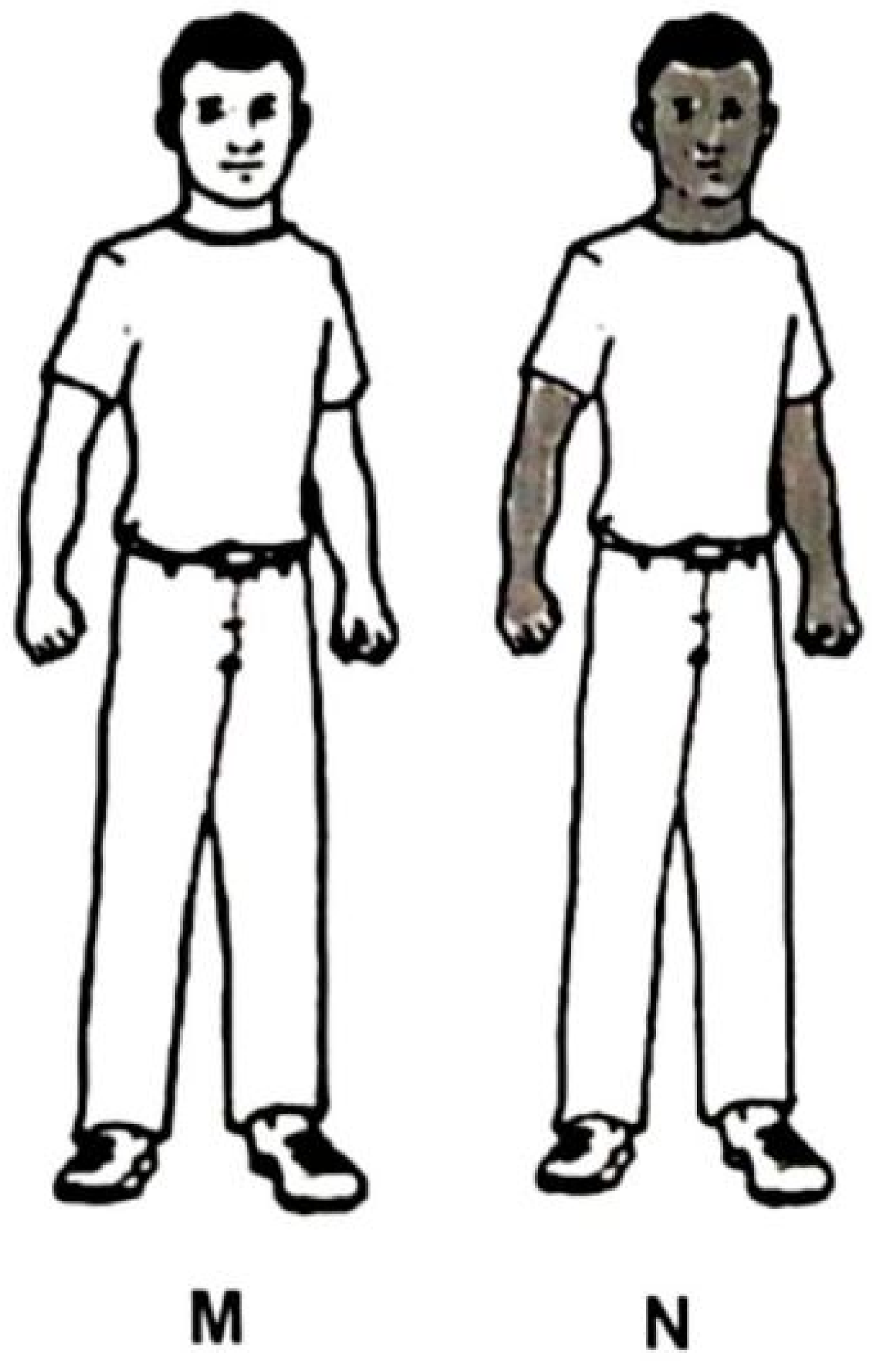
(c) Rajah 5.2(a) menunjukkan zaman kanak-kanak kembar seiras, **M** dan **N**.
Rajah 5.2(b) menunjukkan pasangan kembar itu selepas 20 tahun.
Diagram 5.2(a) shows the childhood of two identical twins, ***M*** *and* ***N****.*
Diagram 5.2(b) shows the twins after 20 years.



Rajah 5.2(a)
Diagram 5.2(a)



Rajah 5.2(b)
Diagram 5.2(b)

Terangkan faktor yang menyebabkan perubahan warna kulit **N**.
Explain the factors that cause skin colour changes in N.

....

....

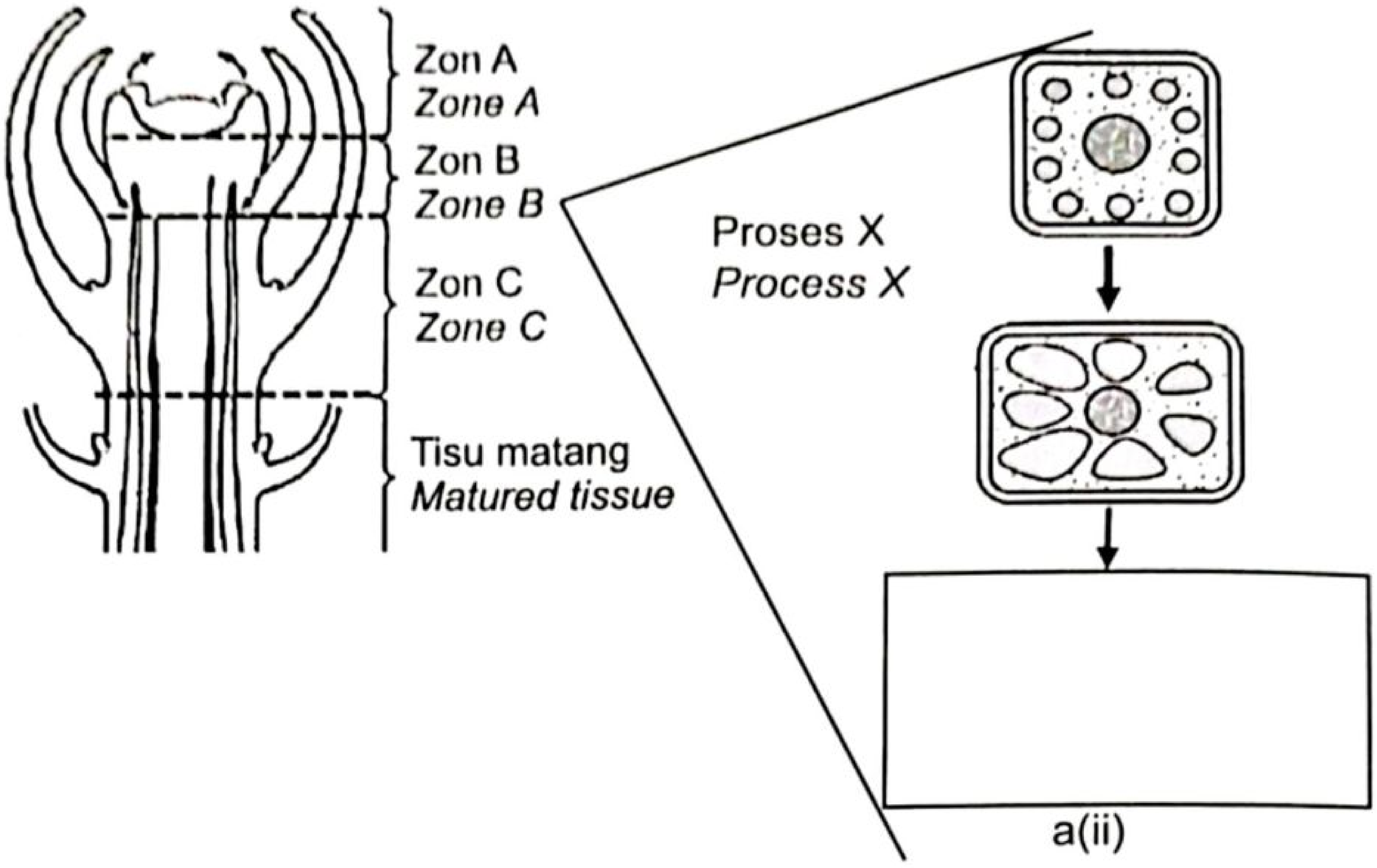
....

....

[3 markah]
[*3 marks*]

6. (a) Rajah 6.1 menunjukkan zon-zon yang terdapat pada pucuk tumbuhan.

Diagram 6.1 shows the zones found on plant shoots.



Rajah 6.1

Diagram 6.1

(i) Nyatakan nama zon A.

State the name of zone A.

....

[1 markah]

[*1 mark*]

(ii) Lukiskan sel pada peringkat akhir bagi proses X dalam ruangan yang disediakan dalam Rajah 6.1.

Draw the cell at the final stage of process X in the space provided in Diagram 6.1.

[1 markah]

[*1 mark*]

(iii) Rajah 6.2 menunjukkan satu jenis pertumbuhan yang berlaku pada batang tumbuhan eudikot.
Diagram 6.2 shows one type of growth that occurs in the stem of eudicot plants.

Rajah 6.2
Diagram 6.2

Bezakan kepentingan pertumbuhan dalam Rajah 6.1 dengan pertumbuhan dalam Rajah 6.2.
Differentiate the importance of the growth in Diagram 6.1 with the growth in Diagram 6.2.

....

....

....

....

[2 markah]
[*2 marks*]

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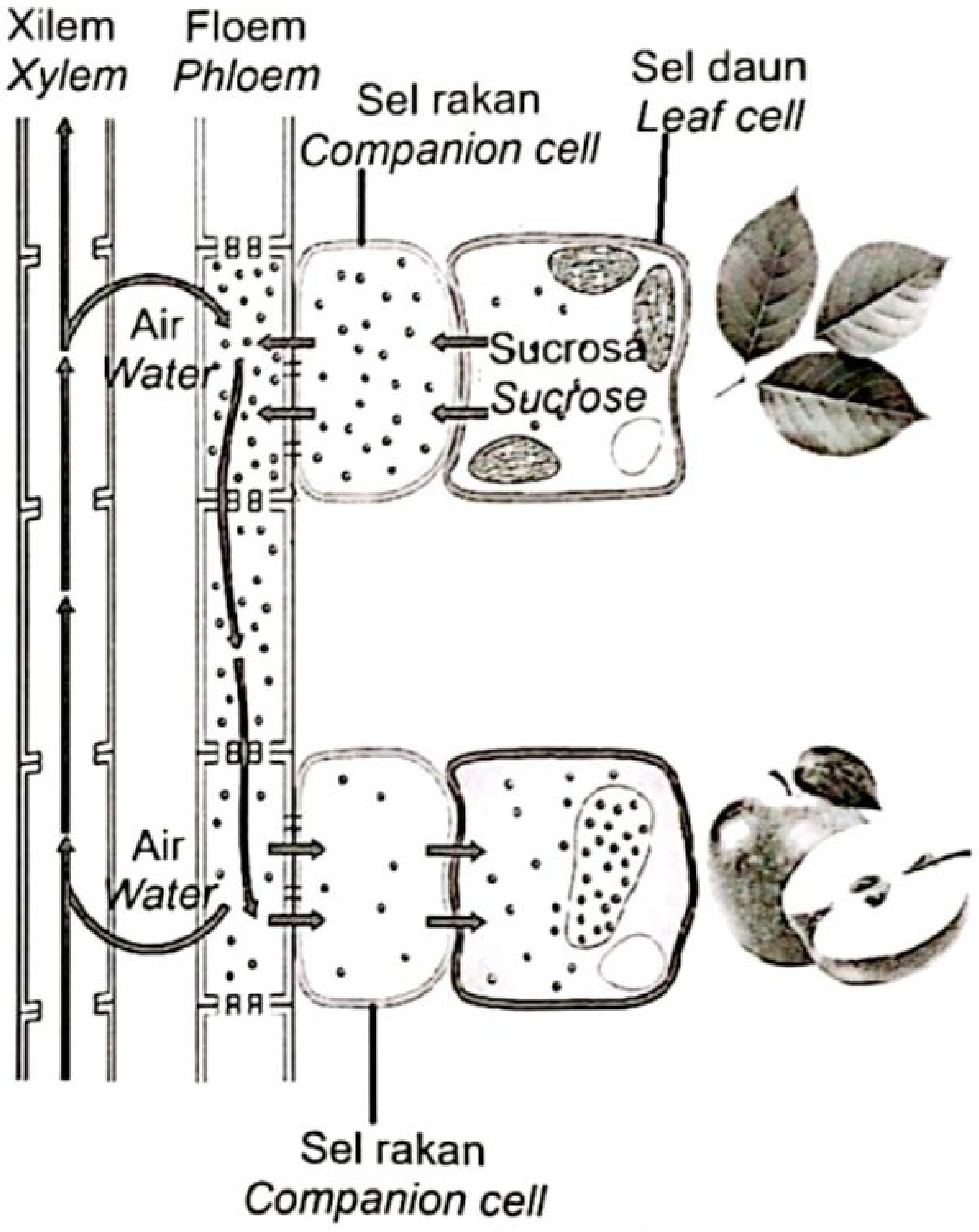
(b) (i) Encik M seorang petani. Dia menyembur racun rumpai di kebunnya bagi mengawal pertumbuhan rumpai. Namun begitu, racun tersebut telah merencatkan proses respirasi sel dalam tumbuhan tersebut.

Rajah 6.3 menunjukkan satu proses pengangkutan dalam tumbuhan.

Mr. M is a farmer. He sprays herbicide in his garden to control the growth of weeds. However, the herbicide has inhibited the cellular respiration process in the plant.

Diagram 6.3 shows a transport process in plant.



Rajah 6.3

Diagram 6.3

Terangkan kesan penggunaan racun rumpai tersebut ke atas proses pengangkutan dalam Rajah 6.3.

Explain the effect of using the herbicide on the transportation process in Diagram 6.3.

....

....

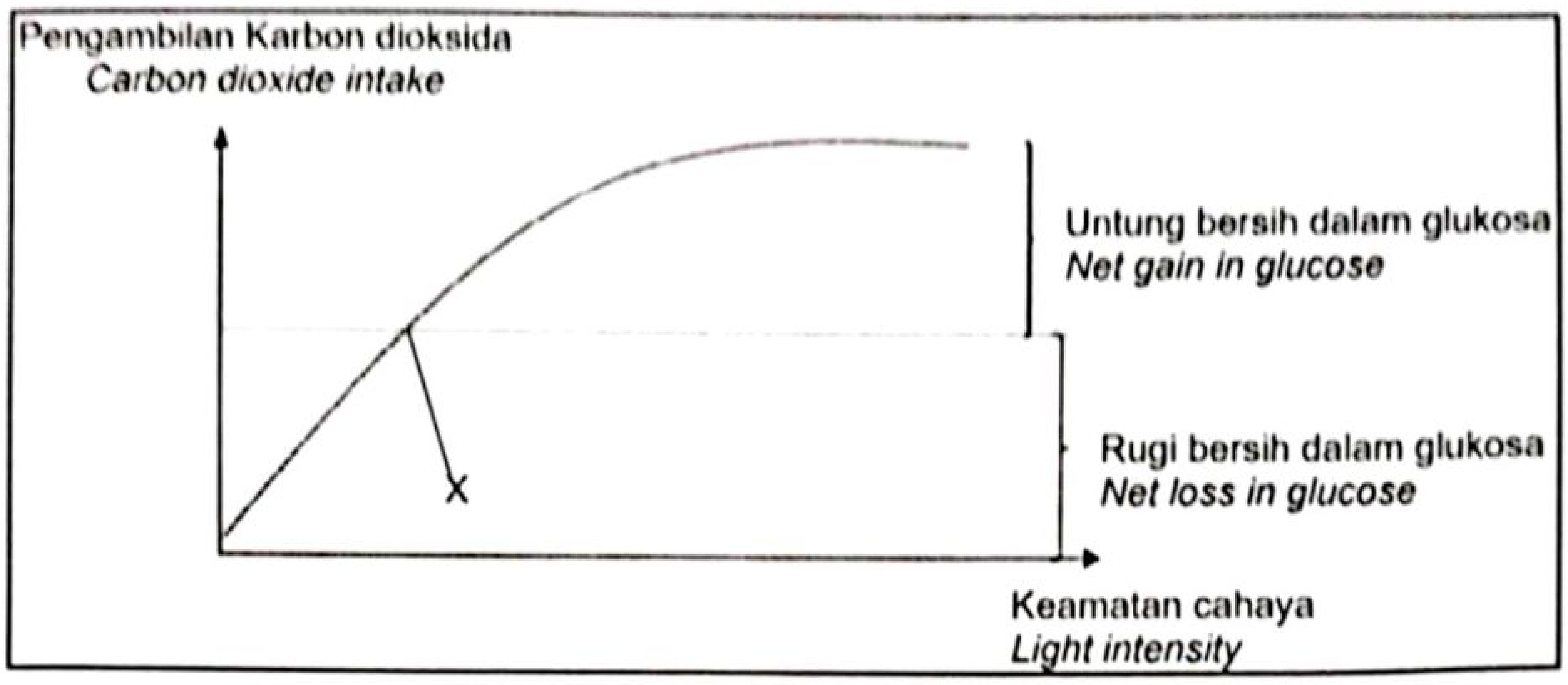
....

....

[3 markah]

[3 marks]

(ii) Rajah 6.4 menunjukkan graf kesan keamatan cahaya ke atas pengambilan karbon dioksida oleh suatu tumbuhan.
Diagram 6.4 shows a graph of the effect of light intensity on the uptake of carbon dioxide by a plant.



Rajah 6.4
Diagram 6.4

Nyatakan kesan ke atas pengangkutan dalam Rajah 6.4 ke bahagian buah sekiranya kadar fotosintesis kekal pada titik X.
State the effect on transport in Diagram 6.4 to the fruit section if the rate of photosynthesis remains at point X.

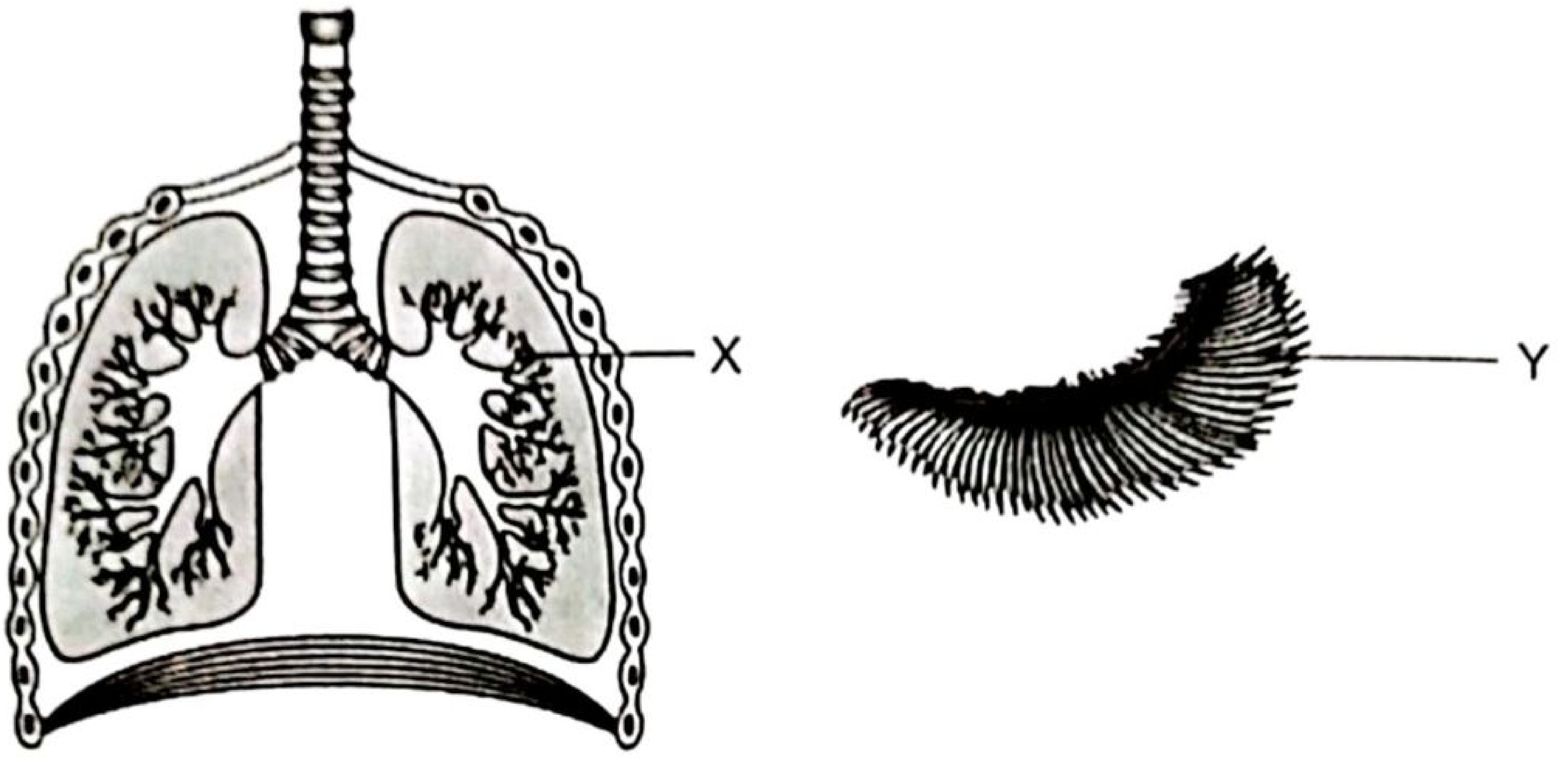
....

....

[1 markah]
[*1 mark*]

7. (a) Rajah 7.1 menunjukkan organ respirasi pada manusia dan ikan.

Diagram 7.1 shows the respiratory organs of human and fish.



Rajah 7.1

Diagram 7.1

(a) (i) Nyatakan nama struktur respirasi yang berlabel X dan Y.

State the name of the respiratory structure labelled X and Y.

X: ....

Y: ....

[2 markah]

[*2 marks*]

(ii) Berikan **satu** penyesuaian sepunya pada X dan Y yang membenarkan pengangkutan gas respirasi berlaku dengan cekap.

*Give **one** common adaptation in X and Y that allows the transport of respiratory gases to occur efficiently.*

....

....

[1 markah]

[*1 mark*]

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(b) Rajah 7.2 menunjukkan satu contoh senaman aerobik. Senaman aerobik meningkatkan kadar denyutan nadi dan kadar pernafasan bagi membekalkan substrat untuk respirasi sel di dalam otot.

Diagram 7.2 shows an example of aerobic exercise. Aerobic exercise increases the heartbeat rate and breathing rate to provide substrates for cellular respiration in the muscles.

Rajah 7.2

Diagram 7.2

Terangkan mengapa senaman aerobik boleh diteruskan untuk satu jangka masa yang panjang.

Explain why aerobic exercise can be sustained for a long period of time.

....

....

....

....

[3 markah]

[*3 marks*]

(c) Encik P ialah seorang perokok tegar dan dia dinasihatkan oleh isterinya untuk berhenti merokok kerana sering mengalami batuk yang berpanjangan.

Terangkan kebaikan nasihat itu.

Mr. P is a heavy smoker and he was advised by his wife to quit smoking because he often suffers from a prolonged cough.

Explain the benefits of the advice.

....

....

....

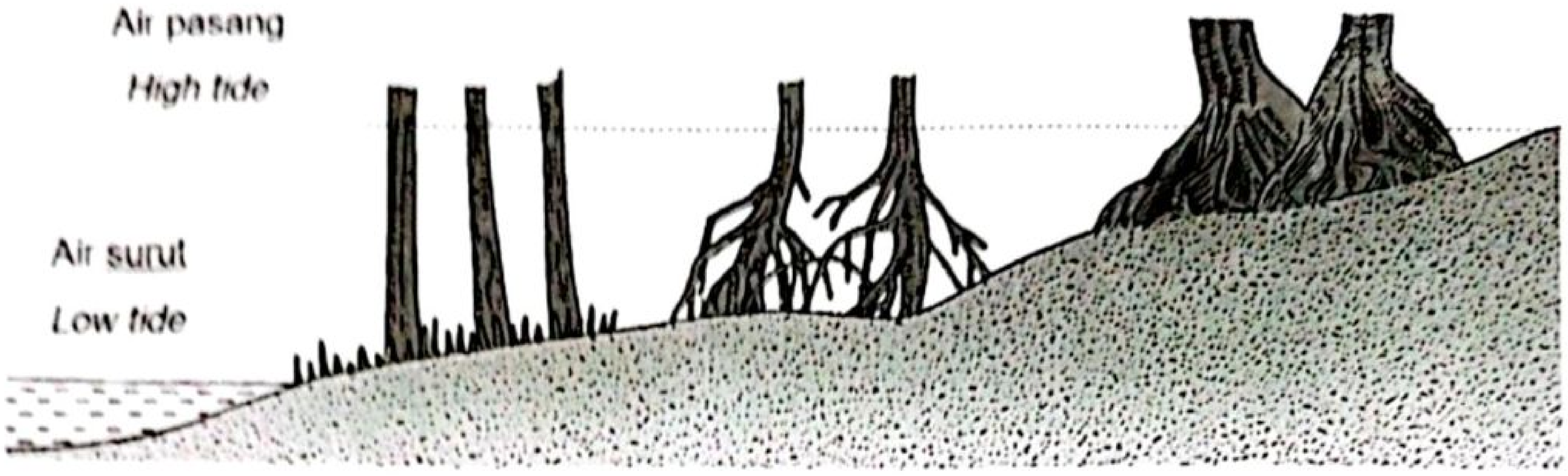
....

[3 markah]

[*3 marks*]

8. Rajah 8.1 menunjukkan urutan perubahan pada ekosistem paya bakau.

Diagram 8.1 shows the sequence of changes in mangrove ecosystem.



Rajah 8.1

Diagram 8.1

(a) (i) Huraikan bagaimana peranan akar dalam Zon II membawa kepada pembentukan Zon III.

Describe how the role of roots in Zone II leads to the formation of Zone III.

....

....

....

....

[3 markah]

[3 marks]

(ii) Nyatakan **satu** perbezaan antara tumbuhan di Zon I dengan Zon II.

*State **one** difference between plants in Zone I and Zone II.*

....

....

[1 markah]

[*1 mark*]

(b) Seorang pekebun ladang Mangga Harumanis mendapati pertumbuhan anak-anak pokok Mangga Harumanis terbantut. Pihak Jabatan Pertanian menasihati beliau menanam pokok kacang poi (*Vigna subterranean*) di antara lorong-lorong pokok Harumanis seperti dalam Rajah 8.2.

A Harumanis Mango plantation farmer found that the growth of Harumanis Mango seedlings is stunted. The Department of Agriculture advised him to plant Bambara bean (Vigna subterranean) between the rows of Harumanis Mango trees as shown in Diagram 8.2.

Rajah 8.2

Diagram 8.2

Terangkan bagaimana pokok kacang poi (*Vigna subterranean*) membantu meningkatkan kadar pertumbuhan anak-anak pokok Mangga Harumanis itu.

Explain how the Bambara bean (Vigna subterranean) plants assist the growth of the Harumanis Mango seedlings.

....

....

....

....

[3 markah]

[*3 marks*]

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(c) Jangkitan bakteria *Salmonella typhi* pada manusia boleh mengakibatkan penyakit demam kepialu. Berikut adalah simptom-simptom penyakit demam kepialu:
Salmonella typhi bacterial infection in humans can cause typhoid fever. The following are the symptoms of typhoid fever:

- Cirit-birit
  Diarrhea
- Muntah
  Vomiting
- Demam
  Fever
- Sakit kepala
  Headache

Cadangkan **dua** amalan untuk mengelakkan penyakit tersebut berlaku.
Suggest ***two*** *practices to prevent the disease from occurring.*

....

....

....

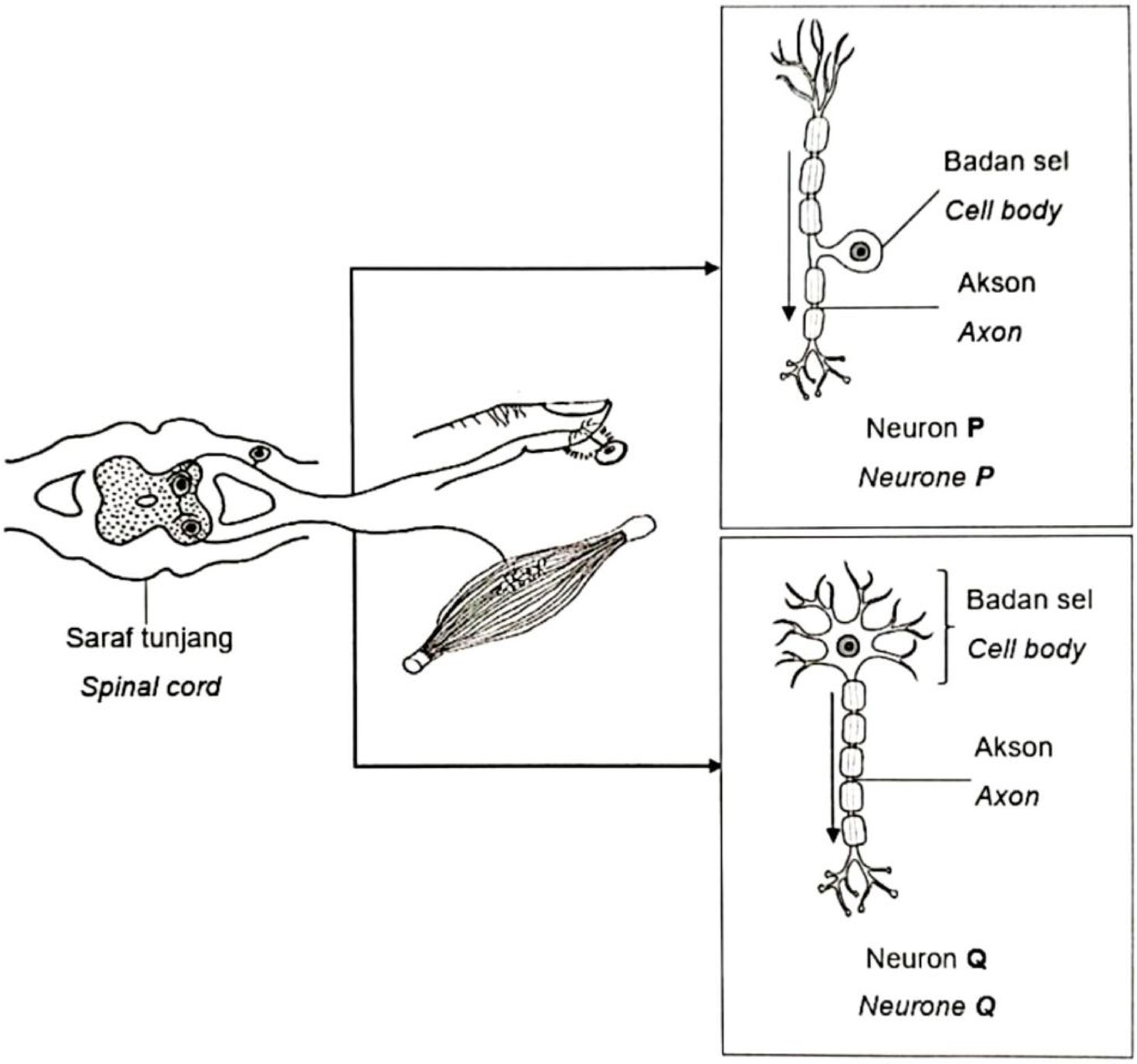
[2 markah]
[*2 marks*]

BAHAGIAN B

[20 markah]

Bahagian ini mengandungi **dua** soalan. Jawab **satu** soalan.

9. (a) Rajah 9.1 menunjukkan sebahagian daripada sistem saraf manusia.
Diagram 9.1 shows a part of human nervous system.



Rajah 9.1
Diagram 9.1

(i) Nyatakan fungsi sistem saraf pada manusia.
State the functions of human nervous system.

[2 markah]
[*2 marks*]

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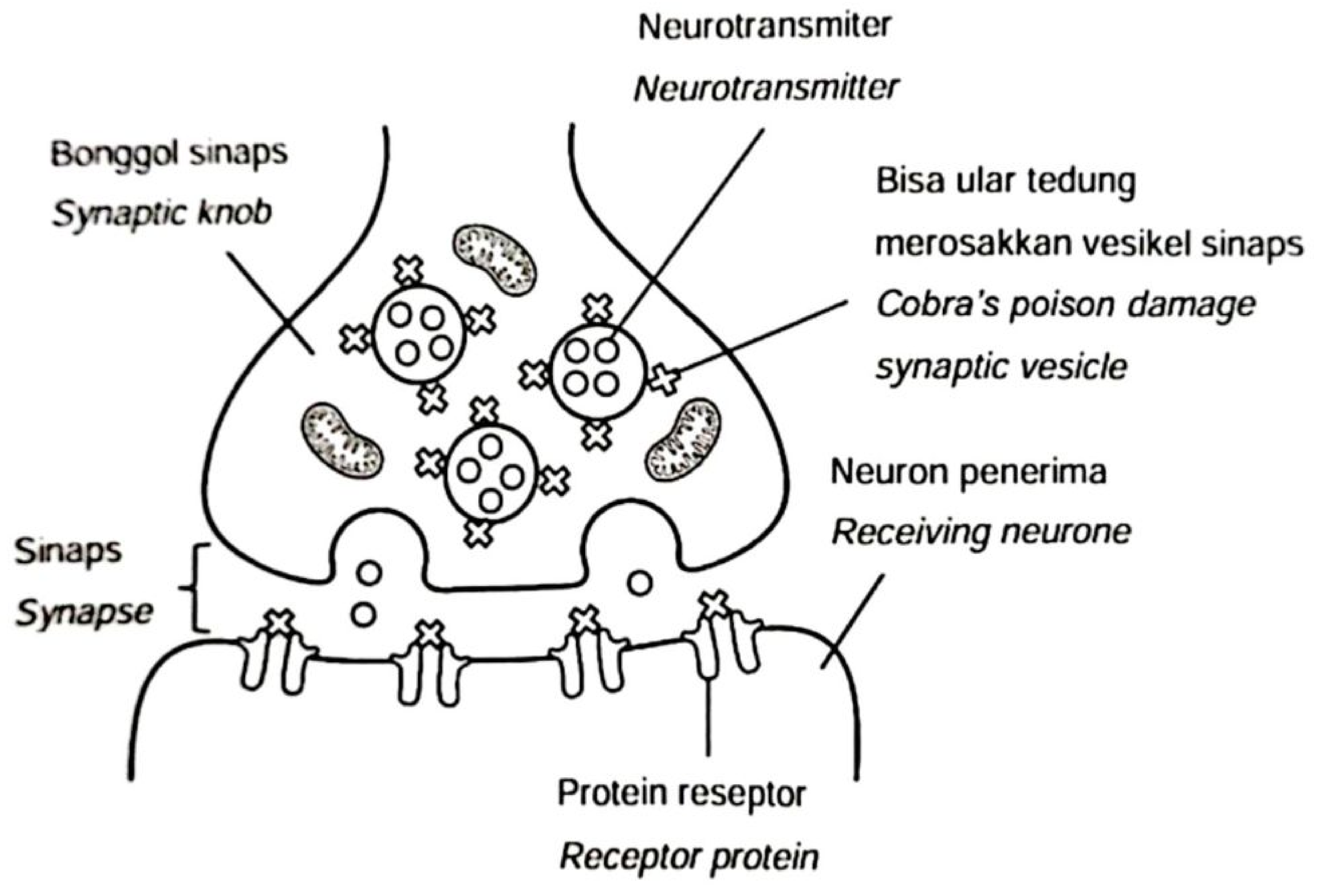
(ii) Berdasarkan Rajah 9.1, nyatakan perbezaan bagi neuron **P** dan neuron **Q**.

*Based on Diagram 9.1, state the differences between neurone **P** and neurone **Q**.*

[4 markah]
[*4 marks*]

(b) Rajah 9.2 menunjukkan bagaimana bisa bertindak ke atas penghantaran neurotransmiter merentasi sinaps seorang individu yang dipatuk ular tedung.

Diagram 9.2 shows how poison acts on the transmission of neurotransmitters across a synapse of an individual bitten by a cobra.



Rajah 9.2
Diagram 9.2

(i) **Berdasarkan Rajah 9.2, terangkan bagaimana bisa ular tedung menyebabkan kelumpuhan kepada individu tersebut.**

Based on Diagram 9.2, explain how the cobra's poison can cause paralysis to the individual.

[6 markah]
[*6 marks*]

(ii) Individu tersebut telah diberikan rawatan di hospital bagi mengurangkan kesan bisa ular tedung.

Terangkan bagaimana rawatan yang diberikan dapat mengurangkan gejala kelumpuhan yang dialami oleh beliau.

The individual was given treatment in the hospital to reduce the effects of the cobra's poison.

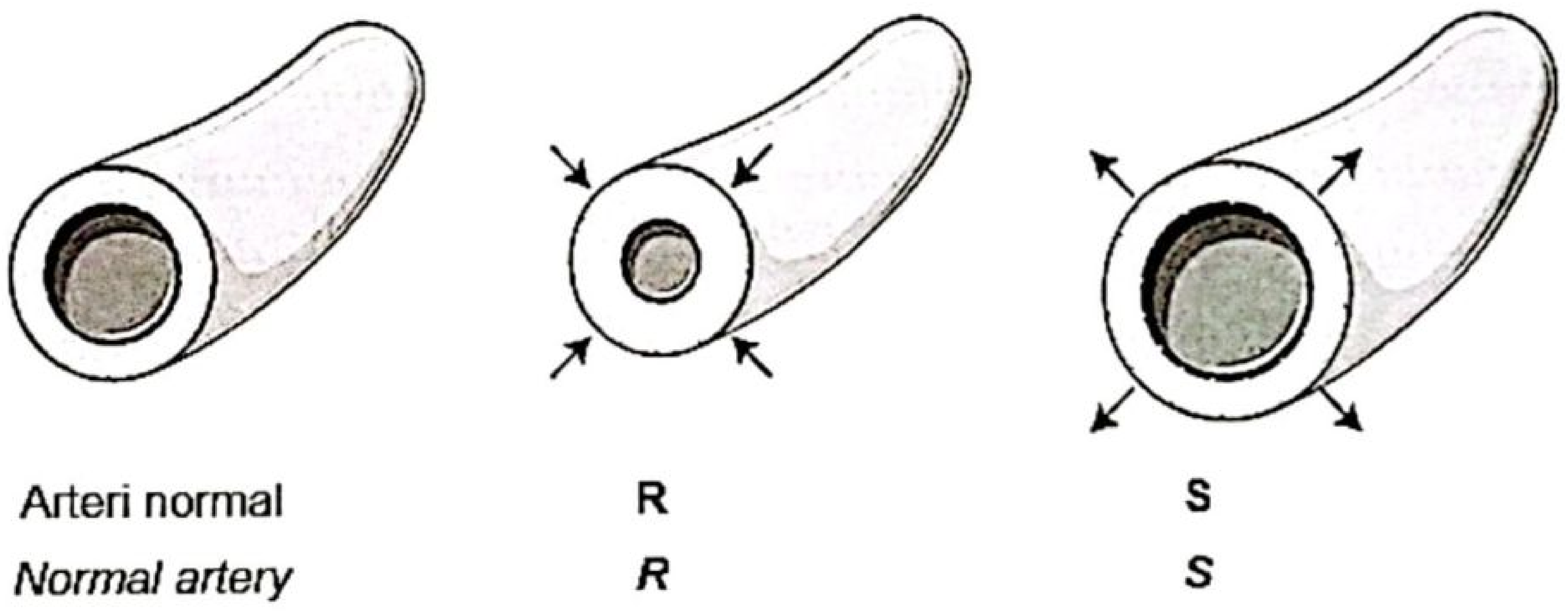
Explain how the treatment given can reduce the symptoms of paralysis experienced by him.

[2 markah]

[*2 marks*]

(c) Rajah 9.3 menunjukkan dua keadaan arteri manusia, **R** dan **S**.

Diagram 9.3 shows two conditions of human arteries, ***R*** *and* ***S****.*



Rajah 9.3

Diagram 9.3

Keadaan **R** berlaku disebabkan oleh pendarahan yang serius semasa kemalangan manakala arteri dalam keadaan **S** berlaku pada individu yang melakukan larian 400 meter.

Banding bezakan mekanisme kawal atur tekanan darah semasa keadaan **R** dan **S**.

Condition R occurs due to serious bleeding during an accident while artery in condition S occurs in individuals who run 400 meters.

Compare and contrast blood pressure regulation mechanism during condition ***R*** *and* ***S****.*

[6 markah]

[*6 marks*]

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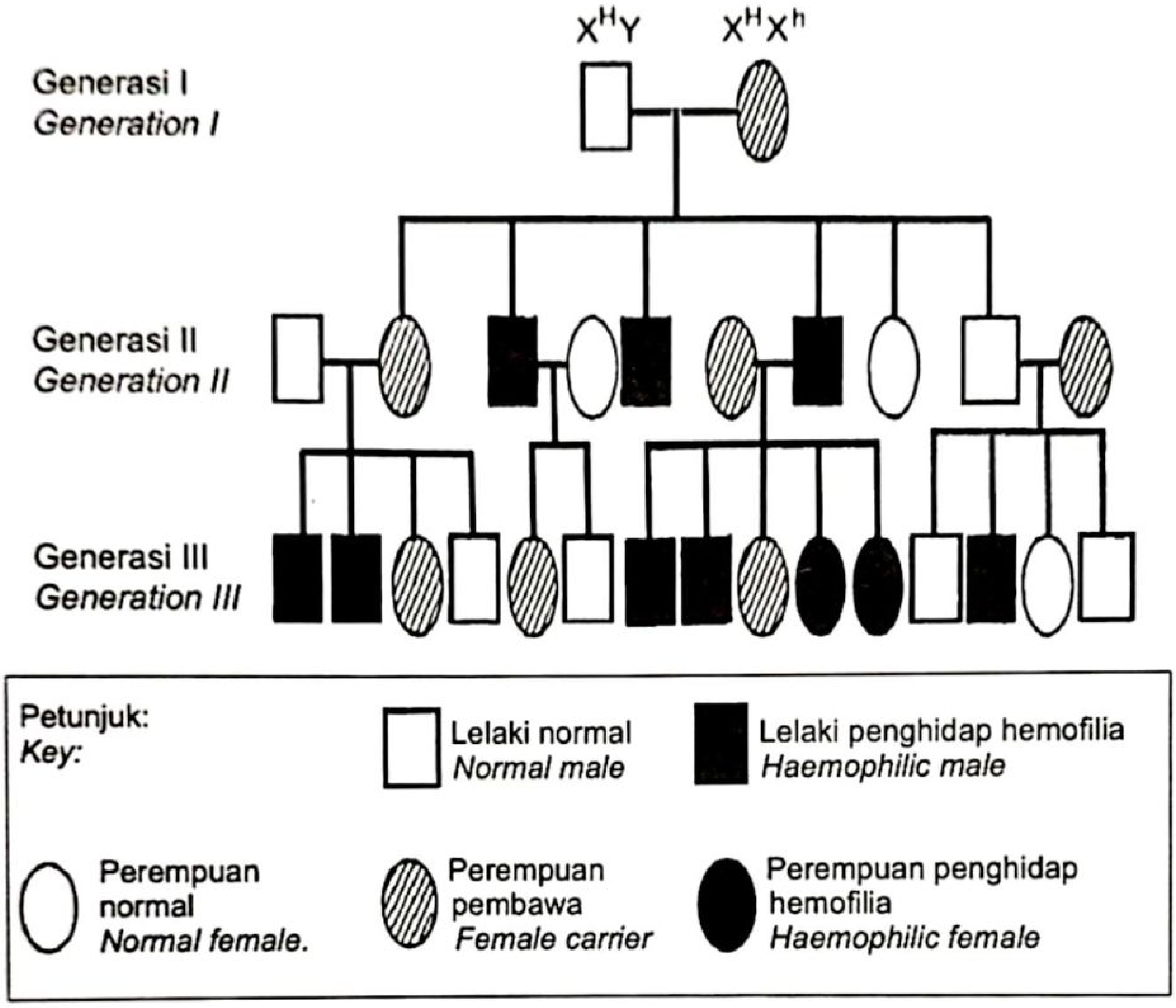
Soalan 9

10. (a) Rajah 10.1 menunjukkan satu pedigri genetik hemofilia bagi tiga generasi dalam satu keluarga.

Diagram 10.1 shows a genetic pedigree of haemophilia in three generations of a family.



Rajah 10.1

Diagram 10.1

(i) Terangkan apakah pedigri keluarga.

Explain what is family pedigree.

[2 markah]

[*2 marks*]

(ii) Berdasarkan Rajah 10.1, terangkan mengapa lelaki mempunyai kebarangkalian yang lebih tinggi untuk mewarisi penyakit hemofilia berbanding perempuan.

Based on Diagram 10.1, explain why males have a higher probability of inheriting haemophilia compared to females.

[6 markah]

[*6 marks*]

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(iii) Terangkan bagaimana penyakit hemofilia dapat dielakkan daripada diwarisi dalam satu keluarga.

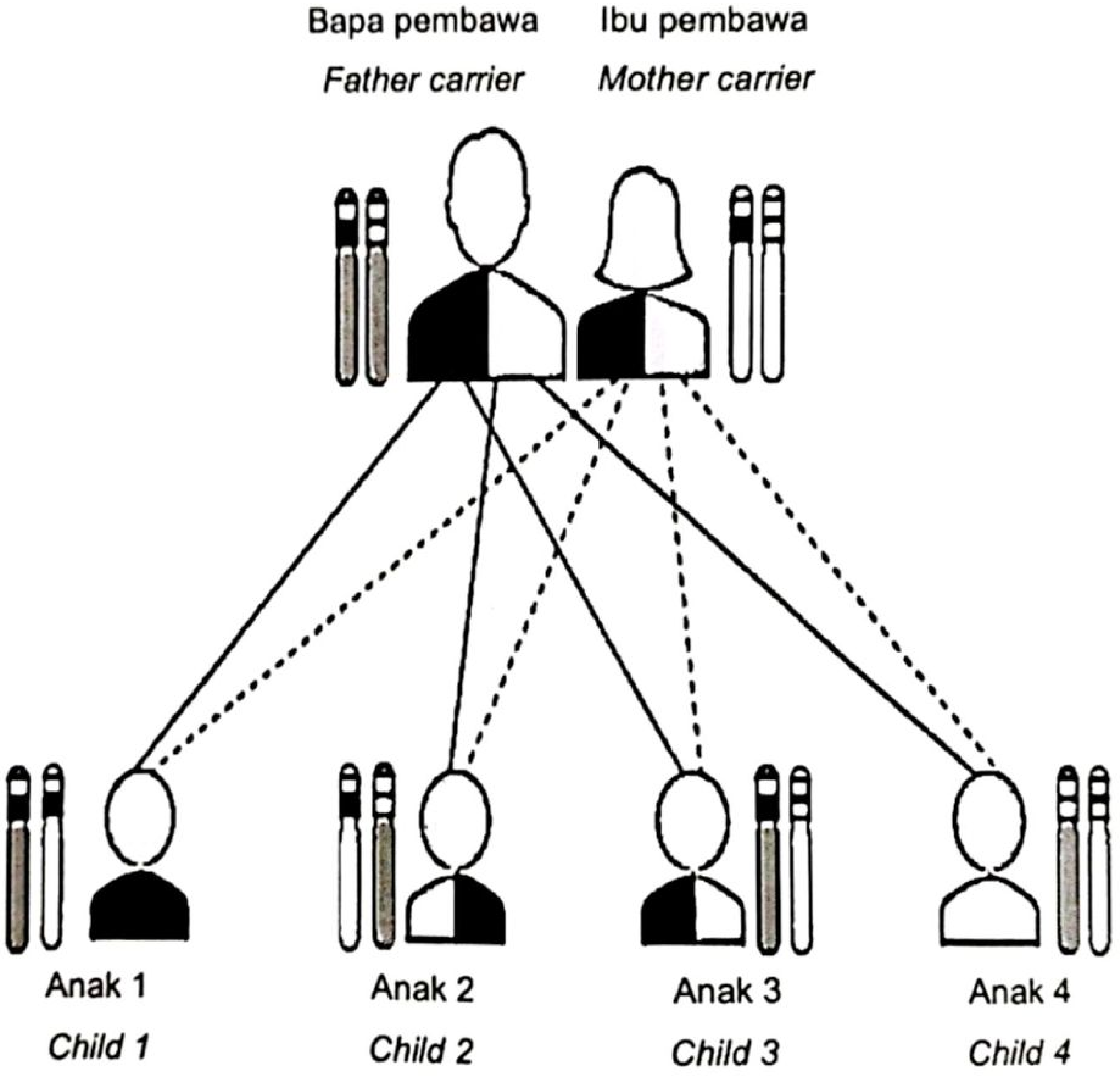
Explain how the inheritance of haemophilia can be avoided in a family.

[2 markah]

[*2 marks*]

(b) Rajah 10.2 menunjukkan perwarisan penyakit talasemia dalam satu keluarga.

Diagram 10.2 shows the inheritance of thalassemia in a family.



Rajah 10.2

Diagram 10.2

(i) Berdasarkan Rajah 10.2, bezakan antara keadaan talasemia pada anak 4 dan anak 2.

Based on Diagram 10.2, differentiate between the thalassemia condition in child 4 and child 2.

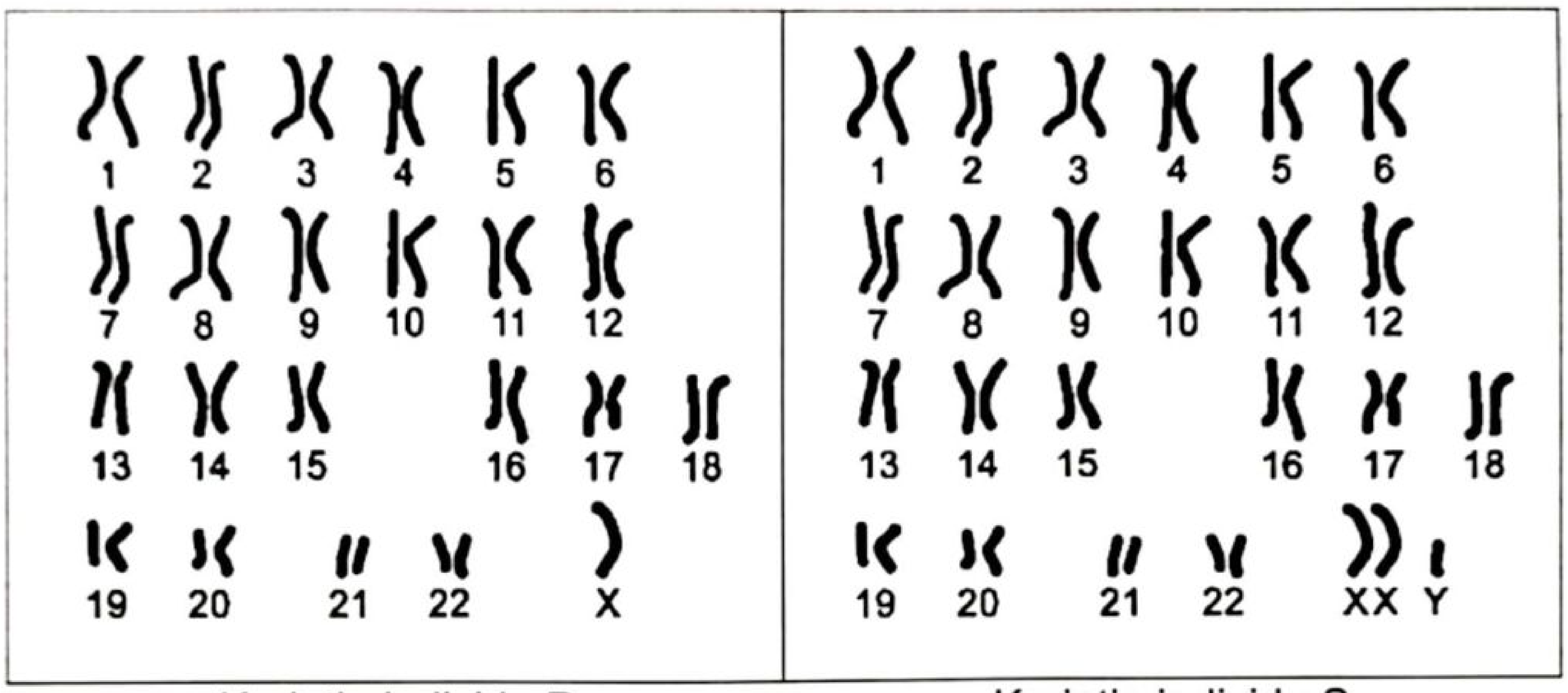
[2 markah]

[*2 marks*]

(ii) Banding bezakan antara penyakit talasemia dan penyakit hemofilia.
Compare and contrast between thalassemia and hemophilia.

[5 markah]
[*5 marks*]

(c) Rajah 10.3 menunjukkan kariotip bagi dua individu yang menghidap dua jenis sindrom yang berbeza.
Diagram 10.3 shows the karyotypes of two individuals with two different types of syndromes.



Kariotip individu R
Karyotype of individual R

Kariotip individu S
Karyotype of individual S

Rajah 10.3
Diagram 10.3

Berdasarkan Rajah 10.3, bezakan sindrom pada individu R dan individu S.
Based on Diagram 10.3, differentiate the syndromes in individual R and individual S.

[3 markah]
[*3 marks*]

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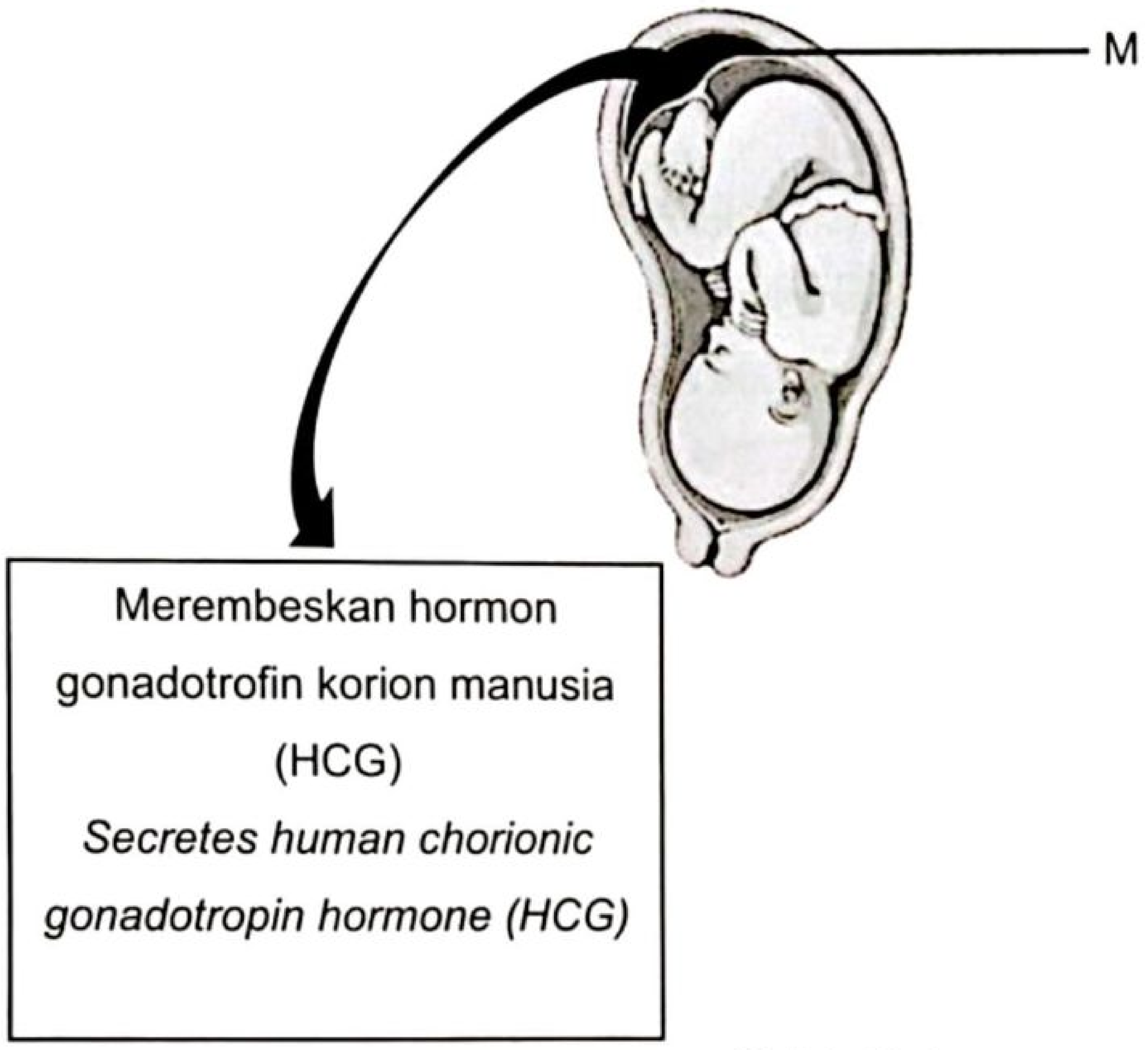
Soalan 10

BAHAGIAN C

[20 markah]

Soalan ini **mesti** dijawab.

11. (a) Rajah 11.1 menunjukkan fetus yang masih berada di dalam endometrium.
Figure 11.1 shows a foetus still inside the endometrium.



Rajah 11.1
Diagram 11.1

(i) Nyatakan fungsi hormon gonadotrofin korion manusia (HCG) yang dirembeskan oleh M.
State the function of the human chorionic gonadotropin hormone (HCG) secreted by M.

[2 markah]
[*2 marks*]

(ii) Nyatakan nama dan fungsi M sepanjang tempoh kehamilan.
State the name and functions of M throughout the pregnancy.

[4 markah]
[*4 marks*]

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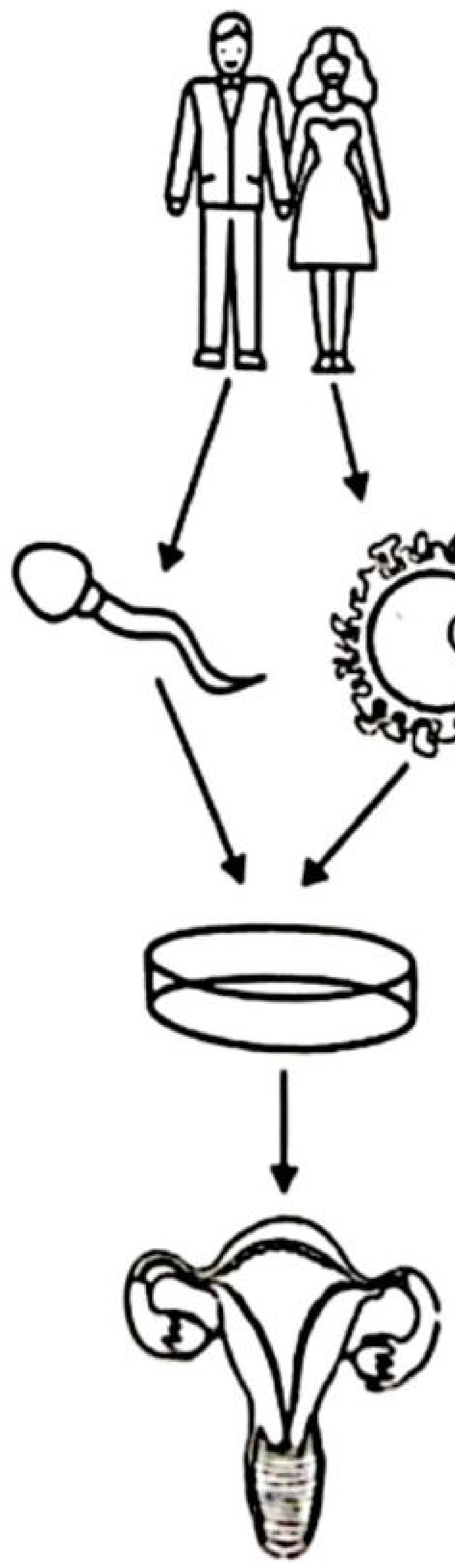
(iii) Terangkan kepentingan struktur M kepada pertahanan badan fetus.
Explain the importance of structure M to the body defence of the foetus.

[4 markah]
[4 marks]

(b) Seorang wanita mengalami masalah tiub Falopio tersumbat. Wanita dan suaminya ingin mendapatkan anak kandung mereka sendiri. Mereka berjumpa dengan doktor pakar untuk mendapatkan nasihat dan doktor telah menyarankan teknik seperti yang ditunjukkan pada Rajah 11.2.
A woman has a problem with blocked Fallopian tubes. The woman and her husband want to have a child of their own. They consult a specialist doctor for advice and the doctor has suggested a technique as shown in Diagram 11.2.



Rajah 11.2
Diagram 11.2

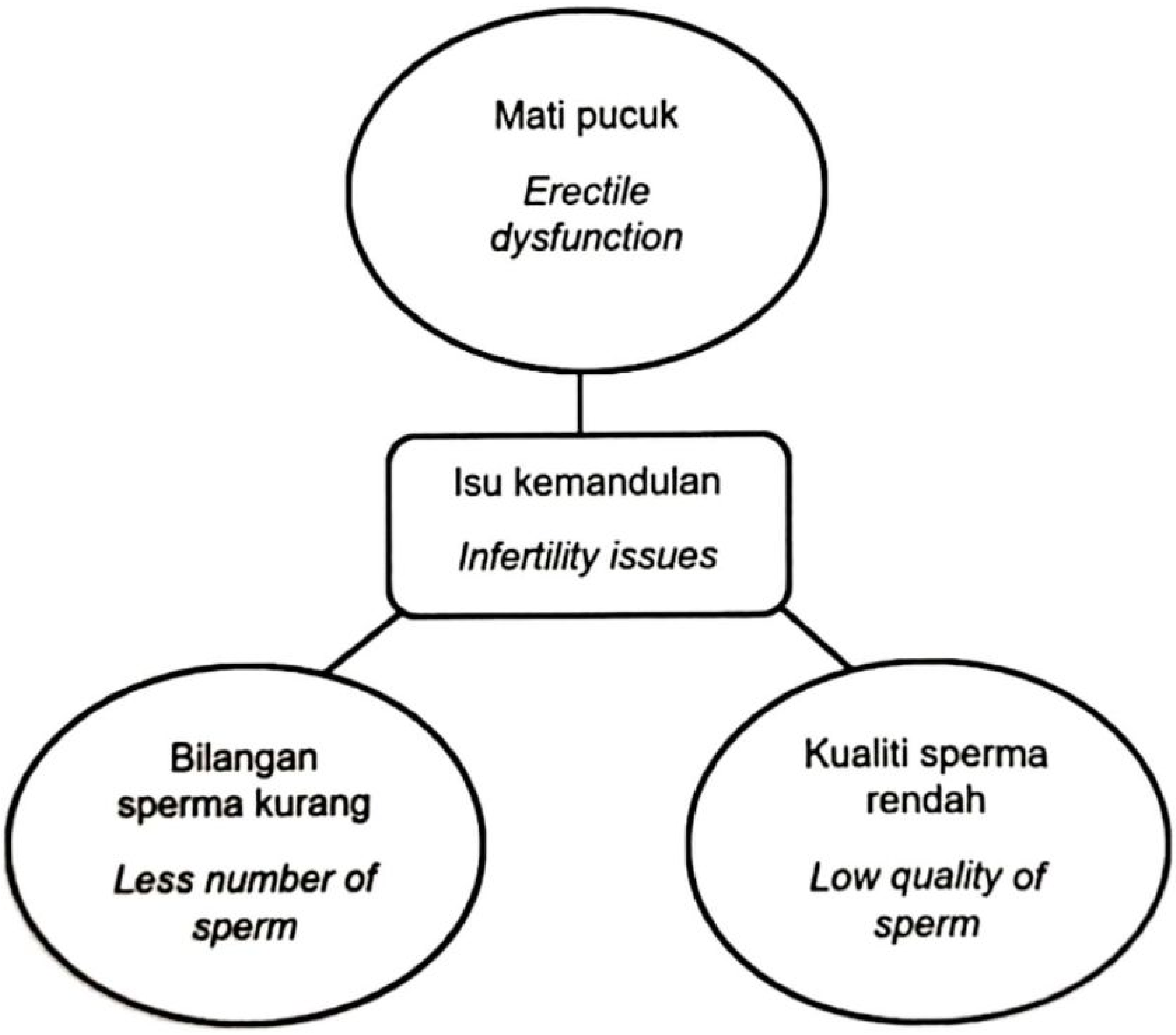
(i) Cadangan doktor dapat menyelesaikan masalah ketidaksuburan pasangan tersebut. Wajarkan.
The suggestion of the doctor can solve the couples' infertility problem. Justify.

[2 markah]
[2 marks]

(ii) Berdasarkan Rajah 11.2, huraikan teknik tersebut.
Based on Diagram 11.2, describe the technique.

[4 markah]
[4 marks]

(iii) Rajah 11.3 menunjukkan sebahagian daripada isu kemandulan pada lelaki.
Diagram 11.3 shows some of the infertility issues in men.



Rajah 11.3
Diagram 11.3

Cadangkan bagaimana anda dapat membantu individu yang mengalami masalah dalam Rajah 11.3.
Suggest how you can help the individual that has the problems in Diagram 11.3.

[4 markah]
[4 marks]

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Soalan 11

MODUL TAMAT