

- 1 Diagram 1 shows an organelle found in a cell.
Rajah 1 menunjukkan organel yang terdapat dalam sel.

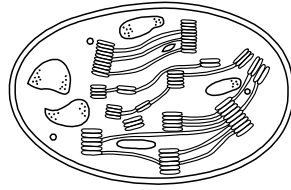


Diagram 1
Rajah 1

Which of the following process takes place in this organelle?
Antara proses berikut, yang manakah berlaku dalam organel tersebut?

- | | | | |
|---|---------------------------------------|---|--|
| A | Respiration
<i>Pernafasan</i> | C | Lipid synthesis
<i>Sintesis lipid</i> |
| B | Photosynthesis
<i>Fotosintesis</i> | D | Energy production
<i>Penghasilan tenaga</i> |
- 2 Diagram 2 shows the specialisation of plant cells which leads to formation of tissue X.
Rajah 2 menunjukkan pengkhususan sel-sel tumbuhan membentuk tisu X.

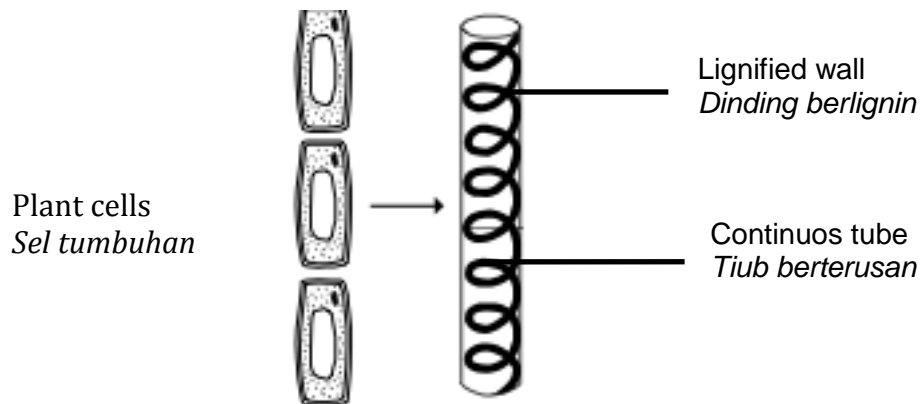


Diagram 2
Rajah 2

What is tissue X?
Apakah tisu X ?

- | | | | |
|---|-----------------------------------|---|------------------------|
| A | Epidermis
<i>Epidermis</i> | C | Xylem
<i>Xilem</i> |
| B | Guard cell
<i>Sel pengawal</i> | D | Phloem
<i>Floem</i> |

- 3 Diagram 3 shows a type of tissue.
Rajah 3 menunjukkan satu jenis tisu.

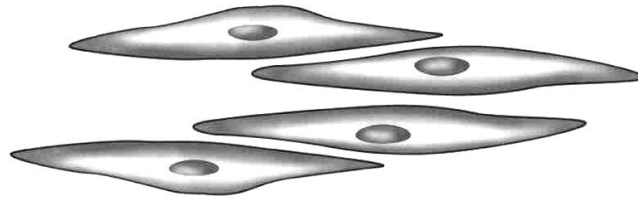


Diagram 3
Rajah 3

Which organelle is found in abundance in the tissues as shown above?
Apakah organel yang banyak terdapat di dalam tisu yang ditunjukkan dalam rajah di atas?

- | | | | |
|---|---------------------------------------|---|----------------------------|
| A | Golgi apparatus
<i>Jasad Golgi</i> | C | Lisosome
<i>Lisosom</i> |
| B | Mitochondria
<i>Mitochondria</i> | D | Ribosome
<i>Ribosom</i> |
- 4 Diagram 4 shows the structure of plasma membrane.
Rajah 4 menunjukkan struktur membran plasma .

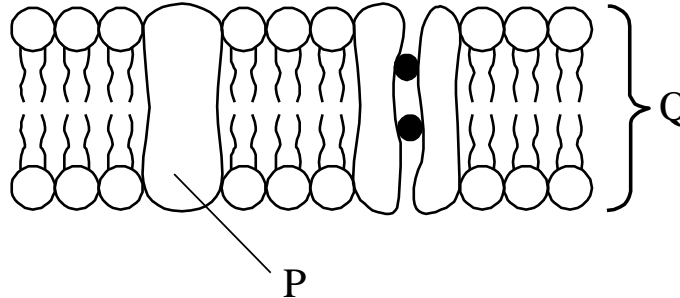


Diagram 4
Rajah 4

What is the main component of P and Q?
Apakah komponen utama P dan Q?

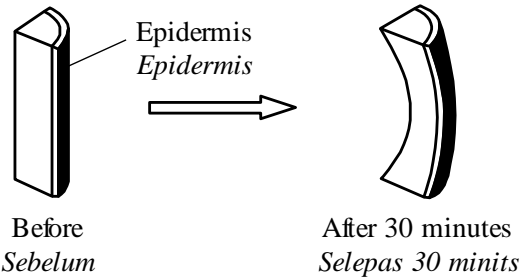
	P	Q
A	Lipid <i>Lipid</i>	Carbohydrate <i>Karbohidrat</i>
B	Carbohydrate <i>Karbohidrat</i>	Lipid <i>Lipid</i>
C	Protein <i>Protein</i>	Lipid <i>Lipid</i>
D	Lipid <i>Lipid</i>	Protein <i>Protein</i>

- 5 A stalk of mustard green is cut longitudinally into four equal strips. All the strips were immersed for 30 minutes in sucrose solution of different concentrations. Which strip was immersed in hypotonic solutions?

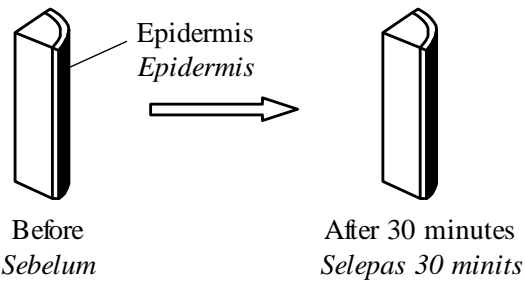
Batang sawi telah dipotong memanjang kepada empat keratan yang sama saiz. Semua keratan tersebut direndam dalam larutan sukrosa yang berbeza kepekatan selama 30 minit.

Keratan manakah yang direndam dalam larutan hipotonik?

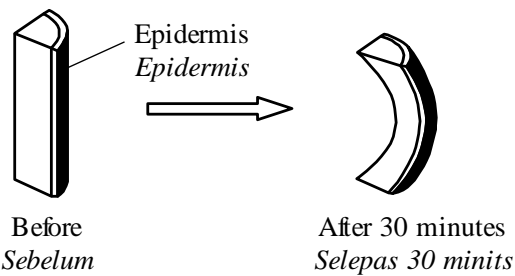
A



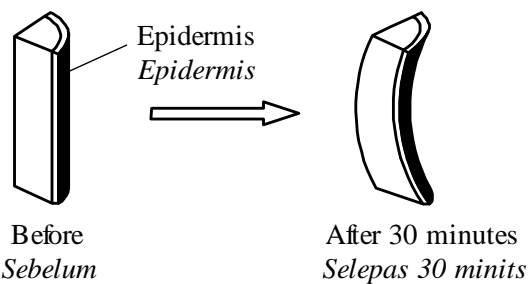
B



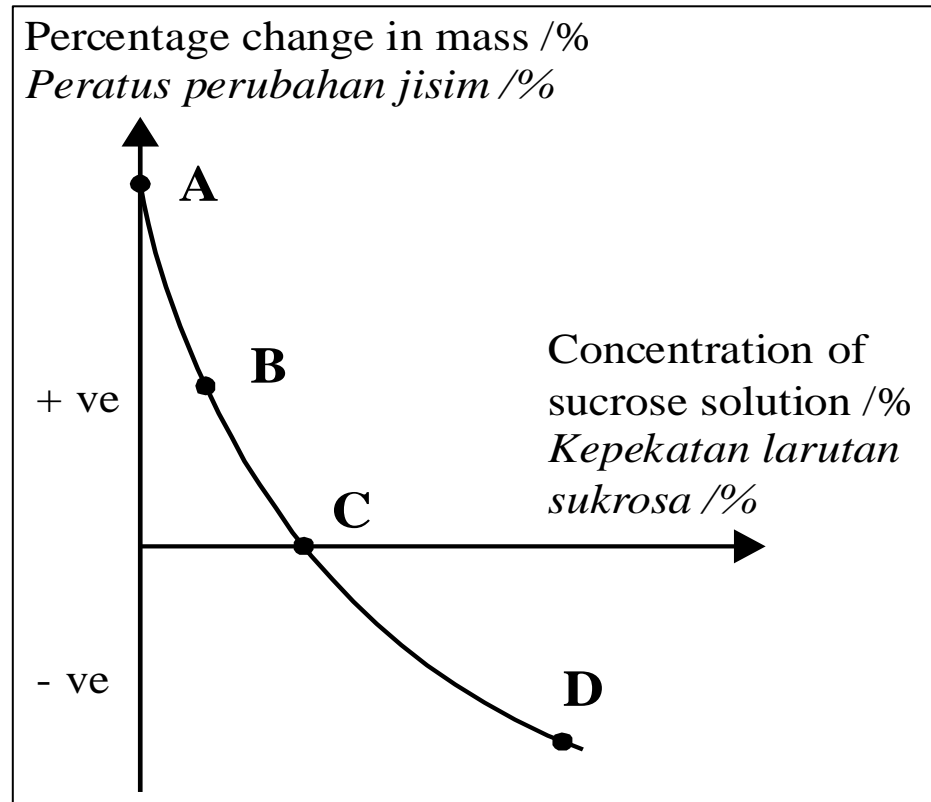
C



D



- 6 The graph shows the result of an experiment to determine the concentration of the cell sap of potato.
Graf menunjukkan keputusan satu eksperimen untuk menentukan kepekatan sap sel ubi kentang.



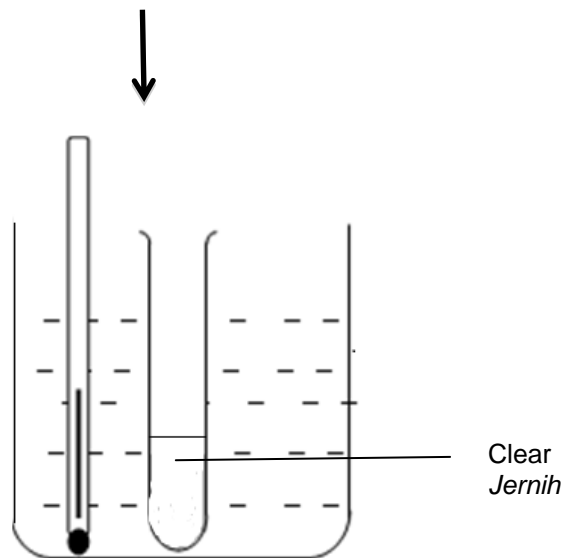
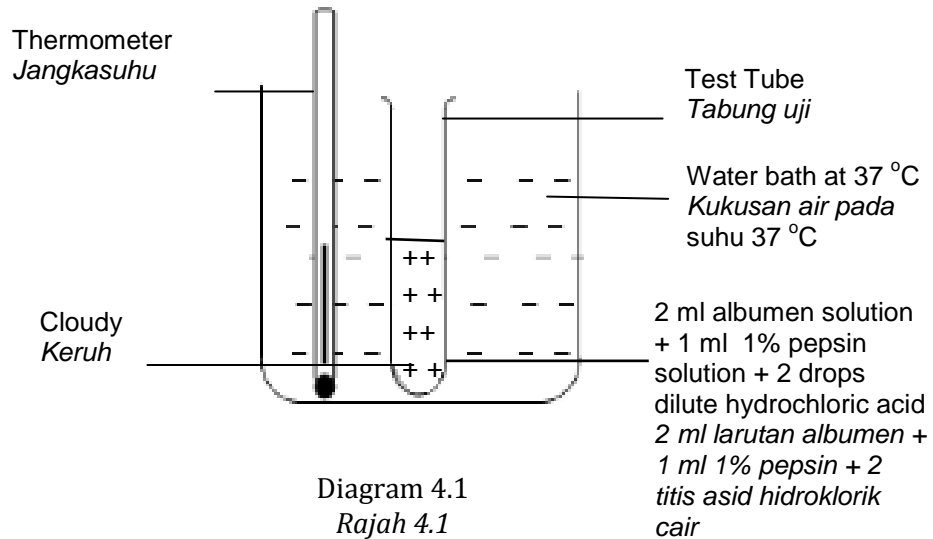
At which point A, B, C or D, the concentration of sucrose solution is hypertonic to the cell sap of potato ?

Yang manakah antara titik A, B, C atau D, merupakan kepekatan larutan sukrosa yang hipertonic terhadap sap sel ubi kentang?

- 7 Diagram 4.1 shows a set up of apparatus to study the action of pepsin on protein. Diagram 4.2 shows the result of the experiment after one hour.

Rajah 4.1 menunjukkan satu set radas untuk mengkaji tindakan pepsin ke atas protein.

Rajah 4.2 menunjukkan keputusan eksperimen tersebut selepas satu jam.

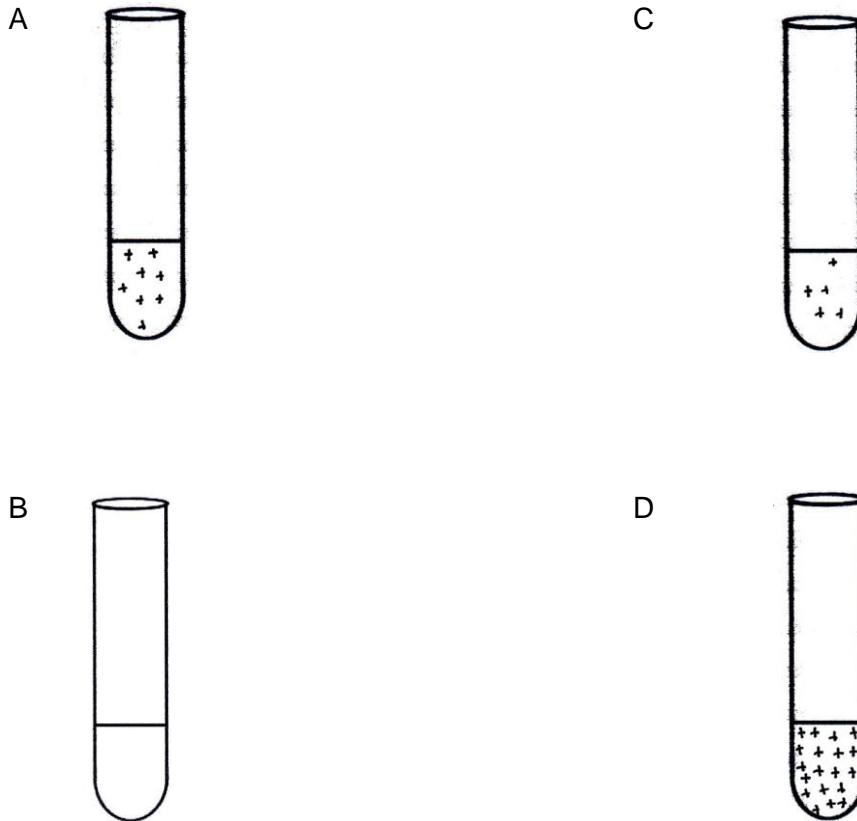


The experiment in diagram 4.1 is repeated for different temperature which is 35°C, 40°C and 60°C using 4 ml of 1% pepsin.

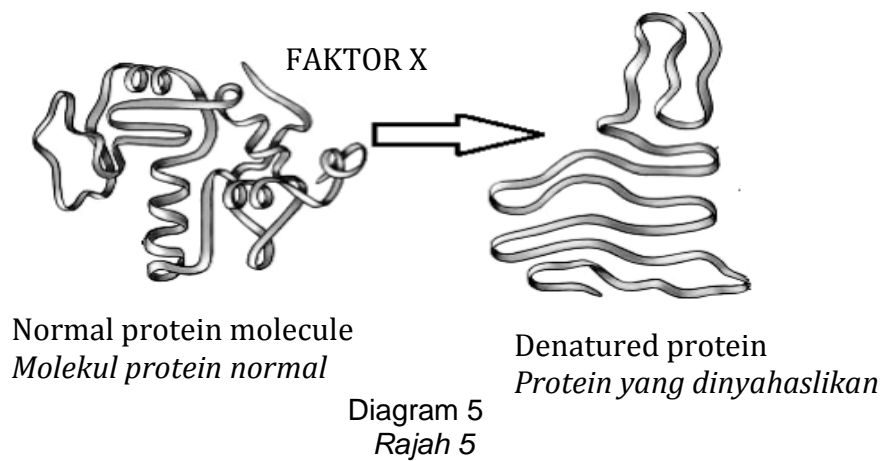
Which of the following is the result of the experiment after one hour in temperature 60 °C?

Eksperimen dalam rajah 4.1 diulang dengan menggunakan 4 ml 1% pepsin bagi suhu 35°C, 40°C dan 60°C .

Antara yang berikut, yang manakah merupakan keputusan eksperimen tersebut selepas 1 jam bagi suhu 60°.



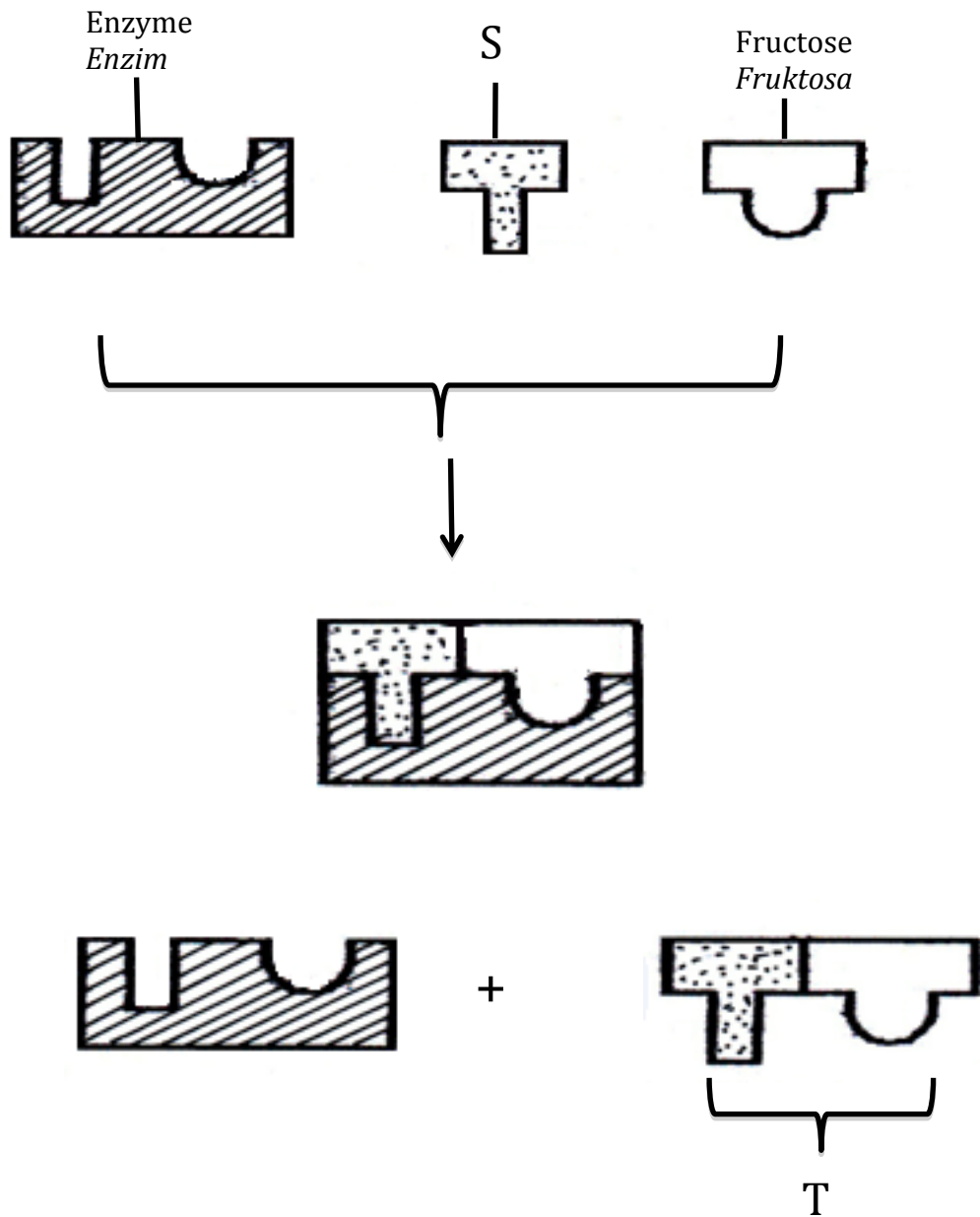
- 8 Diagram 5 shows changes of a protein structure caused by factor X .
Rajah 5 menunjukkan perubahan struktur protein yang disebabkan oleh faktor X.



What is factor X ?
Apakah faktor X ?

- | | | | |
|---|-------------------------------|---|-------------------------------|
| A | Temperature 10°C
Suhu 10°C | C | Temperature 37°C
Suhu 37°C |
| B | Temperature 27°C
Suhu 27°C | D | Temperature 60°C
Suhu 60°C |

- 9 Diagram 6 shows the action of enzyme to form a disaccharide.
Rajah 6 menunjukkan tindakan enzim untuk menghasilkan sejenis disakarida.



What is S and T ?
Apakah S dan T ?

	S	T
A	Galaktose Galaktosa	Maltose Maltosa
B	Glucose Glucosa	Sucrose Sucrosa
C	Galactose Galaktosa	Sucrose Sucrosa
D	Glucose Glucosa	Maltose Maltosa

- 10 Diagram 7 shows a stage of cell division in an organism.
Rajah 7 menunjukkan satu fasa semasa pembahagian sel dalam suatu organisma.

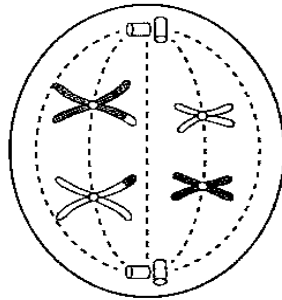


Diagram 7
Rajah 7

Which statements are true?

Pernyataan manakah yang benar?

- A *The diploid number of this organism is 6*
Nombor diploid untuk organisma ini ialah 6
- B *The stage of the cell division is metaphase 1*
Peringkat pembahagian sel di atas adalah metafasa 1
- C *The haploid number of this organism is 4*
Nombor haploid untuk organisma ini ialah 4
- D *The stage of the cell division is prophase 1*
Peringkat pembahagian sel di atas adalah profasa 1
- 11 Mitosis produces two genetically identical cells.
 Which of the followings involve mitosis?
- Mitosis melibatkan pembahagian nukleus yang menghasilkan dua sel anak dengan komponen genetik yang sama.*
Antara berikut yang manakah melibatkan mitosis?
- A *Formation of clon*
Penghasilan klon
- B *Formation of new species*
Penghasilan spesies baru
- C *Formation of pollen grain*
Penghasilan butir debunga
- D *Formation of sperm cells*
Penghasilan sel sperm

- 12 Diagram 8 shows a type of technique used in the agricultural sector.
Rajah 8 menunjukkan sejenis teknik yang digunakan dalam sektor pertanian.

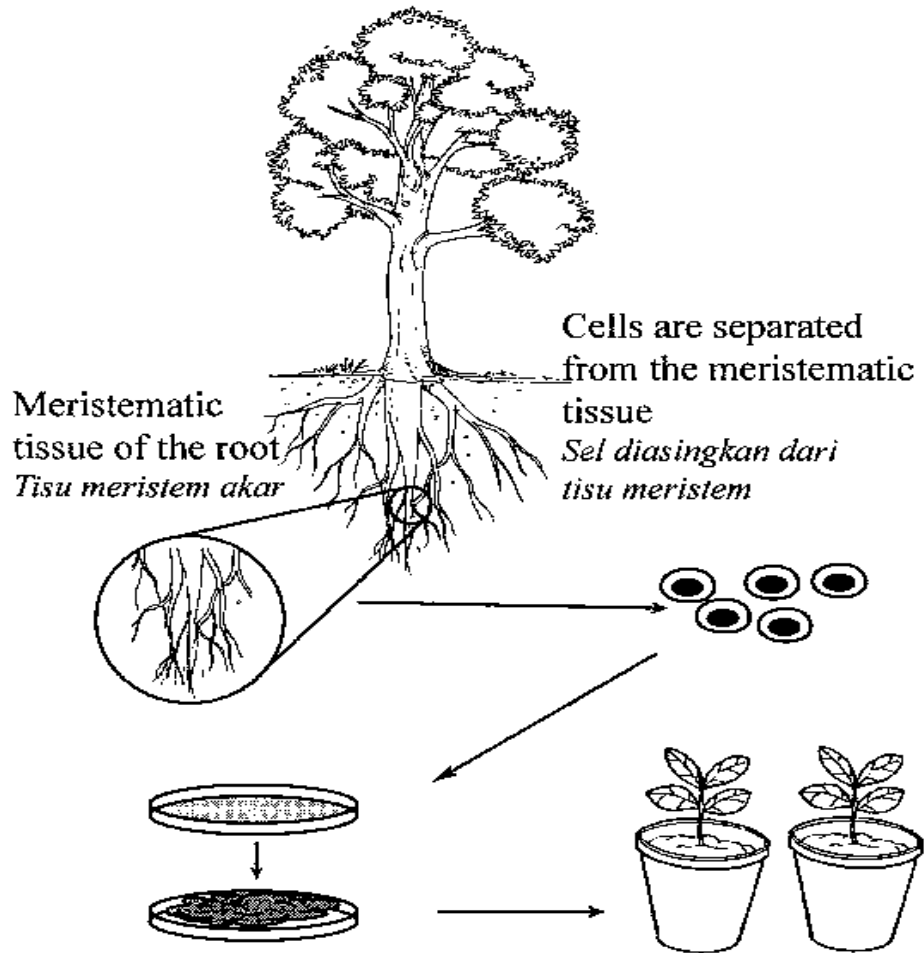


Diagram 8
Rajah 8

What is the advantage of the technique process?
Apakah kelebihan teknik di atas?

- A To produce more healthier plants
Menghasilkan tumbuhan yang lebih sihat
- B Maintains the genetic materials of the chromosome in the plants
Mengekalkan bahan genetik kromosom dalam tumbuhan
- C All the clones have different resistance towards diseases.
Semua klon mempunyai daya rintangan penyakit yang berbeza.
- D Plant produced are differ from parent's cell.
Tumbuhan yang terhasil berbeza dengan sel induk.

- 13 Table 1 shows four type of cells that have undergone cell division and their chromosomal numbers before and after the cell division.
Jadual 1 menunjukkan empat jenis sel yang mengalami pembahagian sel dan bilangan kromosom masing-masing sebelum dan selepas pembahagian se

Type of cell <i>Jenis sel</i>	Chromosomal number <i>Bilangan kromosom</i>	
	Before cell division <i>Sebelum pembahagian sel</i>	After cell division <i>Selepas pembahagian sel</i>
A	28	14
B	14	14
C	32	64
D	23	46

Table 1
Jadual 1

Which types of cells, A, B, C or D has undergoes meiosis?
Manakah antara sel-sel A,B,C atau D yang mengalami meiosis?

- 14 Diagram 9 below shows part of the human digestive system.
Rajah 9 di bawah menunjukkan sebahagian daripada sistem pencernaan manusia.

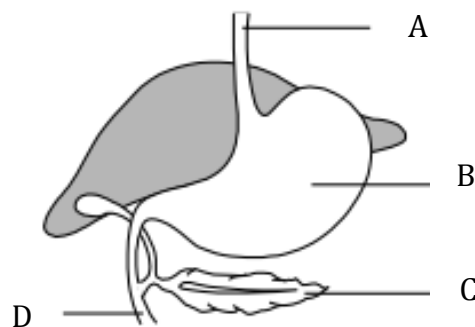


Diagram 9
Rajah 9

Which part of A,B,C or D produces enzyme which responsible for the digestion of lipid?

Bahagian manakah A,B,C atau D yang bertanggung jawab menghasilkan enzim bagi pencernaan lipid?

- 15 Diagram 10 shows a food guide pyramid.
Rajah 10 menunjukkan piramid makanan.

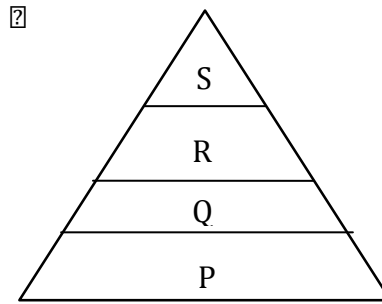


Diagram 10
Rajah 10

- Which are most probably the examples of food levels P, Q, R and S?
Yang manakah mungkin contoh-contoh makanan pada aras P, Q, R dan S?

	P	Q	R	S
A	Vegetables <i>Sayur-sayuran</i>	Cereals <i>Bijirin</i>	Meats <i>Daging</i>	Fats <i>Lemak</i>
B	Cereals <i>Bijirin</i>	Fruits <i>Buah-buahan</i>	Beans <i>Kecacang</i>	Sugar <i>Gula</i>
C	Beans <i>Kecacang</i>	Cereals <i>Bijirin</i>	Vegetables <i>Sayur-sayuran</i>	Cheese <i>Keju</i>
D	Rice <i>Beras</i>	Chickens <i>Ayam</i>	Sweet <i>Gula</i>	Vegetables <i>Sayur-sayuran</i>

- 16 The following statement refers to a process which occurs after the process food digestion.
Pernyataan berikut merujuk kepada satu proses yang berlaku selepas proses pencernaan makanan.

A process of utilization of digested nutrient to form complex compounds.
Proses penggunaan nutrien untuk membentuk sebatian kompleks.

- What is the process?
Apakah proses tersebut?

- A Assimilation
Asimilasi
B Absorption
Penyerapan
C Deamination
Deaminasi
D Defaecation
Penyahtinjaan

- 17 Pancreas is the importance organ to maintain the glucose level in the blood.
Pankreas adalah organ yang penting untuk mengekalkan aras glukosa di dalam darah.

A medical check-up shows that a patient's pancreas is damaged and has to be removed.

Pemeriksaan perubatan menunjukkan pankreas seorang pesakit rosak dan perlu dibuang.

Which of the following should be done by the patient to maintain a normal blood sugar level?

Antara berikut, manakah yang perlu dilakukan oleh pesakit itu untuk mengekalkan aras gula darah yang normal?

- A Taking glucose injections
Mengambil suntikan glukosa
- B Taking a balanced diet
Mengamalkan pengambilan gizi yang seimbang
- C Taking insulin and glucagon injections
Mengambil suntikan hormon insulin dan glukagon
- D Reduce intake of high calory food
Mengurangkan pengambilan makanan berkalori tinggi
- 18 Digestion of food involves several organs and secretion of enzymes.
Which of the following is **true** about the organ?

Pencernaan melibatkan beberapa organ dan rembesan enzim.

*Manakah antara berikut adalah **benar** mengenai organ-organ tersebut?*

	Organ <i>Organ</i>	Secretion <i>Rembesan</i>	Enzymes <i>Enzim</i>
A	Mouth <i>Mulut</i>	Saliva <i>Air liur</i>	Maltase <i>Maltase</i>
B	Liver <i>Hati</i>	Bile <i>Hempedu</i>	Bile <i>Bile</i>
C	Pancreas <i>Pankreas</i>	Pancreatic juice <i>Jus pankreas</i>	Lipase <i>Lipase</i>
D	Stomach <i>Perut</i>	Gastric juice <i>Jus gastrik</i>	Trypsin <i>Tripsin</i>

- 19 Which type of carbohydrate is found in abundance in liver?
Apakah jenis karbohidrat yang banyak dijumpai dalam hati?

- A Starch
Kanji
B Sucrose
Sukrosa
C Glucose
Glukosa
D Glycogen
Glycogen

- 20 A student takes part in a 200 m sprint event.
Which equation represent his respiration process after he has run the first 100 m ?

Seorang pelajar mengambil bahagian dalam acara larian pecut 200 m . Persamaan manakah yang mewakili proses respirasi setelah berlari 100 m pertama ?

- A $\text{Glucose} \longrightarrow \text{Lactic acid} + \text{Energy}$
Glukosa \longrightarrow asid laktik + tenaga
B $\text{Glucose} + \text{Oxygen} \longrightarrow \text{Lactic acid} + \text{Energy}$
Glukosa + oksigen \longrightarrow asid laktik + tenaga
C $\text{Glucose} \longrightarrow \text{Ethanol} + \text{Carbon dioxide} + \text{Energy}$
Glukosa \longrightarrow Etanol + karbon dioksida + tenaga
D $\text{Glucose} + \text{Oxygen} \longrightarrow \text{Carbon dioxide} + \text{Water} + \text{Energy}$
Glukosa + oksigen \longrightarrow Karbon dioksida + air + tenaga

- 21 The following information describe the content of cigarette smoke
Maklumat berikut menerangkan kandungan asap rokok

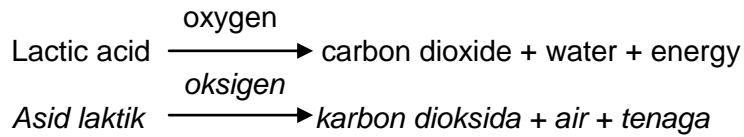
Cigarette smoke contains over 4,000 different chemicals and at least 43 of them are carcinogens.

Asap rokok mengandungi lebih 4,000 bahan kimia yang berbeza dan 43 bahan daripadanya adalah bersifat karsinogenik .

Which of the following disease is most probably will be caused by carsinogen?
Manakah penyakit berikut berkemungkinan disebabkan oleh bahan karsinogen ?

- A Bronchitis
Bronkitis
B Asthma
Asma
C Emphysema
Emphysema
D Lung cancer
Kanser paru-paru

- 22 The following equation shows a process that occurs in a cell P of an organism.
Persamaan berikut menunjukkan proses yang berlaku dalam sel P sejenis organisma.



What is cell P ?
Apakah sel P?

- A Nerve cell
Sel saraf
- B Red Blood Cell
Sel darah merah
- C Muscle cell
Sel otot
- D Liver cell
Sel hati
- 23 Diagram 11 shows the respiratory system of an insects. Air enter the trachea through an opening labeled X.
Rajah 11 menunjukkan sistem respirasi serangga. Udara memasuki trakea melalui liang yang berlabel X.

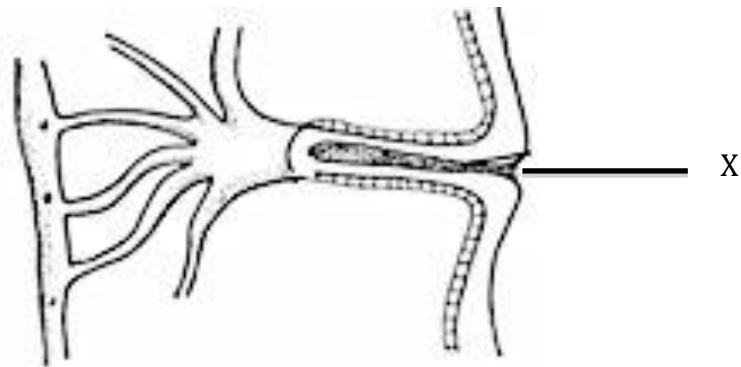
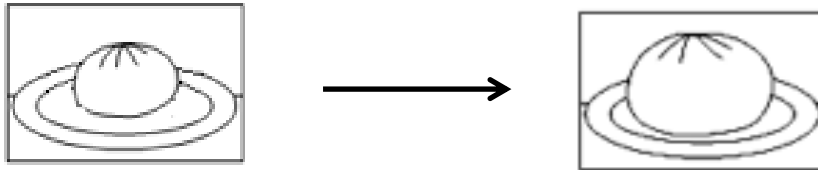


Diagram 11
Rajah 11

Which of the following is X?
Manakah antara berikut adalah X?

- A Air sac
Kantung udara
- B Spiracle
Spirakel
- C Bronchiole
Bronkiol
- D Tracheole
Trakeol

- 24 Diagram 12 shows the rising of a dough during the process of bread making.
Rajah 12 menunjukkan adunan tepung menaik semasa proses membuat roti.



Before
Sebelum

Diagram 12
Rajah 12

After
Selepas

Which of the following causes the dough to increase in size?

Antara berikut yang manakah menyebabkan adunan roti bertambah saiz?

- A Water
Air
 - B Ethanol
Etanol
 - C Lactic acid
Asid laktik
 - D Carbon dioxide
Karbon dioksida
- 25 Diagram 13 shows a type of an interaction of an organism.
Rajah 13 menunjukkan sejenis interaksi bagi suatu organisma

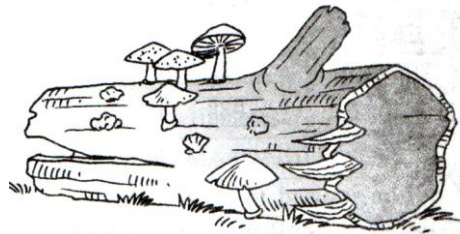


Diagram 13
Rajah 13

What is type of the interaction?

Apakah jenis interaksi ini?

- A Comensalism
Komensalismo
- B Saprophytism
Saprofitisma
- C Mutualism
Mutualisma
- D Parasitism
Parasitisma

- 26 Diagram 14 shows the three types of plants in a mangrove forest.
Rajah 14 menunjukkan tiga jenis tumbuhan di hutan paya bakau.

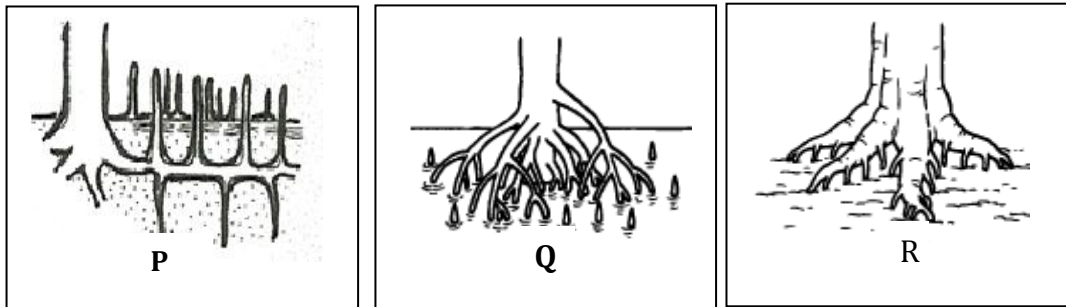


Diagram 14
 Rajah 14

Which of the following is the correct root system in plants, labelled P, Q and R.

Manakah antara berikut adalah sistem akar yang betul bagi tumbuhan berlabel P, Q dan R.

	P	Q	R
A	Prop roots <i>Akar jangkang</i>	Buttress roots <i>Akar banir</i>	Cable root <i>Akar bercabang luas</i>
B	Buttress roots <i>Akar banir</i>	Prop roots <i>Akar jangkang</i>	Cable root <i>Akar bercabang luas</i>
C	Cable root <i>Akar bercabang luas</i>	Prop roots <i>Akar jangkang</i>	Buttress roots <i>Akar banir</i>
D	Cable root <i>Akar bercabang luas</i>	Buttress roots <i>Akar banir</i>	Prop roots <i>Akar jangkang</i>

- 27 Diagram 15 show four types of plants K, L, M, and N in an abandoned pond.
Rajah 15 menunjukkan empat jenis tumbuhan K, L, M dan N dalam kolam yang terbiar.

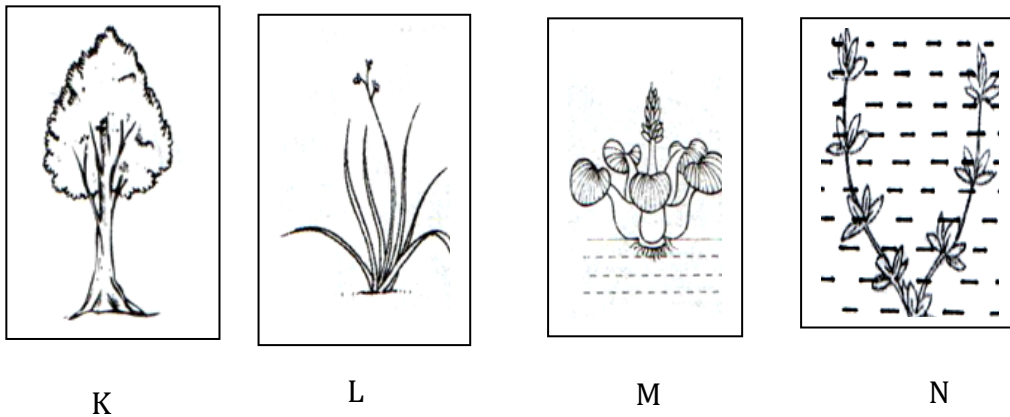


Diagram 15
 Rajah 15

Which of the following shows the sequence of succession in the pond?
 Manakah antara berikut menunjukkan urutan sesaran dalam kolam tersebut?

- A N → M → K → L
 B L → N → K → M
 C N → M → L → K
 D L → N → M → K
- 28 A student used the quadrat sampling technique to find the percentage cover of grass P in the school field. The area of each quadrat is 1 m².
 Table 2 shows the results obtained.

*Pelajar menggunakan teknik persampelan kuadrat untuk mencari peratus liputan bagi rumput P di padang sekolah. Luas setiap kuadrat ialah 1 m².
 Jadual 2 menunjukkan hasil yang diperolehi*

Quadrat Kuadrat	Area covered by grass P (m ²). <i>Luas diliputi rumput P (m²).</i>
i	0.35
ii	0.75
iii	0.68
iv	0.14
v	0.25
vi	0.10

Table 2 / *Jadual 2*

Which of the following is the percentage coverage of grass P in the school field?
 Manakah antara berikut peratus liputan bagi rumput P di padang sekolah?

- A 2.27%
 B 22.7%
 C 0.38%
 D 37.8%

- 29 Diagram 16 shows part of the nitrogen cycle.
Rajah 16 menunjukkan sebahagian daripada kitar nitrogen.

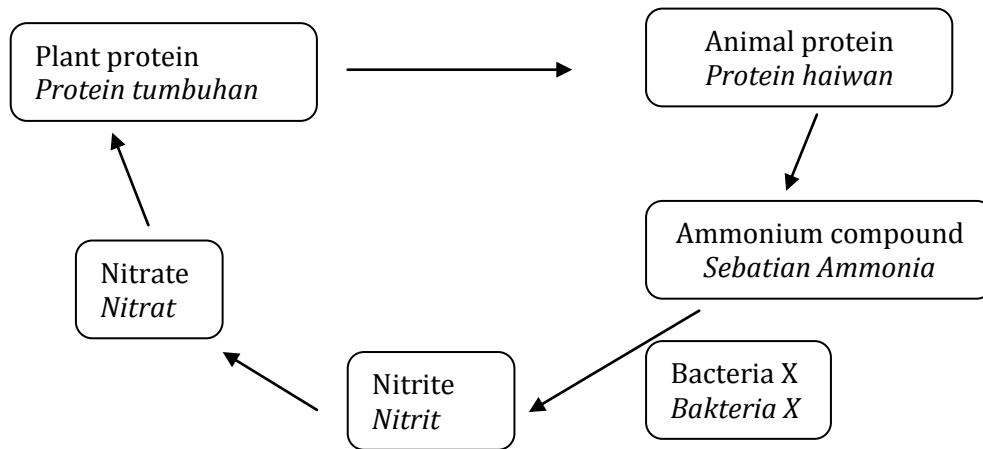


Diagram 16
Rajah 16

Name bacteria X
Namakan bakteria X.

- A Decaying bacteria
Bakteria pereput
- B Nitrifying bacteria
Bakteria penitratan
- C Denitrifying bacteria
Bakteria pendenitratan
- D Nitrogen fixing bacteria
Bakteria pengikatan nitrogen
- 30 Table 3 shows content of pollutant in the river of P, Q, R and S.
Jadual 3 dibawah menunjukkan kandungan bahan buangan yang terdapat dalam sungai P, Q, R dan S.

River Sungai	Organic matter Bahan Organik	Suspended solids Pepejal terampai	Nitrates and phosphate Nitrat dan Fosfat	Soil and sediment Tanah dan sedimen
P	√	X	√	X
Q	√	√	X	X
R	X	√	X	√
S	X	X	X	√

Table / Jadual 3

Based table which of the following river have higher value of BOD?
Berdasarkan jadual di atas sungai manakah mempunyai nilai BOD yang paling tinggi?

- A P
- B Q
- C R
- D S

- 31 Diagram 17 shows a human activity.
Rajah 17 menunjukkan satu aktiviti manusia

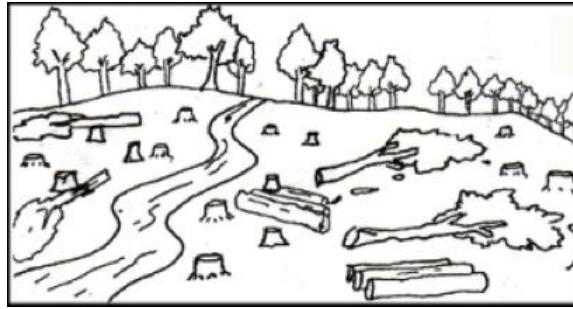


Diagram 17
Rajah 17

Which of the following is the effect of the activity?
Antara berikut yang manakah kesan daripada aktiviti tersebut?

- A B.O.D value in the river decrease
Nilai B.O.D di dalam sungai menurun
 - B The habitat of the flora and fauna increase
Habitat flora dan fauna meningkat
 - C The temperature in north pole decrease
Suhu di kawasan kutub utara menurun
 - D The carbon dioxide level in the atmosphere increase
Paras karbon dioksida dalam atmosfera meningkat
- 32 The following information is on the impact of a phenomenon.
Maklumat berikut ialah berkenaan impak satu fenomena.

Excessive ultraviolet rays cause skin cancer in humans, reducing the rate of photosynthesis in plants and disrupt the food chain.

Sinar ultraungu berlebihan mengakibatkan kanser kulit pada manusia, merendahkan kadar fotosintesis tumbuhan serta mengganggu rantai makanan.

Which of the following is the phenomenon ?
Yang manakah antara berikut fenomena tersebut?

- A Thermal pollution
Pencemaran termal
- B Global warming
Pemanasan global
- C Greenhouse effect
Kesan rumah hijau
- D Thinning of ozon layer
Penipisan lapisan ozon

- 33 The following statement is about eutrophication.
Pernyataan berikut adalah mengenai eutrofikasi.

L : Excess fertilisers from agriculture lands flow into lakes
Lebih baja dari kawasan pertanian mengalir ke tasik

M: Bacteria grow rapidly
Pertumbuhan bakteria sangat cepat

N : Algae grow rapidly and covers the surface of the lake
Alga mengalami pertumbuhan yang cepat dan menutupi permukaan tasik

O: The value of BOD increase
Nilai BOD meningkat

What is the correct sequence of the eutrophication process?
Apakah urutan yang betul untuk proses eutrofikasi?

- A O, L, M, N
B L, N, M, O
C L, M, O, N
D O, M, L, N
- 34 Diagram 18 shows a human heart structure.
Rajah 18 menunjukkan struktur jantung manusia.

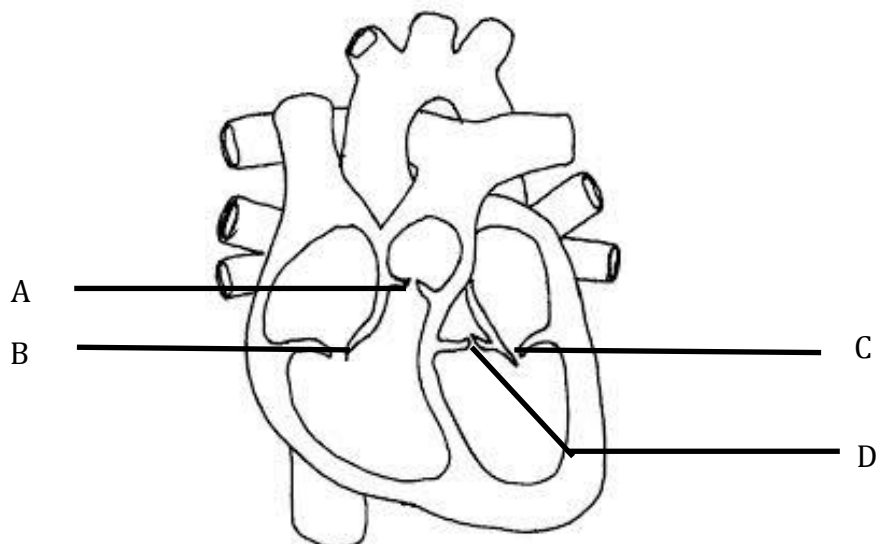


Diagram 18
Rajah 18

Which of the valves labelled A, B, C and D can prevent the backflow of the blood from the aorta to the left ventricles ?

Injap manakah berlabel A, B, C dan D yang dapat menghalang darah daripada berpatah balik daripada aorta ke ventrikel kiri ?

- 35 Diagram shows how does the blood can be divided into its components.
Rajah menunjukkan bagaimana darah dapat dibahagikan kepada komponennya.

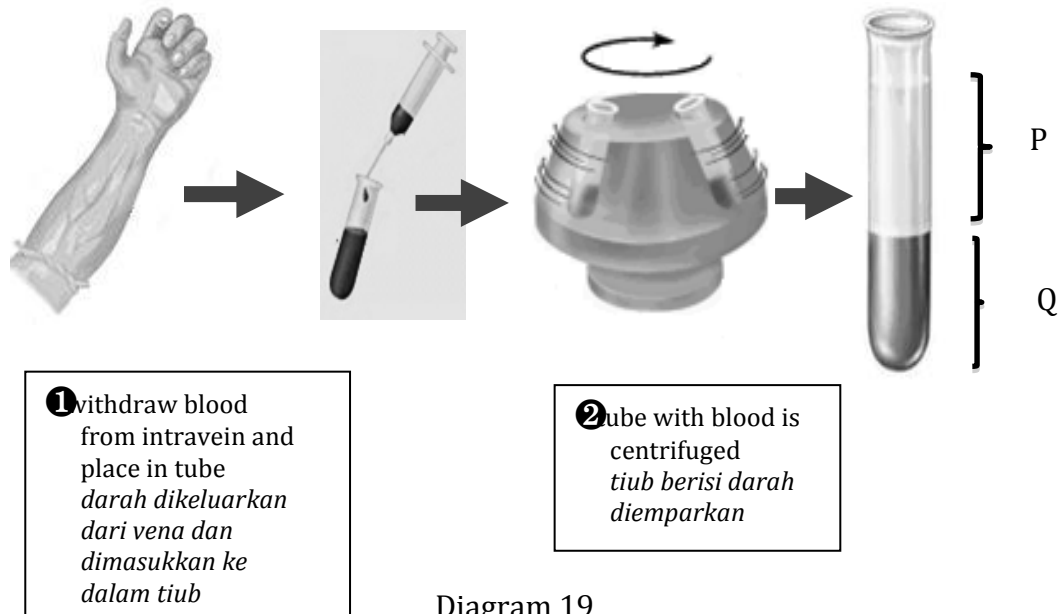


Diagram 19
 Rajah 19

Which of the following is true about P and Q ?
Antara berikut manakah benar tentang P dan Q

	P	Q
A	Platlets <i>Platelet</i>	Erythrocytes, leucocytes and blood plasma <i>Eritrosit, leukosit dan plasma darah</i>
B	Leucocytes <i>Leukosit</i>	Erythrocytes , platlets and blood plasma <i>Eritrosit , platelet dan plasma darah</i>
C	Erythrocytes <i>Eritrosit</i>	Blood plasma, leucocytes and platlets <i>Plasma darah, leukosit dan platelet</i>
D	Blood plasma <i>Plasma darah</i>	Erythrocytes , leucocytes and platelets <i>Eritrosit , leukosit dan platelet</i>

- 36 Diagram 20 shows a condition of a disease suffered by a boy.
Gambar 20 menunjukkan keadaan penyakit yang dihadapi oleh seorang budak lelaki.



Diagram 20
Rajah 20

*What types of immunity received by the boy after he recovers from the disease?
Apakah jenis keimunan yang diperolehi oleh budak lelaki ini selepas ia sembuh daripada penyakitnya.*

- A Natural Acquired Active Immunity
Keimunan Aktif Semulajadi
- B Artificial Acquired Active Immunity
Keimunan Aktif Buatan
- C Natural Acquired Passive Immunity
Keimunan Pasif Semulajadi
- D Artificial Acquired Passive Immunity
Keimunan Pasif Buatan

- 37 A doctor listened to Ahmad's heart beat by using a stethoscope. He heard the sound of "lub-hiss, lub-hiss" sound instead of the normal "lub-dup" sound. Which of the following is most likely the cause of the "hiss" sound .

Seorang doktor mendengar degupan jantung Ahmad. Dia mendengar bunyi "lub-hiss, lub – hiss" berbanding bunyi jantung yang normal iaitu bunyi "lub dup". Manakah yang berikut adalah disebabkan dengan bunyi " hiss " tersebut.

- A Clotted coronary artery
Koronari arteri yang tersumbat
 - B A defective semilunar valve
Kecacatan injap sabit
 - C High blood pressure
Tekanan darah tinggi
 - D A damaged pacemaker (SAN)
Perentak(SAN) bermasalah
- 38 Diagram shows a type of virus of HIV that can cause a fatal disease.
Rajah menunjukkan sejenis virus penyebab kepada penyakit yang boleh membawa maut.

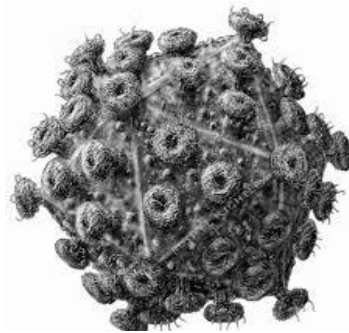


Diagram 21
Rajah 21

Which of the following is the major effect of the virus
Manakah yang berikut kesan utama daripada virus tersebut

- A lead to cell destruction.
mengakibatkan kemusnahan sel
- B lead to cell division.
mengakibatkan pembahagian sel
- C disrupted the circulatory system.
mengganggu sistem peredaran darah
- D weaken the body's immune system.
melemahkan sistem keimunan badan

- 39 Diagram 22(a) shows a cross-section of the root of a dicotyledonous plant.
Rajah 22(a) menunjukkan satu keratan rentas akar bagi satu tumbuhan dikotiledon.

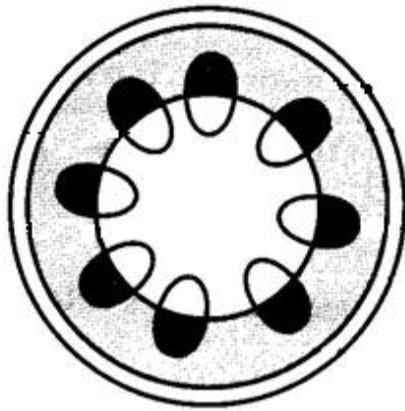


Diagram 22 (a)
Rajah 22(a)

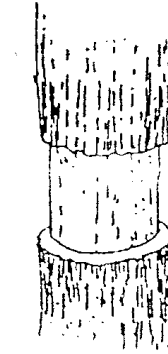


Diagram 22(b)
Rajah 22(b)

If the ring of the stem shown by the shaded area A and B are being removed as in diagram 22 a) while diagram 22 b) shows the ringing of the bark, predict what would happened to the plants after a month?

Sekiranya gelang pada batang seperti ditunjukkan pada bahagian berlorek A dan B dibuang sepertimana yang ditunjukkan pada rajah 22 a) manakala rajah 22 b) menunjukkan penggelangan kulit pokok itu, apakah yang akan berlaku kepada tumbuhan tersebut selepas sebulan?

- A Translocation does not occur
Translokasi tidak berlaku
- B Transpiration does not occur
Transpirasi tidak berlaku
- C Guttation does not occur
Gutasi tidak berlaku
- D Water flows is blocked
Pengaliran air disekat

- 40 Diagram 23 shows the structure of the muscles in a leg and an forearm.
Rajah 23 menunjukkan struktur otot-otot dalam kaki dan lengan.

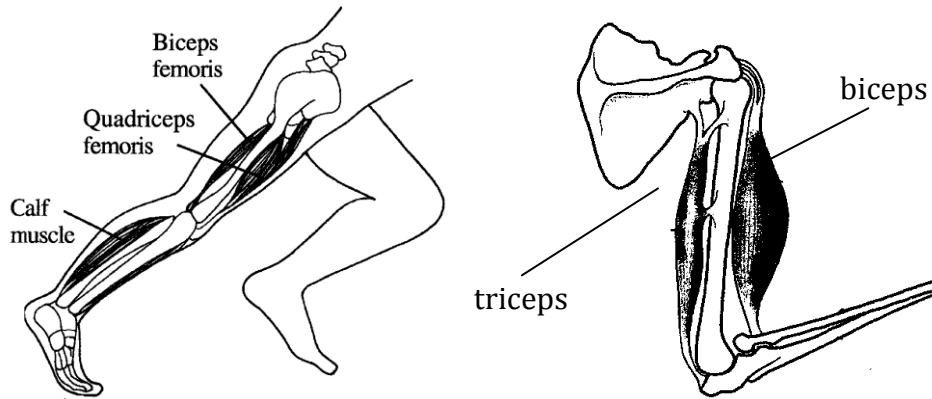


Diagram 23
Rajah 23

Flexor is the muscle which bends the joint while extensor is the muscle which straightens a joint.

Which of the following muscles are known as flexor ?

Fleksor adalah otot yang membengkokkan sendi manakala extensor adalah otot yang meluruskan sendi.

Manakah otot yang berikut dikenali sebagai fleksor?

- A Quadriceps femoris and triceps
Kuadrisep femoris dan trisep
- B Quadriceps femoris and biceps
Kuadrisep femoris dan bisep
- C Biceps femoris and triceps
Bisep femoris dan trisep
- D Biceps femoris and biceps
Bisep femoris dan bisep

- 41 Diagram 24 shows the human vertebral column with the numbers of the vertebrae and two types of vertebrae, K and S.

Diagram 24 menunjukkan kolum vetabrata manusia dengan jujukan nombor vetebra dan dua jenis vertebra K dan S.

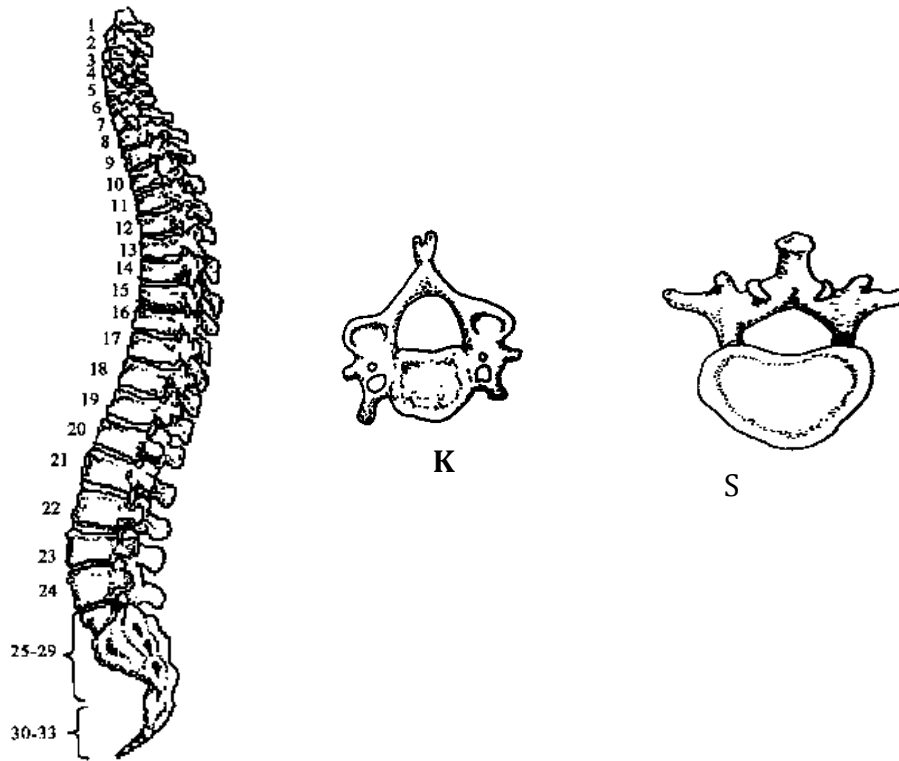


Diagram 24
Rajah 24

Which of the following shows the correct vertebrae number for vertebrae K and L ?
Antara yang berikut, yang manakah menunjukkan nombor vertebra yang padan dengan tulang vertebra K dan L ?

	Number of vertebra K	Number of vertebra S
A	4	17
B	5	19
C	7	23
D	9	25

- 42 Diagram 25 shows the movement of an earthworm.
Rajah 25 menunjukkan pergerakan seekor cacing tanah.

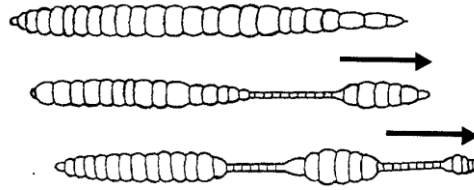


Diagram 25
Rajah 25.

On which of the following surface will the earthworm move the fastest?
Di atas permukaan yang manakah cacing ini bergerak paling cepat?

- A Glass *Kaca*
B Wood *Kayu*
C Plastics *Plastik*
D Metal plate *Kepingan logam*
- 43 Diagram 26 shows the wrong way and the right way to lift a heavy object.
Rajah 26 menunjukkan cara yang salah dan cara yang betul semasa mengangkat sesuatu objek yang berat.

Which of the following part of the body will have the highest risk to suffer from injury?
Bahagian badan yang manakah akan mengalami risiko cedera yang paling tinggi?

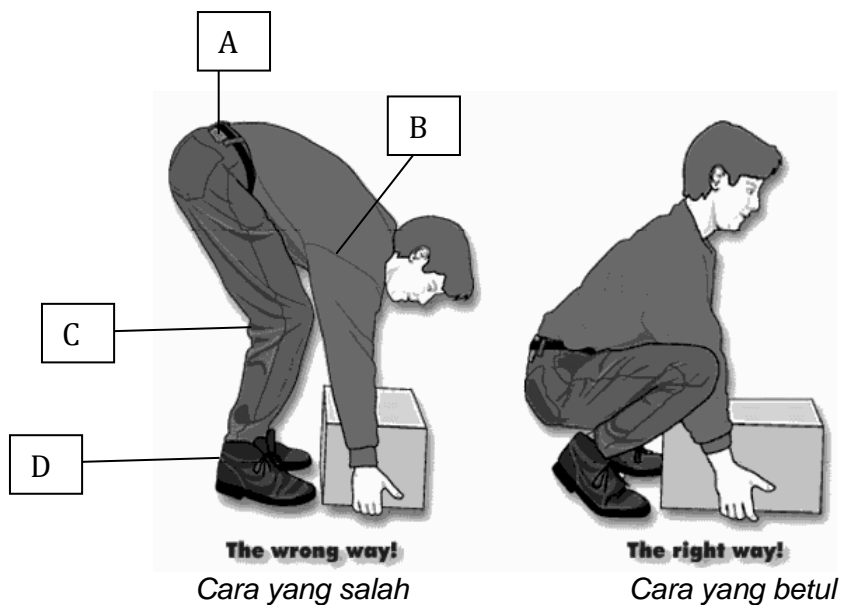


Diagram 26
Rajah 26

- 44 Diagram 27 shows three types of human organs, the heart, the forearm and the stomach. These organs are made up of different type of muscles..
Rajah 27 menunjukkan tiga jenis organ manusia iaitu jantung, lengan dan perut. Organ-organ ini diperbuat daripada otot-otot yang berlainan jenis.

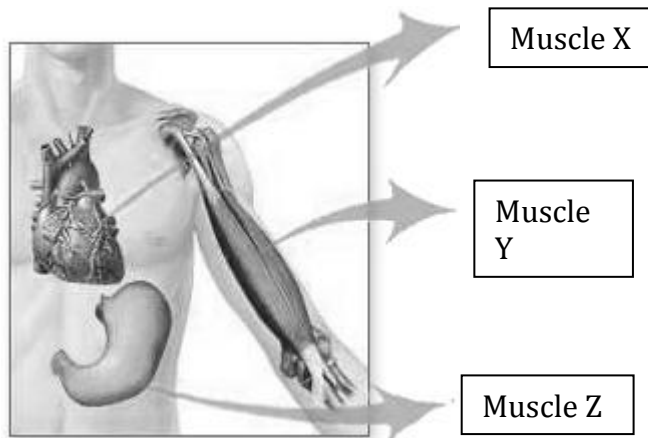
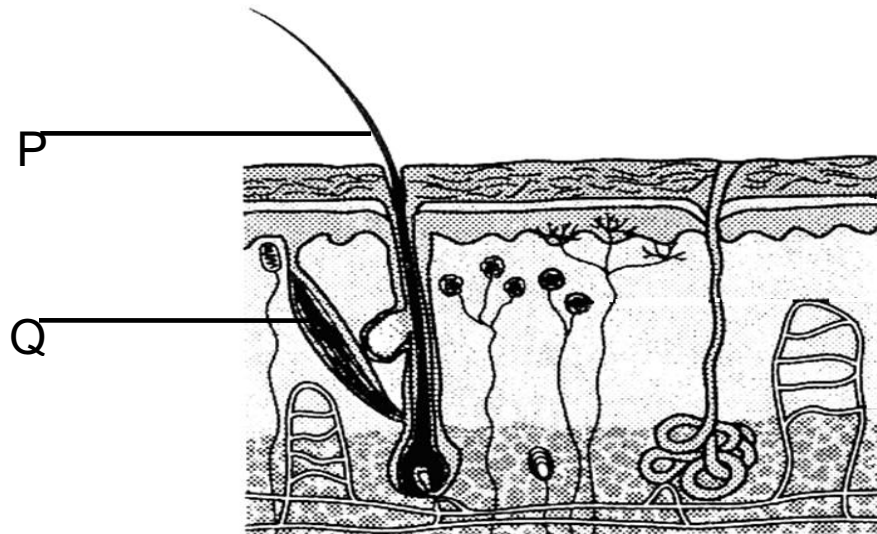


Diagram 27
Rajah 27

Which of the following are muscle X, Y and Z ?
 Otot-otot yang berikut manakah merupakan otot X, Y dan Z ?

	Muscle X	Muscle Y	Muscle Z
A			
B			
C			
D			

- 45 Diagram 28 shows cross section of the human skin.
Rajah 28 menunjukkan keratan rentas kulit



manusia

Diagram 28
Rajah 28

What happen to P and Q during cool day?
Apakah yang berlaku kepada P dan Q semasa hari sejuk?

	P	Q
A	Lie flat <i>Baring</i>	Contract <i>Mengecut</i>
B	Stand upright <i>Berdiri tegak</i>	Relax <i>Mengendur</i>
C	Lie flat <i>Baring</i>	Relax <i>Mengendur</i>
D	Stand upright <i>Berdiri tegak</i>	Contract <i>Mengecut</i>

- 46 Diagram 29 shows the structure of a nephron
Rajah 29 menunjukkan struktur satu nefron

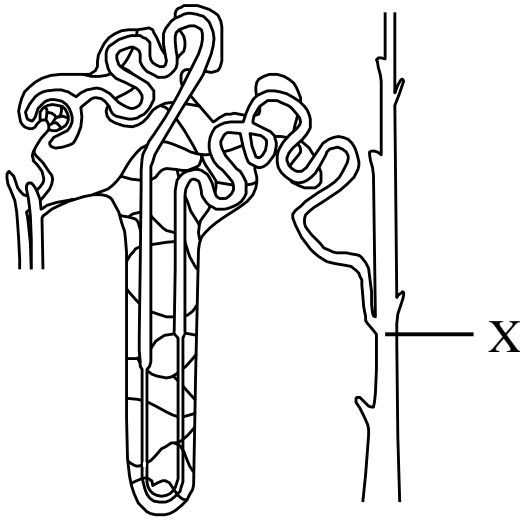


Diagram 29
Rajah 29

*Which of the following activities cause X to be more permeable to water?
Antara aktiviti berikut, yang manakah akan menyebabkan X lebih telap kepada air?*

- | | |
|-----|--|
| P - | Eating salty foods
<i>Makan makanan yang masin</i> |
| Q - | Drinking a lot of carbonated drinks
<i>Banyak minum air berkarbonat</i> |
| R - | Exercise a lot
<i>Banyak bersenam</i> |
| S - | Drinking a lot of water
<i>Banyak minum air</i> |

- | | | | |
|---|---------------------------|---|---------------------------------|
| A | P and Q
<i>P dan Q</i> | C | P, Q and R
<i>P, Q dan R</i> |
| B | P and R
<i>P dan R</i> | D | P, R and S
<i>P, R dan S</i> |

- 47 Diagram 30 below represents a dialysis machine.
Rajah 30 di bawah mewakili satu mesin dialisis.

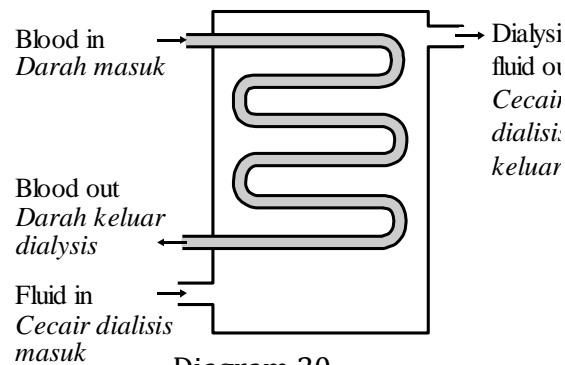


Diagram 30
Rajah 30

Which substances in the dialysis fluid must be at the same concentration as that in blood?

Manakah bahan-bahan dalam bendalir dialisis mesti sama kepekannya seperti dalam darah.

- A Amino acids and urea
Asid amino dan urea
- B Glucose and amino acids
Glukosa dan asid amino
- C Glucose and urea
Glukosa dan urea
- D Urea and salts
Urea dan garam
- 48 The information below is about a neurological disease.
Pernyataan di bawah adalah berkaitan penyakit neurologi

- Loss of memory and intellectual ability
Hilang ingatan dan kebolehan intelek
- Shrinkage of brain tissues
Pengecutan tisu otak
- Lack of neurotransmitters such as acetylcholine
Kekurangan bahan pemancar seperti asetikolina

What is the disease ?
Apakah penyakit itu ?

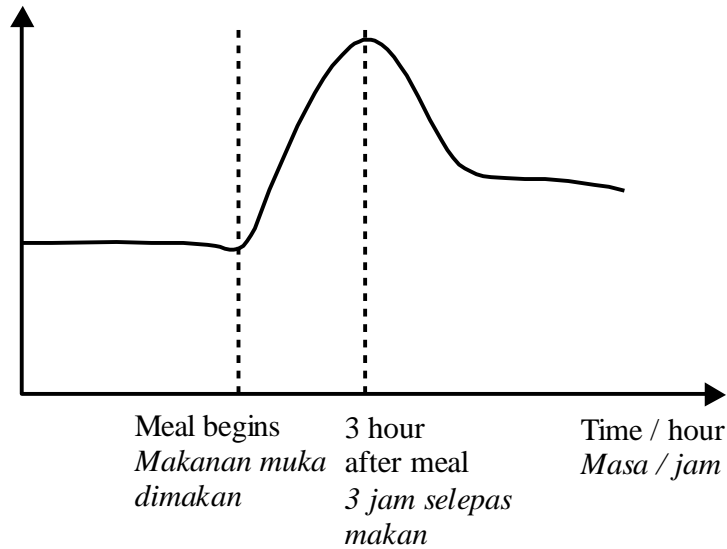
- A Parkinson's disease C Osteoporosis
B Alzheimer's disease D Arthritis

- 49 Graph shows the blood glucose concentration in a healthy person before, during and after a meal.

Graf menunjukkan kepekatan glukosa darah pada seorang yang sihat sebelum, semasa dan selepas makan.

Blood glucose concentration $\text{mg}/100 \text{ cm}^3$

Kepakatan glukosa darah $\text{mg}/100 \text{ cm}^3$



What causes the decrease in glucose level 3 hours after the meal?

Apakah yang menyebabkan aras glukosa berkurang 3 jam selepas makan?

- A Antidiuretic hormone
Hormon antidiuretik
- B Insulin
Insulin
- C Glucagon
Glukagon
- D Oestrogen
Estrogen

- 50 Diagram 31 shows part of human brain. A man complaining of breathing difficulties after being infected by a virus .
Rajah 31 menunjukkan sebahagian otak manusia. Seorang lelaki mengadu kesukaran bernafas selepas dia didapati dijangkiti oleh virus.

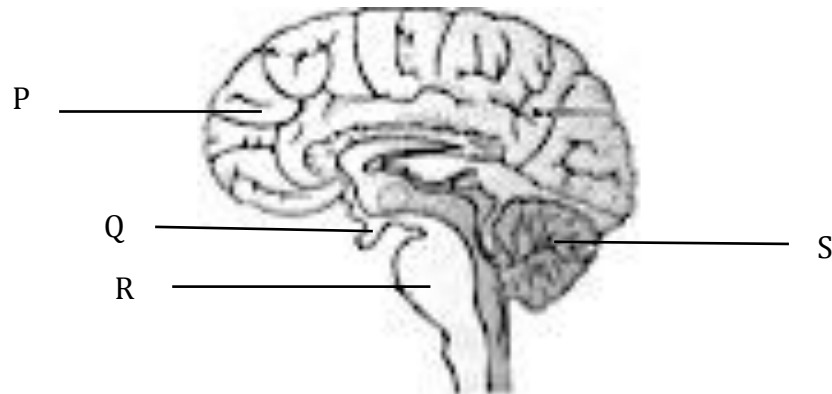


Diagram 31
Rajah 31

Which part of the brain is injured?
Bahagian otak yang manakah cedera?

- A P
- B Q
- C R
- D S

SOALAN TAMAT