

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

[60 marks]  
[60 markah]

Answer **all** questions from this section.  
*Jawab semua* soalan dalam bahagian ini.

- 1 Diagram 1 shows the structures and organelles found in a plant cell.  
*Rajah 1 menunjukkan struktur dan organel yang terdapat dalam sel tumbuhan.*

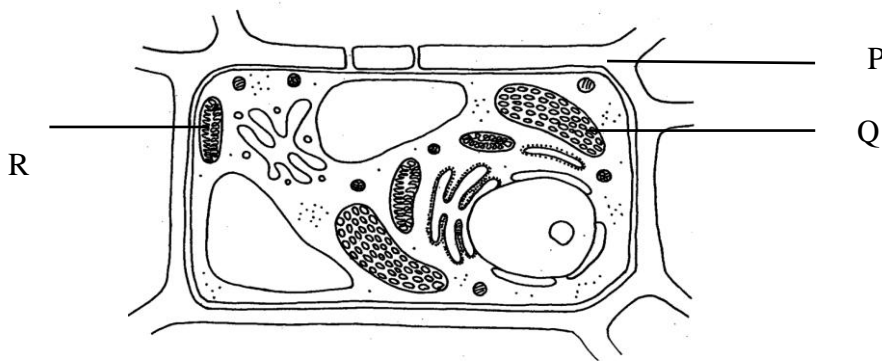


Diagram 1  
*Rajah 1*

- (a) (i) Name P, Q and R.  
*Namakan P, Q dan R*

P: \_\_\_\_\_

Q: \_\_\_\_\_

R: \_\_\_\_\_

[ 3 marks]  
[ 3markah]

- (ii) Explain the function of P in maintaining the shape of a cell.  
*Terangkan fungsi P dalam mengekalkan bentuk sel.*

\_\_\_\_\_

\_\_\_\_\_

2 marks]  
[ 2markah]

- (iii) Explain what will happen to structure P if the cell is put in the solution containing cellulase.

*Terangkan apakah yang akan berlaku kepada struktur P sekiranya sel tersebut diletakkan dalam larutan yang mengandungi enzyme selulase?*

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[ 2marks]  
[ 2markah]

- (b) Diagram shows a cycle of two major process that occurs in organelles Q and R in a plant cell.

*Rajah menunjukkan kitaran bagi dua proses yang berlaku dalam organel Q dan R dalam sel tumbuhan.*

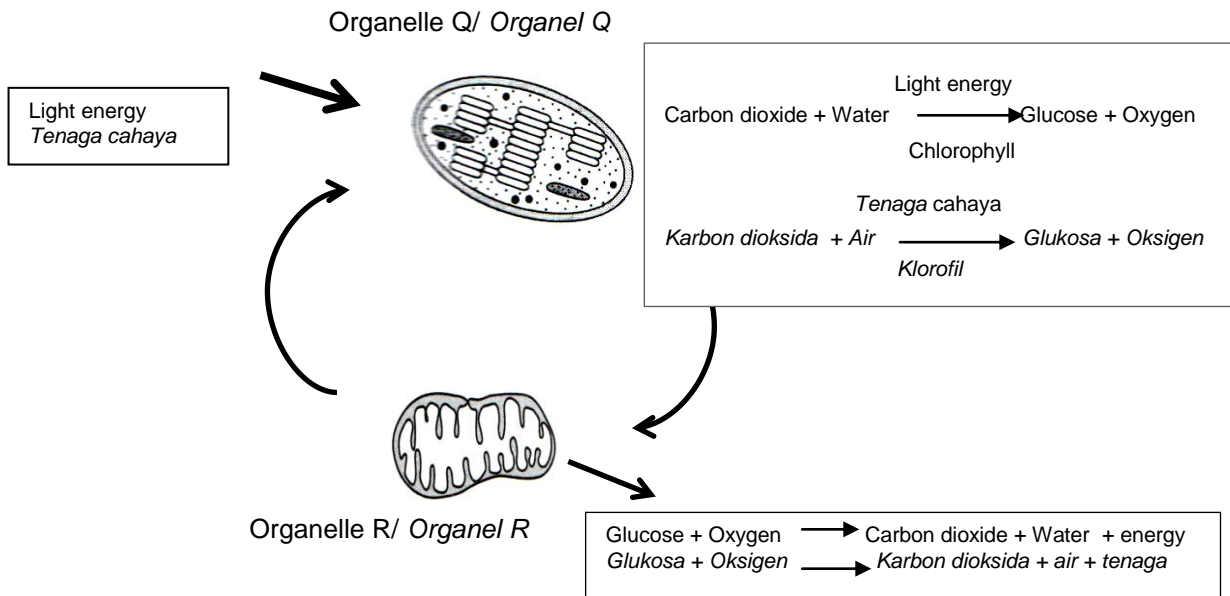


Diagram 1.1  
Rajah 1.1

- (i) State **two** differences between the processes that occur in organelle Q and organelle R.

*Nyatakan **dua** perbezaan antara proses yang berlaku dalam organel Q dan R.*

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[2 marks]  
[ 2markah]

- (ii) If the rate of activity in organelle R is exceeds that in organelle Q for a long period of time, explain the effect to the environment.

*Jika kadar aktiviti dalam organel R melebihi organel Q dalam jangkamasa yang panjang, terangkan kesannya keatas alam sekitar.*

Effect to the environment

*Kesan kepada alam sekitar:*

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[3 marks]  
[3 markah]

- 2 Diagram 2 shows a meiotic division of an animal cell.  
Rajah 2 menunjukkan pembahagian meiosis satu sel haiwan.

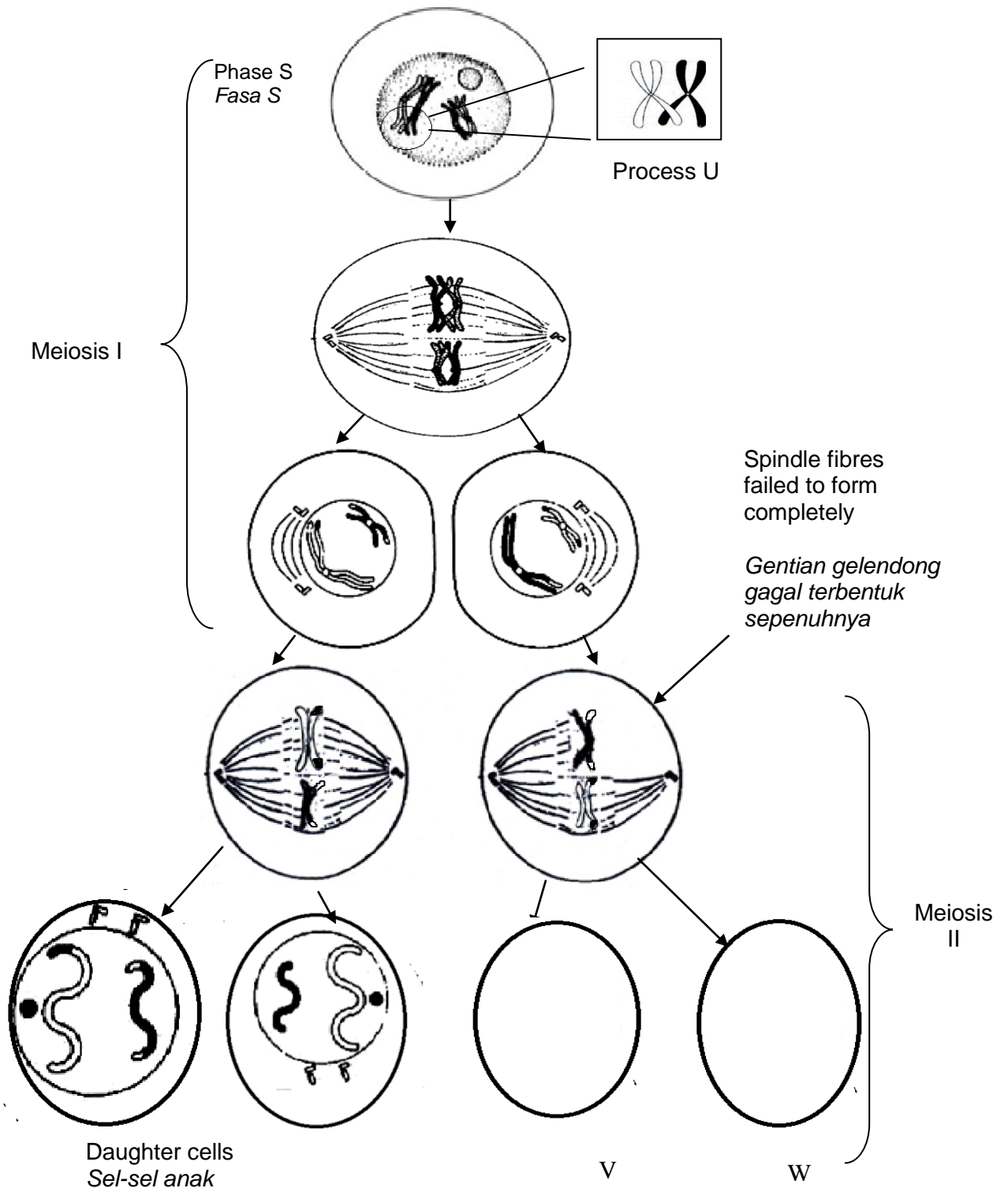


Diagram 2  
Rajah 2

- (a) (i) Name phase S and process U.  
*Namakan Fasa S dan proses U.*

Phase S/*Fasa S*

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Process U / *Proses U*

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[2 marks]  
[2 markah]

- (ii) Explain the importance of process U.  
*Terangkan kepentingan Proses U.*
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- 

[3 marks]  
[3 markah]

- (b) (i) Complete the diagram of the daughter cells V and W.  
*Lengkapkan rajah sel-sel anak V dan W.*

[2 marks]  
[ 2 markah]

- (ii) Explain what happen on daughter cells V and W.  
*Terangkan apa yang berlaku ke atas sel-sel anak V dan W.*
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[ 2 marks]  
[ 2 markah]

- (c) (i) The meiosis process involves two division; meiosis I and meiosis II. Explain two differences between meiosis I and meiosis II.  
*Proses meiosis melibatkan dua bahagian; meiosis I dan meiosis II. Terangkan dua perbezaan antara meiosis I dan meiosis II.*

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[ 2 marks]  
 [ 2 marks]

- (ii) State one importance of meiosis.  
*Nyatakan satu kepentingan meiosis*

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[ 1 mark ]  
 [1 markah]

- 3. Diagram 3.1 shows an example of energy flow in an ecosystem.  
*Rajah 3.1 menunjukkan contoh aliran tenaga dalam satu ekosistem.*

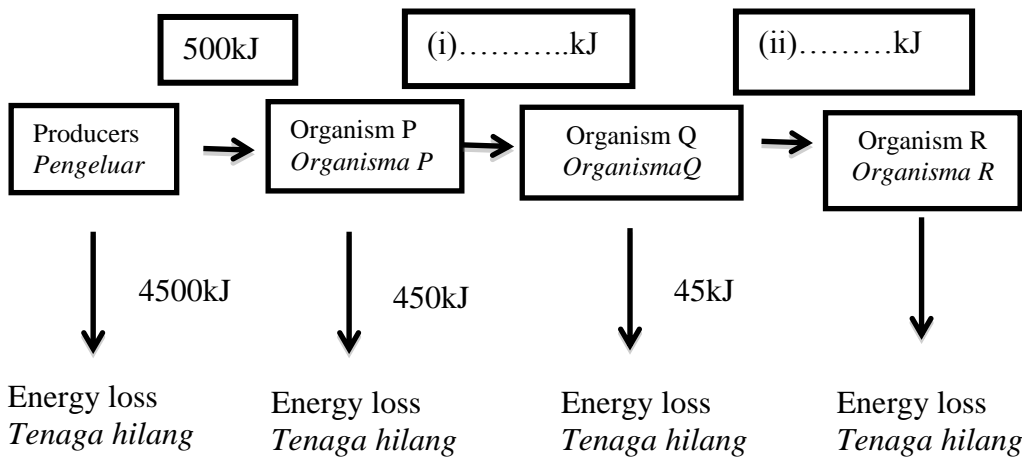


Diagram 3.1  
 Rajah 3.1

- (a) (i) Energy loss at each trophic level is 90%. Complete the diagram by calculate the amount of energy transferred to organism Q and organism R  
*Tenaga yang hilang pada setiap aras trofik ialah 90%. Lengkapkan rajah dengan mengira jumlah tenaga yang dipindahkan ke organisma Q dan R.*

[ 2 marks]  
 [2 markah]

- (ii) Explain what happens to the energy that is not transferred from one organism to the next organism.  
*Terangkan apakah yang berlaku kepada tenaga yang tidak dipindahkan dari satu organisma ke organisma lain.*

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[ 2 marks]  
 [2 markah]

- (b) Diagram 3.2 shows an interaction between biotic component and abiotic component in an ecosystem.  
*Rajah 3.2 menunjukkan interaksi antara komponen biosis dan abiosis dalam satu ekosistem.*

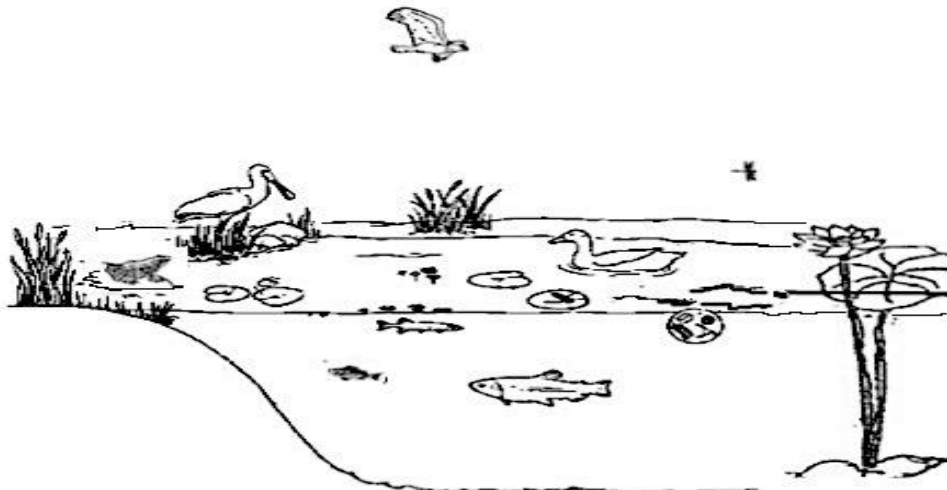


Diagram 3.2  
 Rajah 3.2

- (i) State **two** biotic components and **two** abiotic components in the ecosystem.  
*Nyatakan dua komponen biosis dan dua komponen abiosis yang terdapat dalam ekosistem tersebut.*

Biotic component / *Komponen biosis:*

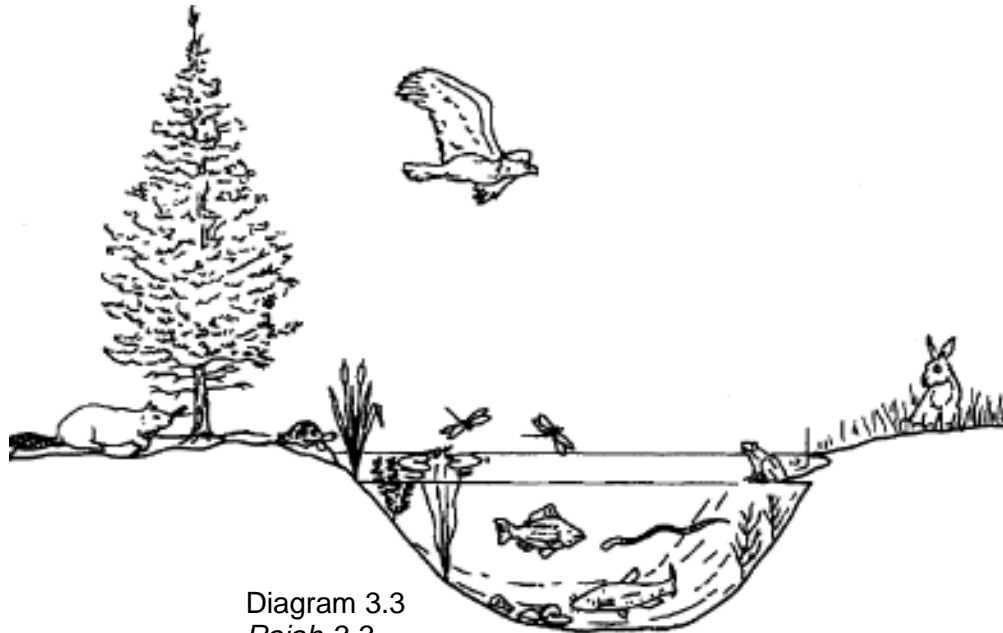
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Abiotic component/ *Komponen abiosis :*

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[2 marks]  
 [ 2 markah ]

- (ii) Based on Diagram 3.3, construct a food web which contain at least three food chains.  
*Berdasarkan Rajah 3.3, bina satu jaringan makanan yang mengandungi sekurang-kurangnya tiga rantai makanan.*



[ 3 marks]  
[ 3 markah]



- (c) A farm has been setup near to the pond. Alga bloom occurs and the pond water turns green.

Explain the effect of this condition to the organism in the pond.

*Sebuah ladang dibangunkan berhampiran dengan kolam. Pertumbuhan alga yang pesat berlaku dan air kolam bertukar menjadi hijau.*

*Terangkan kesan bagi keadaan ini kepada organism dalam kolam.*

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[ 3 marks]

[3 markah]

- 4 Diagram 4.1 shows the blood circulatory system in organism P and organism Q.  
*Rajah 4.1 menunjukkan sistem peredaran darah bagi organisma P dan organisma Q.*

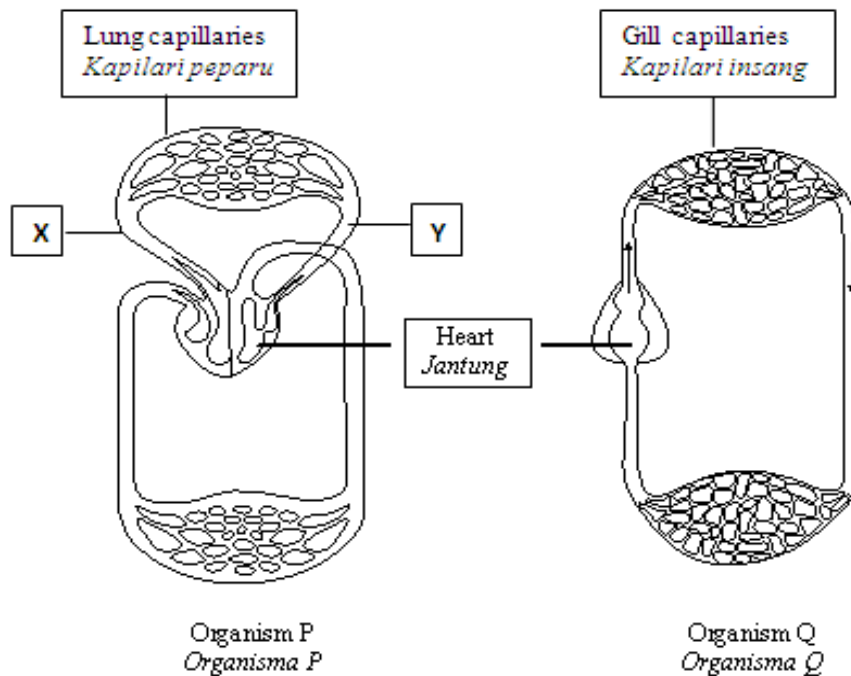


Diagram 4.1  
*Rajah 4.1*

- (a) State the type of blood circulatory system of organism P and organism Q.  
*Nyatakan jenis sistem peredaran darah bagi organisma P dan organisma Q.*

Organism P:  
*Organisma P:* \_\_\_\_\_

Organism Q:  
*Organisma Q:* \_\_\_\_\_

[ 2 marks]

[ 2 markah]

- (b) State **one** difference between the heart of organism P and organism Q.  
*Nyatakan **satu** perbezaan di antara jantung organisma P dan organisma Q.*

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[ 1 mark]  
[ 1 markah]

- (c) Explain why blood vessel X has higher pressure than vessel Y.  
*Terangkan mengapa salur darah X mempunyai tekanan lebih tinggi dari salur darah Y.*

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[ 2 marks]  
[ 2 markah]

- (d) The blood circulatory system is also involved in the production of antibodies in the body defense mechanism.  
 Diagram 4.2 shows the concentration of antibody in the blood of individuals A and individuals B for a period of 10 weeks to acquire immunity.  
 Both of them were given two injections respectively.

*Sistem peredaran darah terlibat dalam penghasilan antibodi untuk mekanisme pertahanan badan.*

*Rajah 4.2 menunjukkan kepekatan antibodi di dalam darah kedua-dua individu A dan B dalam jangka masa 10 minggu untuk mendapatkan keimunan.*

*Kedua – dua mereka masing- masing telah diberikan dua suntikan.*

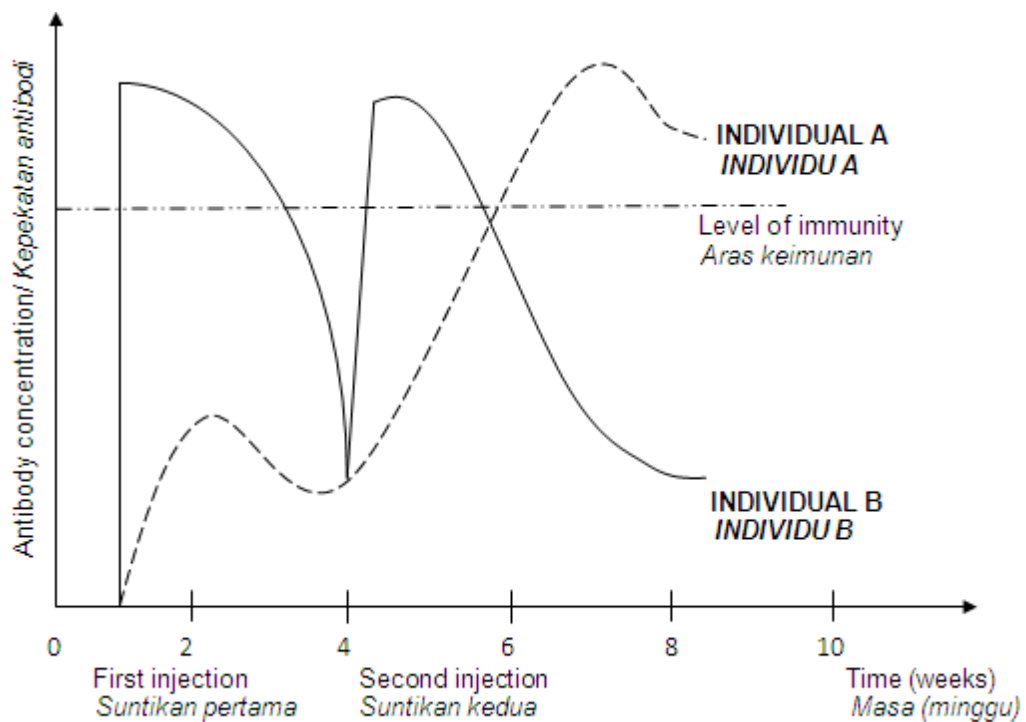


Diagram 4.2  
 Rajah 4.2

- (i) What type of immunity is obtained by A and B respectively?  
 Apakah jenis keimunan yang diperolehi oleh individu A dan B masing-masing?

A: \_\_\_\_\_

B: \_\_\_\_\_

[ 2 marks]  
 [ 2 markah]

- (ii) Explain why individual A has to be given the second injection which contained the same vaccine.

*Terangkan mengapa individu A harus diberi suntikan kedua bagi vaccine yang sama.*

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[ 2 marks]  
[ 2 markah]

- (e) AIDS is caused by HIV (Human Immunodeficiency Virus). AIDS patients are easily infected with various types of diseases and will eventually die, even from harmless disease.

Explain how HIV affects the body's immune system.

*Penyakit AIDS disebabkan oleh virus HIV (Human Immunodeficiency Virus). Pesakit AIDS mudah dijangkiti oleh pelbagai jenis penyakit dan akhirnya akan mati walaupun oleh penyakit yang tidak berbahaya.*

*Terangkan bagaimana HIV memberi kesan kepada sistem pertahanan badan.*

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[ 3 marks]  
[3 markah]

5. Diagram 5.1 shows the structure of a nephron in the human kidney.  
*Rajah 5.1 menunjukkan struktur satu nefron dalam ginjal manusia.*

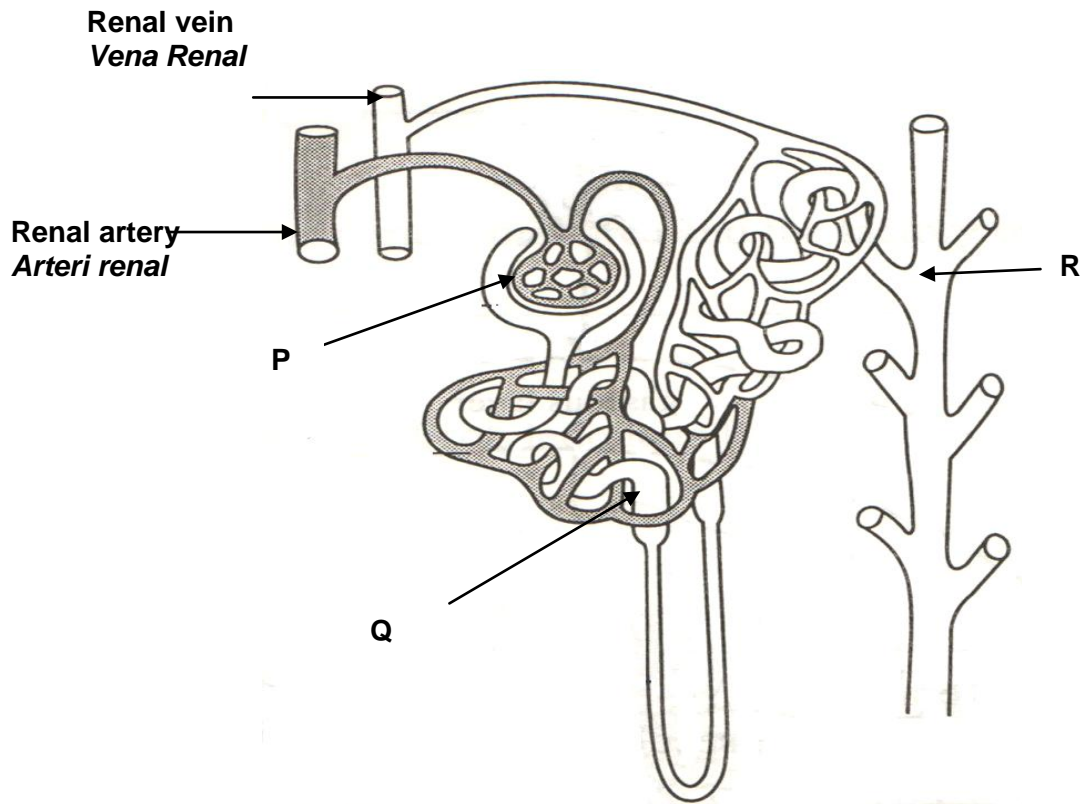


Diagram 5.1  
*Rajah 5.1*

- (a) (i) Name the process that occurs at P.  
*Namakan proses yang berlaku pada P.*

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[ 1 mark]  
[ 1 markah]

- (ii) Explain how the process occurs at P.  
*Terangkan bagaimana proses ini berlaku pada P.*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[ 2 marks]  
[ 2 markah]

- (b) Explain **one** difference between the contents of Q and R.  
*Terangkan **satu** perbezaan antara kandungan Q dan R.*

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[ 2 mark]  
[ 2 markah]

- (c) (i) Name the hormone that controls the permeability of the nephron to water.  
*Namakan hormon yang mengawal ketelapan nefron terhadap air.*

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[ 1 mark]  
[ 1 markah]

- (ii) Explain how the hormone named in (d)(i) is responsible in osmoregulation during a hot day.  
*Terangkan bagaimana hormon yang dinamakan dalam (d)(i) bertanggungjawab dalam osmokawalaturan semasa hari panas.*

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[ 3 marks]  
[ 3 markah]

- (d) Diagram 5.2 shows a dialysis mechine which is used to treat a patient with kidney failure. The concentration of dialysis fluid is similar to blood plasma but without waste products.

*Rajah 5.2 menunjukkan mesin dialisis yang digunakan untuk merawat pesakit yang mengalami masalah ginjal gagal berfungsi. Kepekatan cecair dialysis adalah sama dengan plasma darah tetapi tanpa hasil-hasil buangan.*

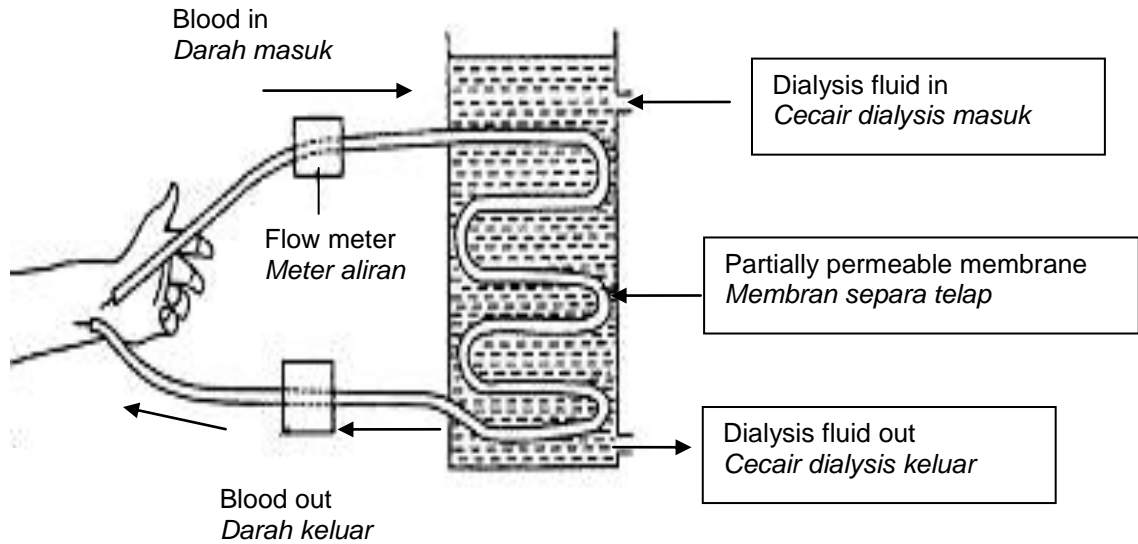


Diagram 5.2

*Rajah 5.2*

Explain why the concentration of dialysis fluid is similar to the blood plasma.

*Terangkan kenapa kepekatan cecair dialysis sama seperti plasma darah.*

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[ 3 marks]  
[ 3 markah]