

SECTION A

[60 marks]

Answer **all** the questionsJawab **semua** soalan dalam bahagian ini

1. Diagram 1.1 shows the structure of animal cell

Rajah 1.1 menunjukkan struktur sel haiwan

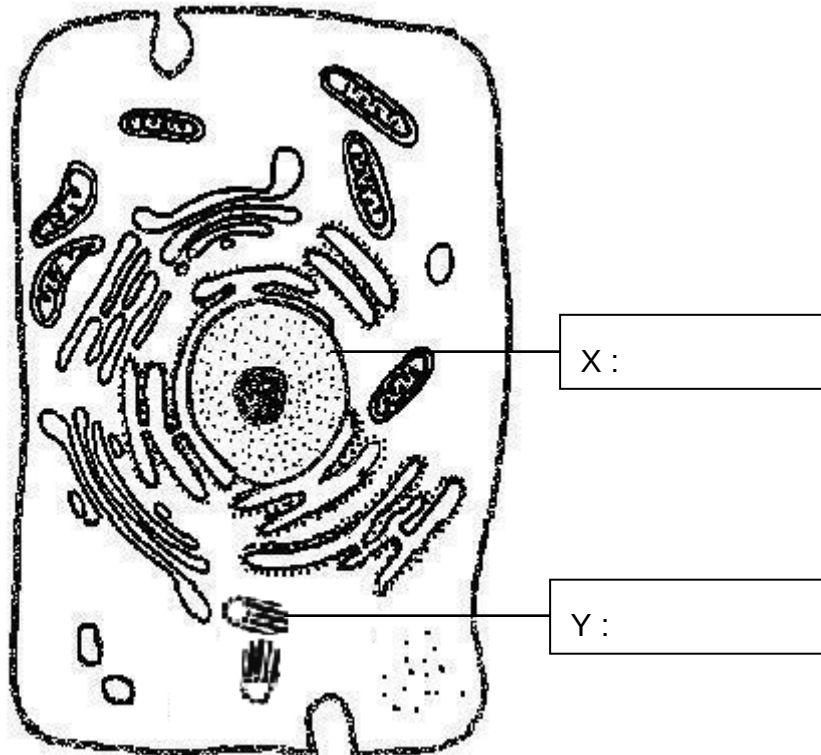


Diagram 1.1

Rajah 1.1

- (a) On Diagram 1.1, label X and Y.

Pada Rajah 1.1, labelkan X dan Y

[1marks]

- (b) Explain **one** characteristic of Y related to cell division.

Terangkan satu ciri Y berkaitan dengan pembahagian sel.

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[2marks]

- (c) Explain the function of X in cell division.

Terangkan fungsi X dalam pembahagian sel.

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[2marks]

- (d) Diagram 1.2 shows stage of cell division in somatic cell of human.

Draw another two stage in that cell division in the box given.

Rajah 1.2 menunjukkan peringkat pembahagian sel dalam sel soma manusia.

Lukiskan dua peringkat dalam pembahagian sel tersebut dalam petak yang diberi.

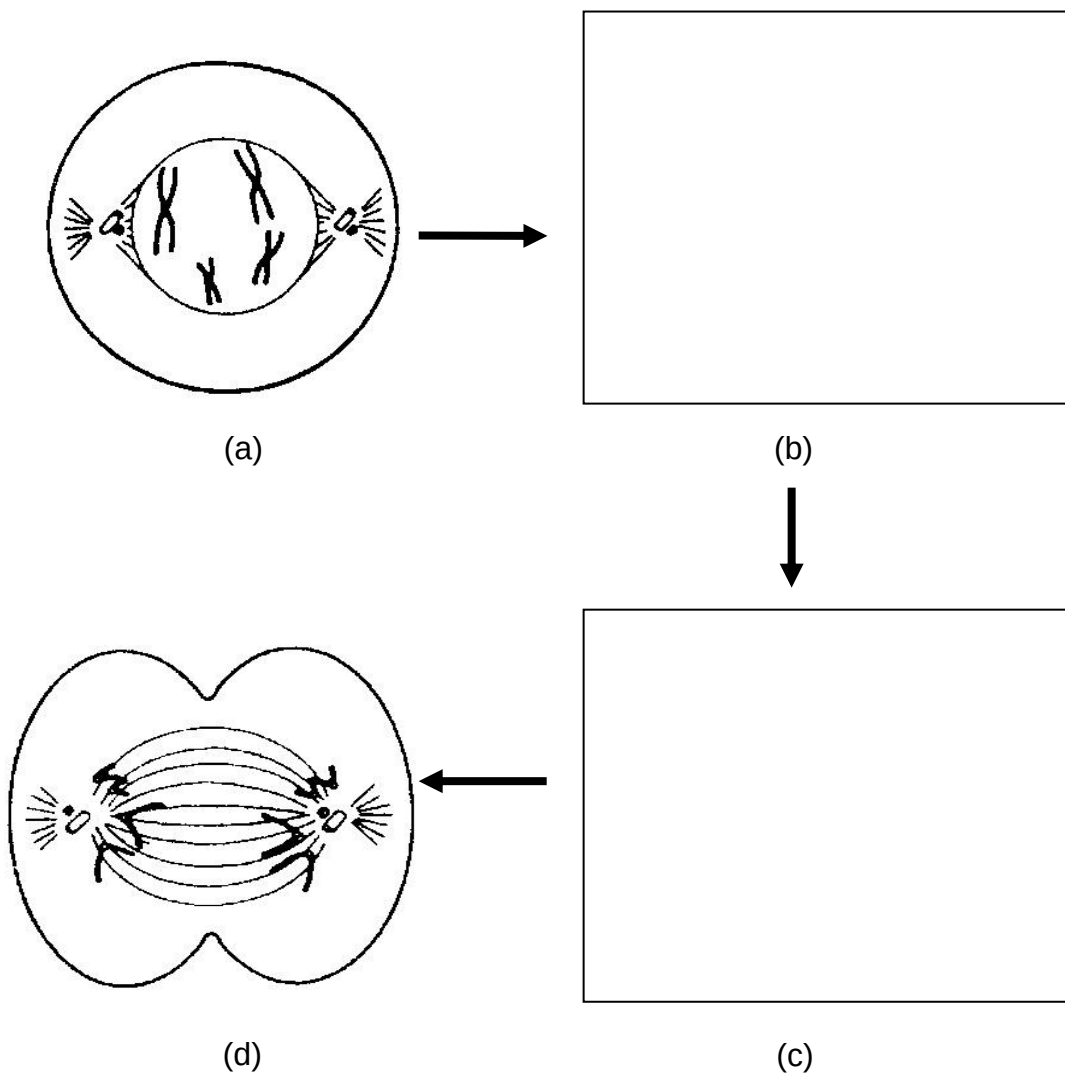


Diagram 1.2

Rajah 1.2

[2marks]

- (e) If spindle fibre is not form in Diagram 1.2 (d), explain the effect on the number of chromosome in the daughter cell.

Jika gentian gelendong tidak terbentuk dalam Rajah 1.2 (d), terangkan kesan ke atas bilangan kromosom dalam sel anak.

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[2 marks]

- (f) Explain how the cell division above can be used to increase the number of given example of the plant in the farm.

Terangkan bagaimanakah pembahagian sel di atas dapat digunakan untuk meningkatkan bilangan tumbuhan yang dinamakan dalam ladang.

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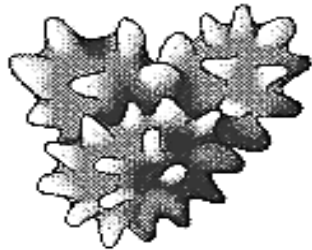
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[3 marks]

- 2.(a) Diagram 2.1 shows the shape of red blood cells after being immersed for 30 minutes in three solutions with different concentration.

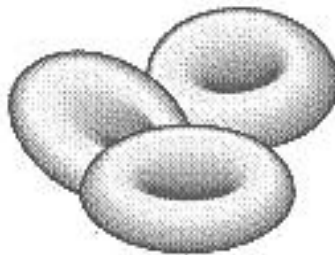
Rajah 2.1 menunjukkan bentuk sel darah merah selepas direndam selama 30 minit dalam tiga larutan yang berbeza kepekatan.



Red blood cells in P solution
Sel darah merah dalam larutan P



Red blood cells in Q solution
Sel darah merah dalam larutan Q



Red blood cells in R solution
Sel darah merah dalam larutan R

Diagram 2.1

Based on the Diagram 2.1

Berdasarkan Rajah 2.1

- (i) State the condition of the red blood cells after being immersed in solution :

Nyatakan keadaan sel darah merah selepas direndam di dalam larutan :

P :

Q :

[2 marks]

- (ii) Name the type of solution R in which the red blood cells are immersed.

Namakan jenis larutan R yang mana sel darah merah direndam.

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[1 mark]

- (iii) Explain your answers given in a(ii)

Terangkan jawapan yang anda berikan di a(ii)

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[3 marks]

(b)

Food such as mushrooms, fruits, vegetables and fish can be preserved longer by using natural preservatives such as salt, sugar and vinegar.

Makanan seperti cendawan, buah-buahan, sayur-sayuran dan ikan boleh diawet untuk tahan lama menggunakan bahan-bahan pengawet semulajadi seperti garam, gula dan cuka.

Based on the statement, explain why vinegar is suitable to be used as the natural preservative for the preservation of garlic.

Berdasarkan pernyataan di atas, terangkan mengapa cuka adalah sesuai digunakan sebagai pengawet semulajadi untuk bawang putih.

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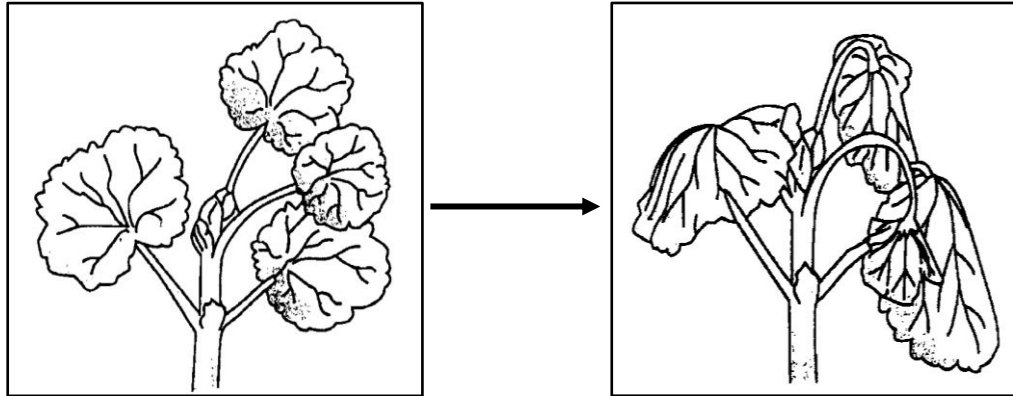
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[3 marks]

(c) Diagram 2.2 shows the condition of herbaceous plant due to water shortage in soil.

Rajah 2.2 menunjukkan keadaan pokok herba disebabkan oleh kekurangan air dalam tanah.



Water shortage after one week
Kekurangan air selepas satu minggu

Diagram 2.2

Rajah 2.2

Explain the condition of the plant in Diagram 2.2 after one week.

Terangkan keadaan pokok dalam Rajah 2.2 selepas satu minggu.

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[3 marks]

4. Diagram 4.1 shows the process of phagocytosis as second line of defence to destroy the bacteria.

Rajah 4.1 menunjukkan proses fagositosis sebagai barisan pertahanan kedua untuk memusnahkan bakteria.

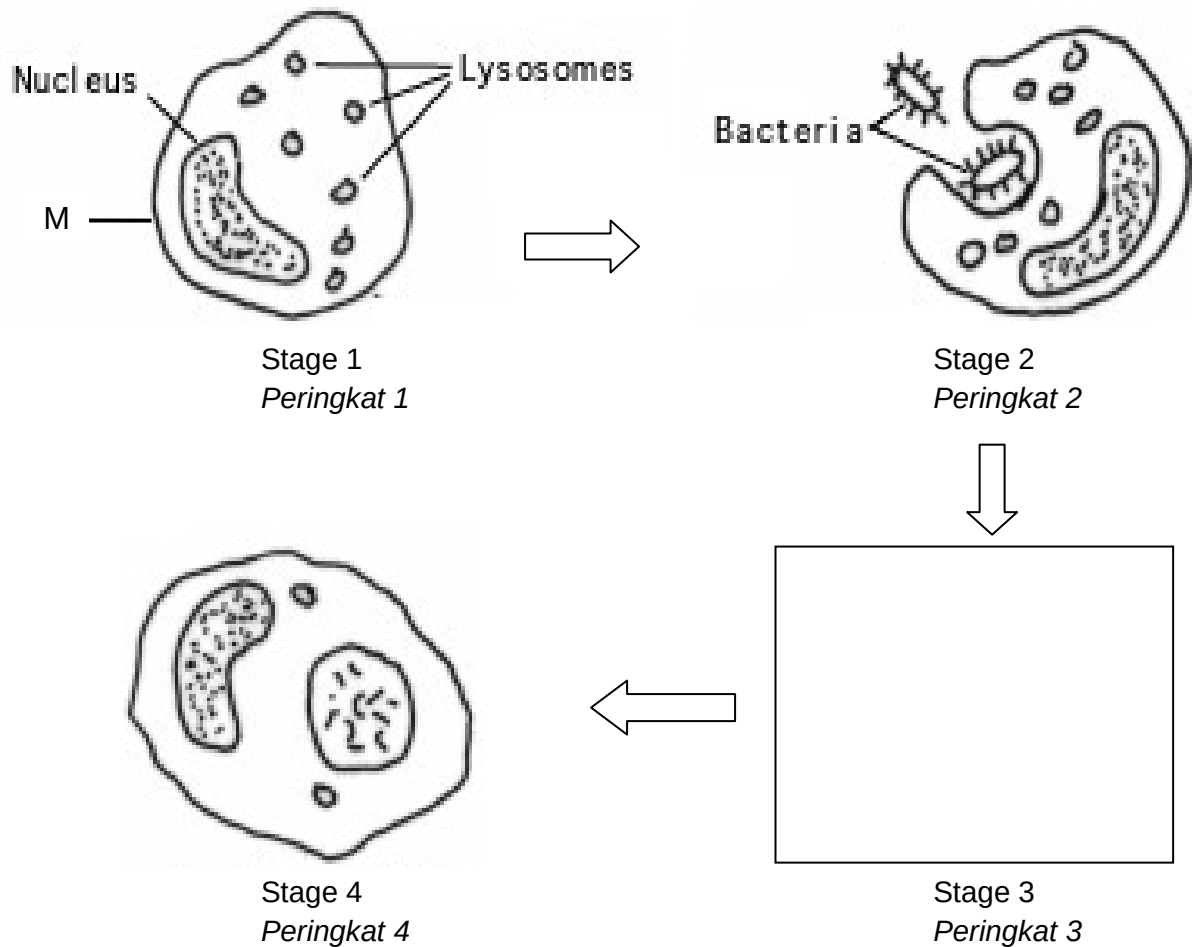


Diagram 4.1

Rajah 4.1

- (a) (i) Name cell M involved in mechanism above.
Namakan sel M yang terlibat dalam mekanisma di atas.

[1 mark]

- (ii) Draw a diagram in stage 3
 Lukis rajah dalam peringkat 3.

- (b) Explain the function of lisosome in mechanism above
Terangkan peranan lisosom dalam mekanisma di atas

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[2 mark]

- (c) Explain what happen in stage 2.
Terangkan apa yang berlaku dalam peringkat 2.

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[2 mark]

- (d) How the action of M to pathogen is different to lymphocyte?
Bagaimanakah tindakan M terhadap patogen adalah berbeza dengan limfosit?

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[2 marks]

- (e) Diagram 4.2 show a type of immunity occurs in human.
Rajah 4.2 menunjukkan satu jenis keimunan yang berlaku dalam manusia.

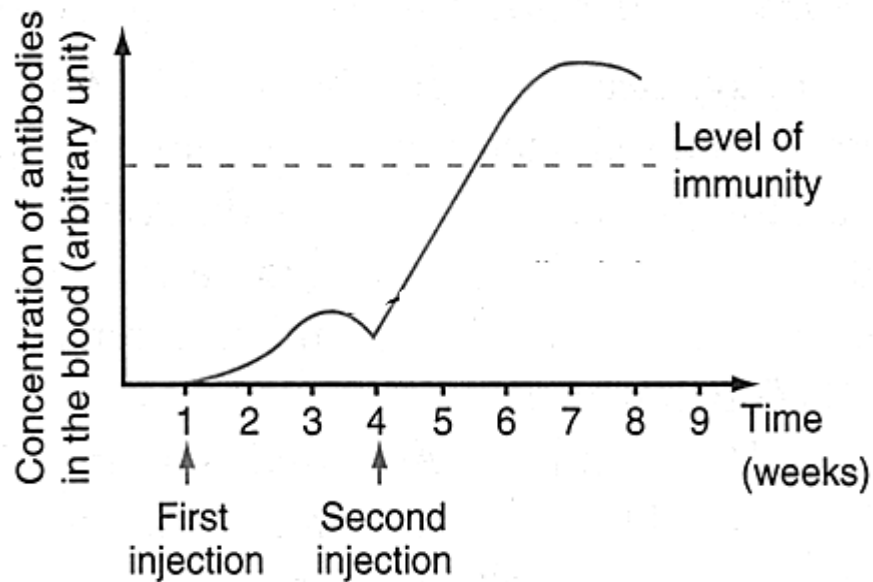


Diagram 4.2 / Rajah 4.2

- (i) Name the type of immunity shows in the Diagram 4.2.

Namakan jenis keimunan yang ditunjukkan dalam Rajah 4.2.

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[1 mark]

- (ii) Name the second injection and why the person should take second injection?

Namakan suntikan kedua dan mengapa individu ini perlu mengambil suntikan kedua?

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[2 marks]

- (f) The above immunity is example of third line of defence. What make it different to the second line of defence?

Keimunan di atas merupakan contoh barisan pertahanan ketiga. Apakah yang menjadikannya berbeza dengan barisan pertahanan ke dua?

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[2 marks]

5. Diagram 5.1 shows the stages of the ovarian cycle in human ovary

Diagram 5.2 shows the thickness of the endometrium of uterus before the fertilisation in the second menstrual cycle.

Rajah 5.1 menunjukkan peringkat kitaran ovary dalam ovari manusia.

Rajah 5.2 menunjukkan ketebalan endometrium dalam uterus sebelum berlaku persenyawaan dalam kitar haid yang kedua.

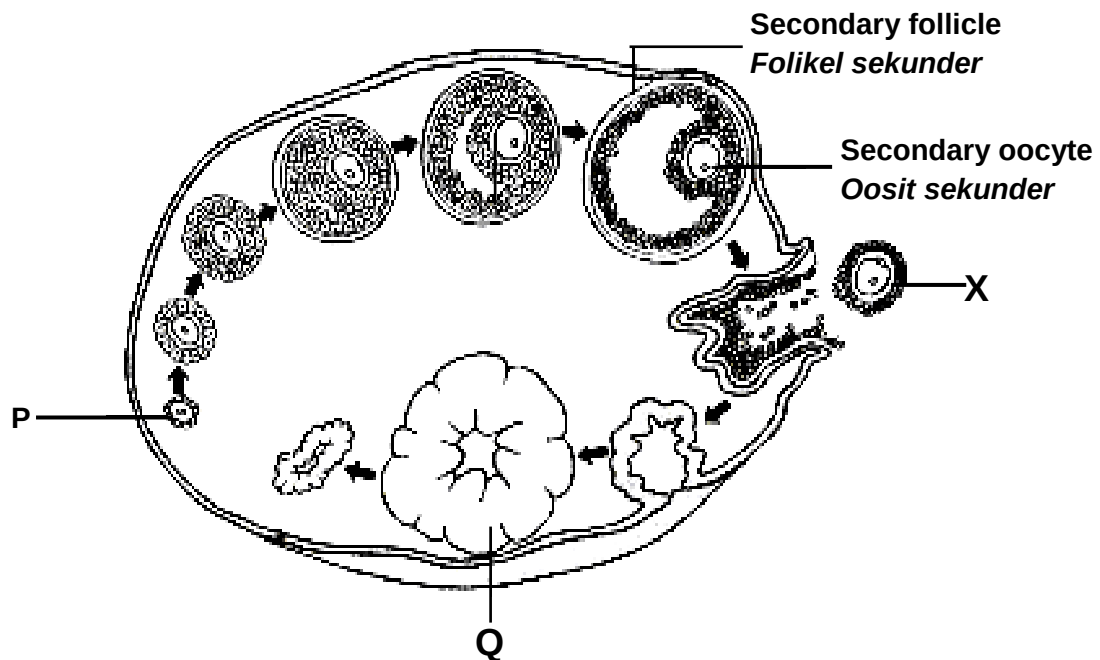


Diagram 5.1 /Rajah 5.1

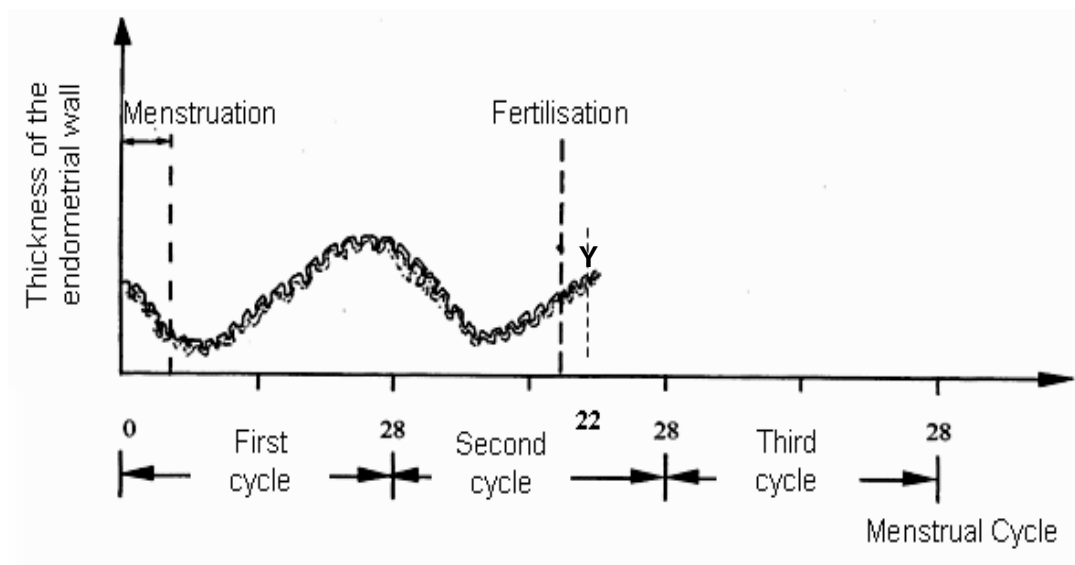


Diagram 5.2

Rajah 5.2

- a) (i) Describe the change in the structure of follicle P into a secondary follicle.
Terangkan perubahan struktur folikel P sehingga pembentukan folikel sekunder.

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[2 marks]

- (ii) Relate the change in **(a)(i)** to the thickness of the endometrium
Hubungkan perubahan dalam (a) (i) dengan ketebalan endometrium

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[1 mark]

- b) Explain the process that occurs at X.
Terangkan proses yang berlaku pada X.

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[2 marks]

- c) Explain the effect of the change of structure Q to the thickness of the endometrium.
Terangkan kesan perubahan struktur Q ke atas ketebalan dinding endometrium.

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[2 marks]

- d) (i) Fertilisation takes place in the second menstrual cycle.
Complete the graph in Diagram 5.2 to show the changes in the thickness of the endometrium after point Y
Persenyawaan berlaku dalam kitar haid yang kedua.
Lengkapkan graf dalam Rajah 5.2 untuk menunjukkan perubahan ketebalan endometrium selepas titik Y

[1 mark]

(ii) Explain your answer in (d)(i).

Terangkan jawapan anda dalam (d)(i).

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[2 marks]

e) (i) State the changes in the thickness of the endometrium after point Y relating to the secretion of hormones secreted by the ovary.

Terangkan hubungan perubahan ketebalan endometrium selepas titik Y dengan perembesan hormon oleh ovari.

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[1 mark]

(ii) State the importance of thickened endometrium to the continuity of life

Nyatakan kepentingan ketebalan endometrium dalam kesinambungan hidupan

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[1 mark]

SECTION B

[40 marks]

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

6. Diagram 6.1 shows the growth and development process at the shoot tip.

Rajah 6.1 menunjukkan proses pertumbuhan dan perkembangan pada hujung pucuk.

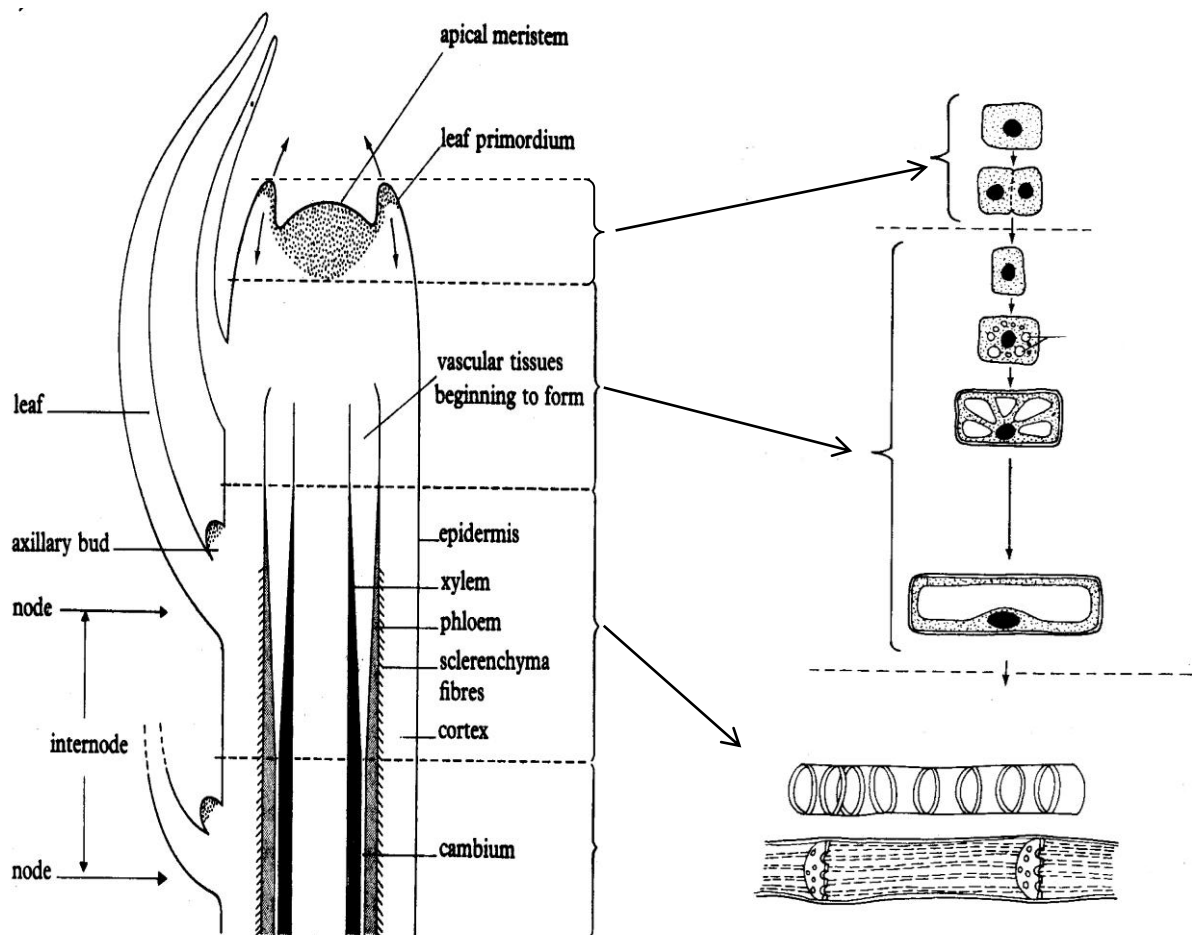


Diagram 6.1/ Rajah 6.1

- a) Explain the process of primary growth that shown in Diagram 6.1

Terangkan proses pertumbuhan primer yang ditunjukkan dalam Rajah 6.1

[8 marks]

- b) Explain the importance of primary growth to plant.

Terangkan kepentingan pertumbuhan primer kepada tumbuhan

[4 marks]

- c) Diagram 6.2 shown the tropism respond at shoot tip and root tip.

Rajah 6.2 menunjukkan gerakbalas tropisme pada hujung pucuk dan hujung akar.

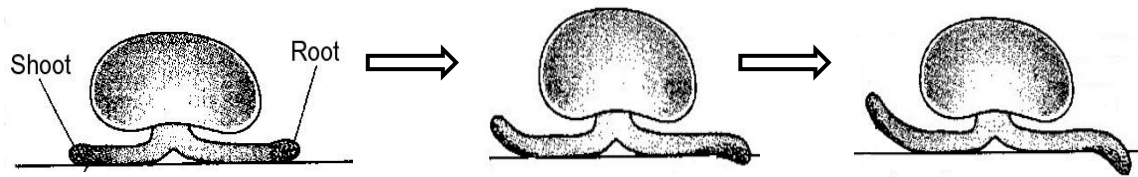


Diagram 6.2

Based on diagram 6.2 explain how the tropism response occurred.

Berdasarkan rajah 6.2 terangkan bagaimana gerakbalas tropisme berlaku.

[8 marks]

7. (a) Explain the interaction based on Diagram 7.1

Terangkan interaksi berdasarkan Rajah 7.1

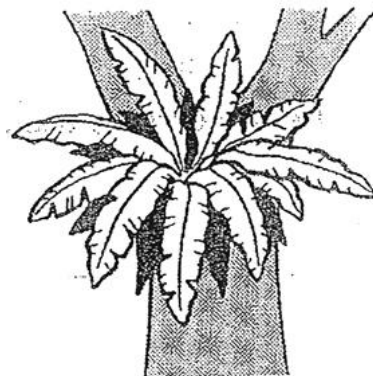


Diagram 7.1

Rajah 7.1

[4marks]

- (b) Diagram 7.2 shows mechanism of photosynthesis in plant. Explain why the product from light reaction need for dark reaction.

Rajah 7.2 menunjukkan mekanisma fotosintesis dalam tumbuhan. Terangkan Mengapa produk dari tindak balas cahaya diperlukan untuk tindakbalas gelap.

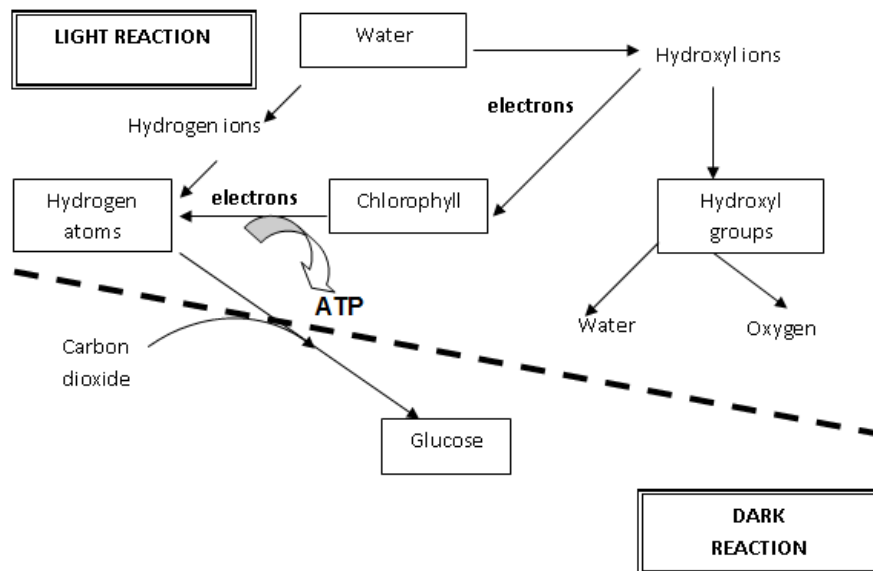


Diagram 7.2

Rajah 7.2

[6marks]

- (c) Diagram 7.3 shows the condition of the town.

Rajah 7.3 menunjukkan sebuah bandar.

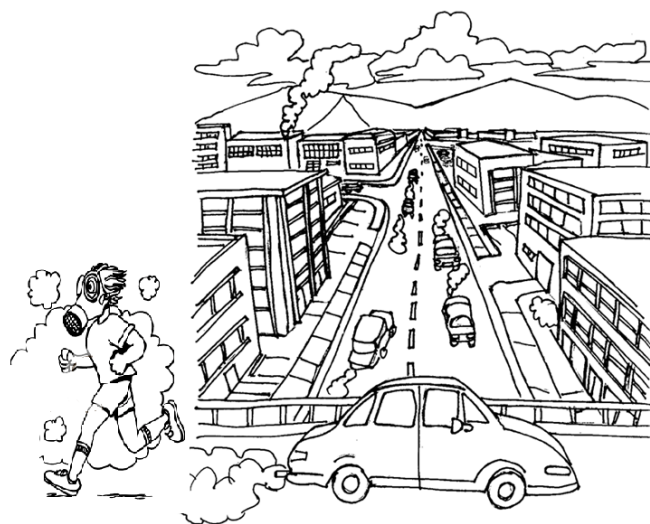


Diagram 7.3

Rajah 7.3

- (i) Discuss the effect of air pollution may occur in the town.

Bincangkan kesan pencemaran udara yang mungkin berlaku dalam bandar.

[6 marks]

- (ii) If you are an environmental activist, suggest how you would explain to the government about the measures needed to overcome the pollution.

Jika anda seorang aktivis alam sekitar, cadangkan bagaimana anda akan menjelaskan kepada kerajaan mengenai langkah-langkah yang diperlukan untuk mengatasi pencemaran.

[4 marks]

8. (a) Diagram 8.1 shows three types of neurons.

Rajah 8.1 menunjukkan tiga jenis neuron.

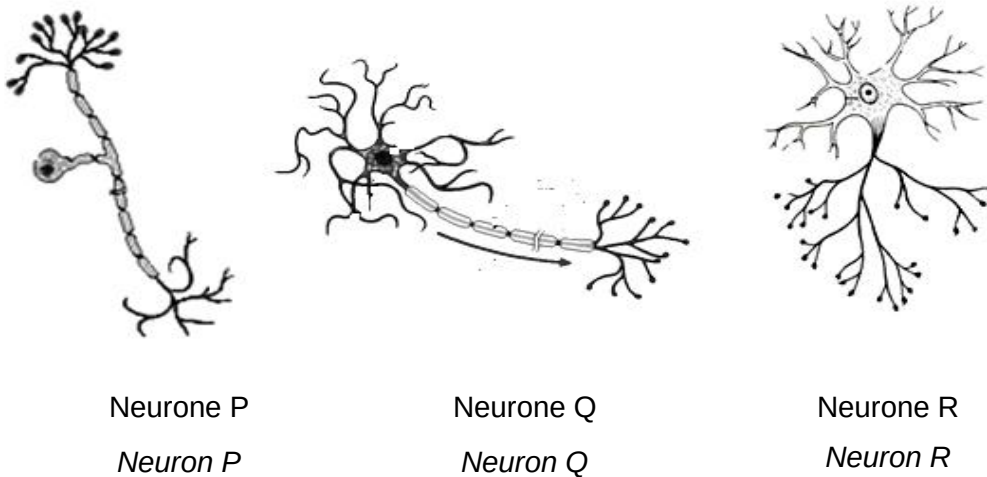


Diagram 8.1

Rajah 8.1

Name types of neurone P, Q and R and state **two** differences between the structure of neurone P and neurone Q

Namakan jenis neuron P, Q dan R dan nyatakan **dua** perbezaan di antara struktur bagi neuron P dan neuron Q

[4 marks]

- (b) Diagram 8.2 shows the transmission of a nerve impulse from neurone P to neurone R.

Rajah 8.2 menunjukkan pemindahan impuls saraf dari neuron P ke neuron R.

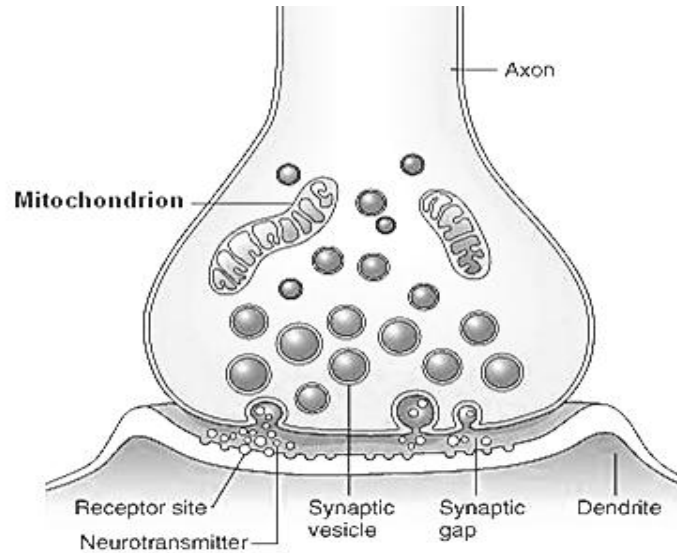


Diagram 8.2 /Rajah 8.2

Explain the transmission of a nerve impulse from neurone P to neurone R

Terangkan pemindahan impuls saraf dari neuron P ke neuron R

[6 marks]

- (c) Diagram 8.3a shows example of voluntary action and Diagram 8.3b shows example of involuntary action. By using pathway of transmission of information from receptors to effectors, explain similarities and difference between voluntary action and involuntary action.

Rajah 8.3a menunjukkan contoh tindakan terkawal dan Rajah 8.3b menunjukkan contoh tindakan luar kawal. Dengan menggunakan laluan pemindahan maklumat dari reseptor kepada efektor, terangkan persamaan dan perbezaan tindakan terkawal dan tindakan luar kawal.

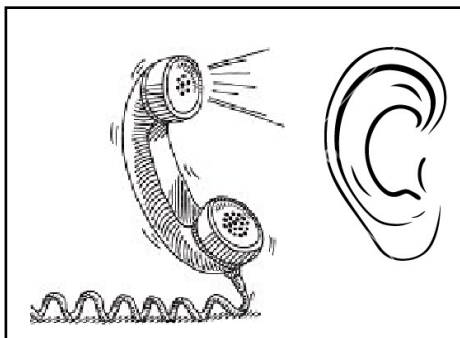


Diagram 8.3a



Diagram 8.3b

[10 mark]

9. (a) Diagram 9.1 and 9.2 shows the histogram about distribution of genetic variation in human.

Rajah 9.1 dan 9.2 menunjukkan histogram mengenai taburan variasi genetik dalam manusia.

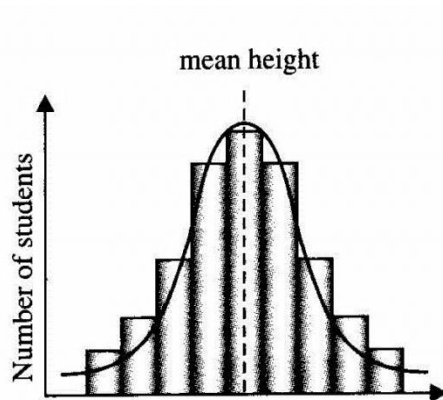


Diagram 9.1

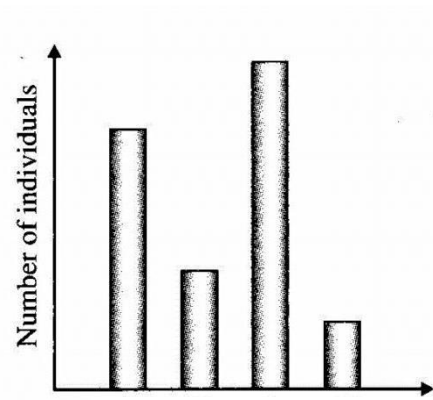


Diagram 9.2

- (i) With a suitable example, explain the differences of two kinds of variation.

Dengan menggunakan contoh yang sesuai, terangkan perbezaan di antara kedua-dua variasi tersebut.

[7 marks]

- (ii) What is the importance of variation to organism?

Apakah kepentingan variasi kepada organisma?

[3 marks]

(b) Diagram 9.3a, 9.3b and 9.3c shows the genetic factors that affected on the variation of organism.

Rajah 9.3a, 9.3b dan 9.3c menunjukkan faktor-faktor genetik yang memberi kesan ke atas variasi pada organisma.

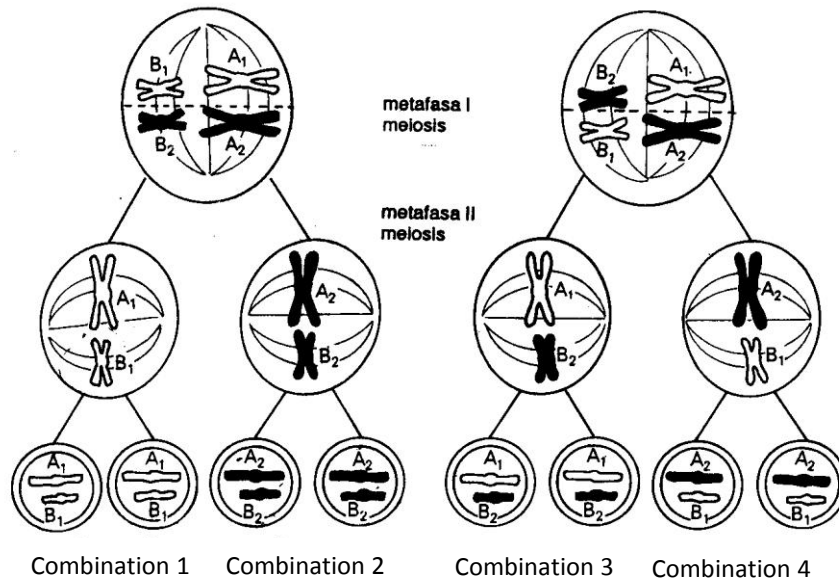


Diagram 9.3a

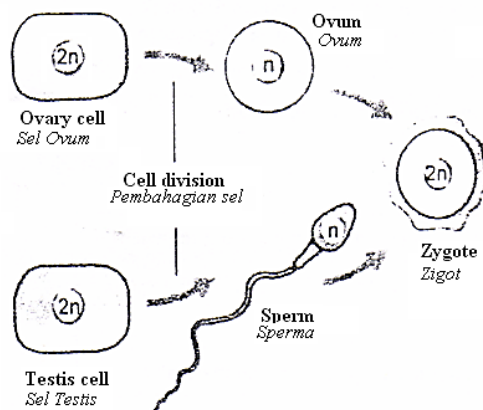


Diagram 9.3b

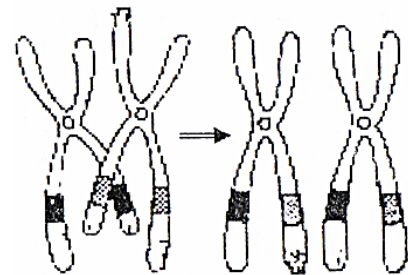


Diagram 9.3b

Explain how these factors in the diagram above will cause the variation among the organism.

Terangkan bagaimana faktor-faktor dalam rajah di atas akan menyebabkan variasi di kalangan organisma.

[10 marks]

END OF QUESTION PAPER

KERTAS SOALAN TAMAT