



SOALAN PRAKTIS BESTARI
PROJEK JAWAB UNTUK JAYA (JUJ) 2019



SIJIL PELAJARAN MALAYSIA

4551/1

BIOLOGI

Kertas 1/Set 1

1 1/4 jam

Satu jam lima belas minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. *Kertas soalan ini adalah dalam dwibahasa.*
2. *Soalan dalam Bahasa Inggeris mendahului soalan yang sepadan dalam Bahasa Melayu.*

Kertas soalan ini mengandungi 39 halaman

- 1 Diagram 1 shows an animal cell.

Rajah 1 menunjukkan satu sel haiwan.

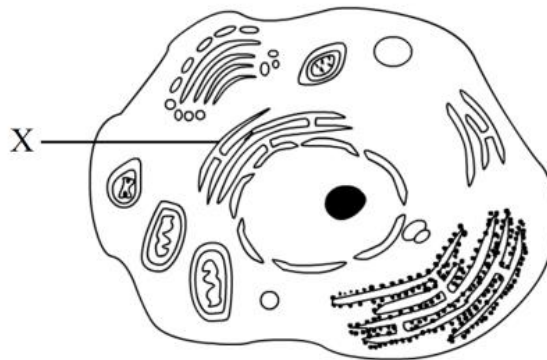


Diagram 1 / *Rajah 1*

Organelle X is

Organel X ialah

- A Chloroplast / *Kloroplas*
 - B Golgi apparatus / *Jasad Golgi*
 - C Lysosome / *Lisosom*
 - D Smooth endoplasmic reticulum / *Jalinan endoplasma licin*
- 2 The organelle that found abundantly in muscle tissue is
- Organ yang terdapat dengan banyak dalam tisu otot ialah*
- A Mitochondrion / *Mitokondrion*
 - B Ribosome / *Ribosom*
 - C Lysosome / *Lisosom*
 - D Chloroplast / *Kloroplas*

3 Diagram 2 shows a typical animal cell.

Rajah 2 menunjukkan satu sel haiwan tipikal.

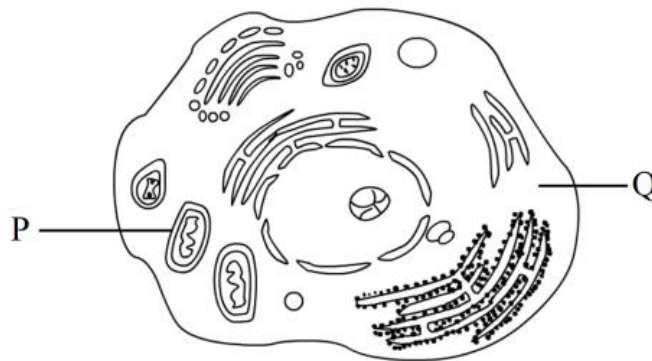


Diagram 2 / Rajah 2

Which of the following is correct about the functions of organelles P and Q?

Antara yang berikut, yang manakah betul mengenai fungsi organel P dan Q?

	Function of organelle P <i>Fungsi organel P</i>	Function of organelle Q <i>Fungsi organel Q</i>
A	Site of cellular respiration <i>Tapak respirasi sel</i>	Digest or break down complex organic molecules <i>Mencernakan atau memecahkan molekul organik yang kompleks</i>
B	Site of cellular respiration <i>Tapak respirasi sel</i>	A medium for biochemical reaction in the cell <i>Medium bagi tindak balas biokimia dalam sel</i>
C	Digest or break down complex organic molecules <i>Mencernakan atau memecahkan molekul organik yang kompleks</i>	A medium for biochemical reaction in the cell <i>Medium bagi tindak balas biokimia dalam sel</i>
D	Digest or break down complex organic molecules <i>Mencernakan atau memecahkan molekul organik yang kompleks</i>	Processes, modifies and packages protein <i>Memproses, mengubahsuai dan membungkus protein</i>

- 4** Collagen is the main structural protein in the extracellular space. It is the most abundant protein in mammals. What is the best reason of consuming collagen?

Kolagen adalah struktur utama dalam ruang di luar sel. Ia merupakan protein yang banyak dijumpai di dalam mamalia. Apakah sebab terbaik untuk mengambil kolagen?

- A** As dense fibrous connective tissue to improve skin elasticity.
Sebagai tisu penghubung bergentian untuk memperbaiki keanjalan kulit.
- B** As myelin sheath in the nerve tissue.
Sebagai selaput mielin dalam tisu saraf.
- C** As adipos tissue under the skin
Sebagai tisu adipos di bawah kulit.
- D** As epithelium tissue in the skin.
Sebagai tisu epitelium di dalam kulit.

- 5** Diagram 3 shows a plant cell in a particular solution.

Rajah 3 menunjukkan suatu sel tumbuhan dalam larutan tertentu.

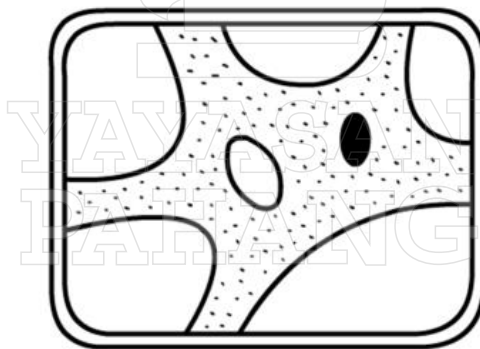


Diagram 3 / Rajah 3

The plant cell experiences

Sel tumbuhan tersebut mengalami

- | | |
|---|---|
| A Plasmolysis / <i>Plasmolisis</i> | B Deplasmolysis / <i>Deplasmolisis</i> |
| C Haemolysis / <i>Hemolisis</i> | D Crenation / <i>Krenasi</i> |

- 6 Diagram 4 shows the initial level of 10% sucrose solution in a capillary tube for an experiment.

Rajah 4 menunjukkan aras awal bagi larutan sukrosa 10% dalam tiub kapilari bagi satu eksperimen.

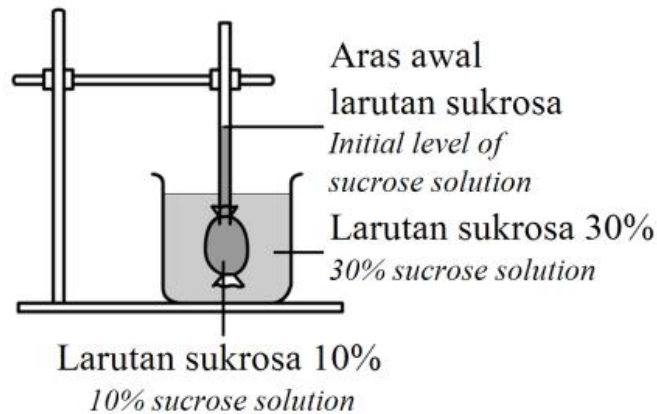
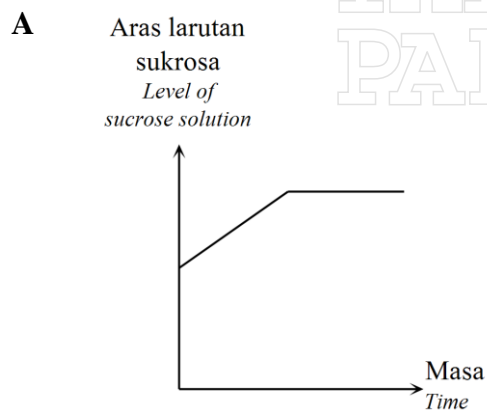


Diagram 4 / Rajah 4

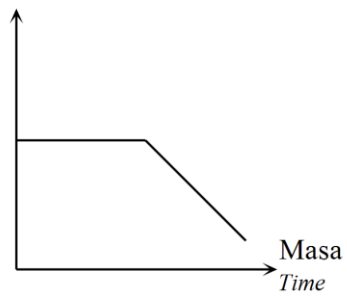
Which of the following graphs shows the changes of the level of sucrose solution in capillary tube during the experiment?

Antara graf yang berikut, yang manakah menunjukkan perubahan aras larutan sukrosa dalam tiub kapilari semasa eksperimen tersebut?

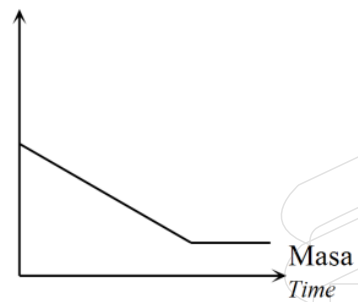


B

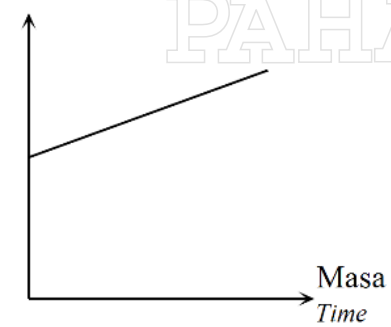
Aras larutan
sukrosa
*Level of
sucrose solution*

**C**

Aras larutan
sukrosa
*Level of
sucrose solution*

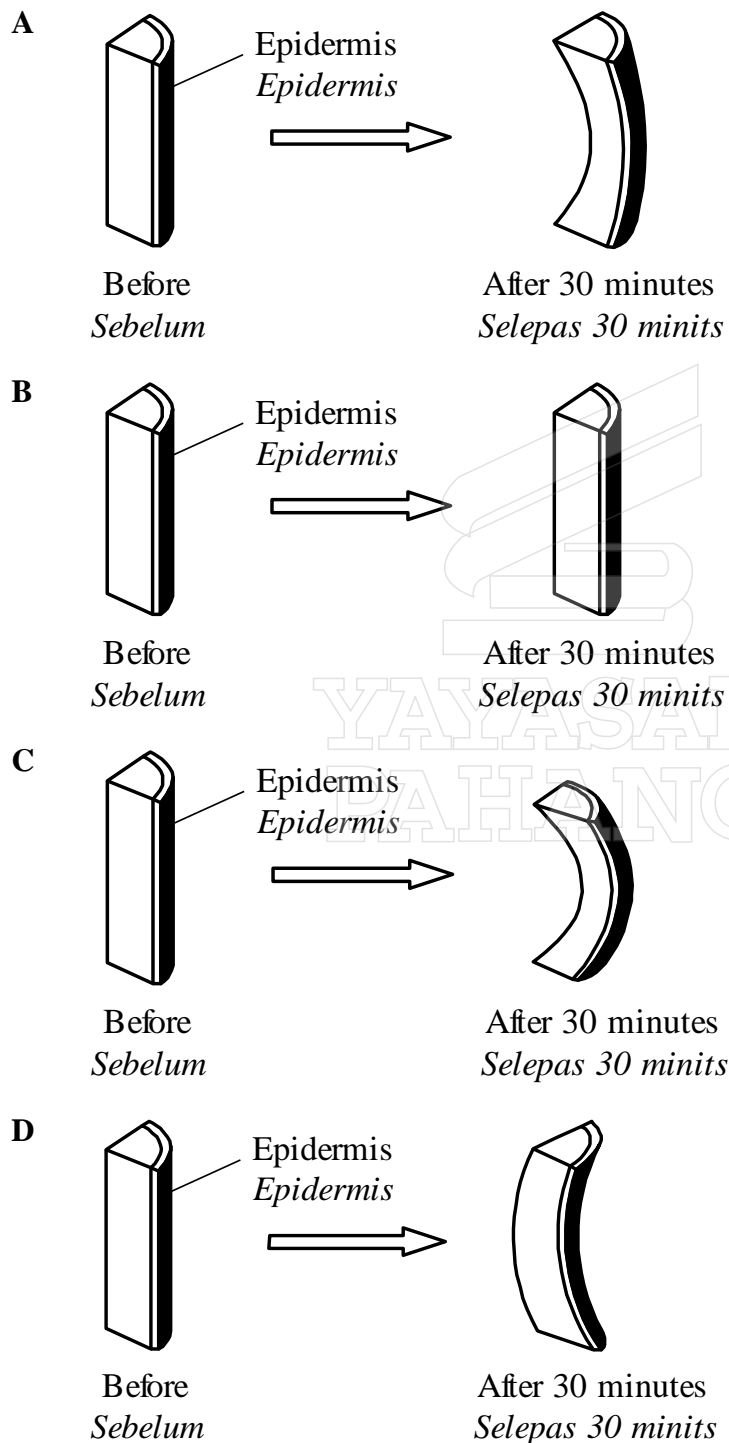
**D**

Aras larutan
sukrosa
*Level of
sucrose solution*



- 7 A stalk of green mustard is cut longitudinally into four equal size and length. 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 dan panjang. Semua keratan tersebut direndam dalam larutan sukrosa yang berbeza kepekatan selama 30 minit. Keratan manakah yang direndam dalam larutan hipotonik?



- 8 Diagram 5 shows a protein structure.
Rajah 5 menunjukkan satu struktur protein.

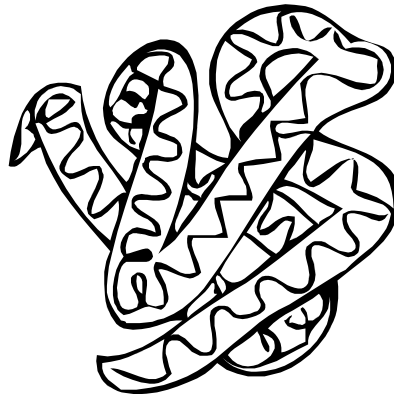


Diagram 5 / Rajah 5

Which of the following are correct about the level of organization and example of this type of protein?

Yang manakah antara berikut benar tentang aras organisasi protein tersebut beserta contoh?

	Level of organisation <i>Aras organisasi</i>	Example <i>Contoh</i>
I	Quaternary / <i>Kuaterner</i>	Insulin / <i>Insulin</i>
II	Tertiary / <i>Tertier</i>	Albumin / <i>Albumin</i>
III	Quaternary / <i>Kuaterner</i>	Haemoglobin / <i>Hemoglobin</i>
IV	Tertiary / <i>Tertier</i>	Thyroxine / <i>Tiroksina</i>

- A** I and III only
I dan III sahaja
- B** I and IV only
I dan IV sahaja
- C** II and IV only
II dan IV sahaja
- D** III and IV only
III dan IV sahaja

- 9 Which of the following is correct?
 Antara berikut, yang manakah betul?

	Enzyme <i>Enzim</i>	Function <i>Fungsi</i>
A	Erepsin <i>Erepsin</i>	Hydrolyses fat <i>Menghidrolisis lemak</i>
B	Rennin <i>Renin</i>	Coagulates milk <i>Menggumpalkan susu</i>
C	Pepsin <i>Pepsin</i>	Emulsifies milk <i>Mengemulsikan susu</i>
D	Trypsin <i>Tripsin</i>	Digests fat <i>Mencernakan lemak</i>

10

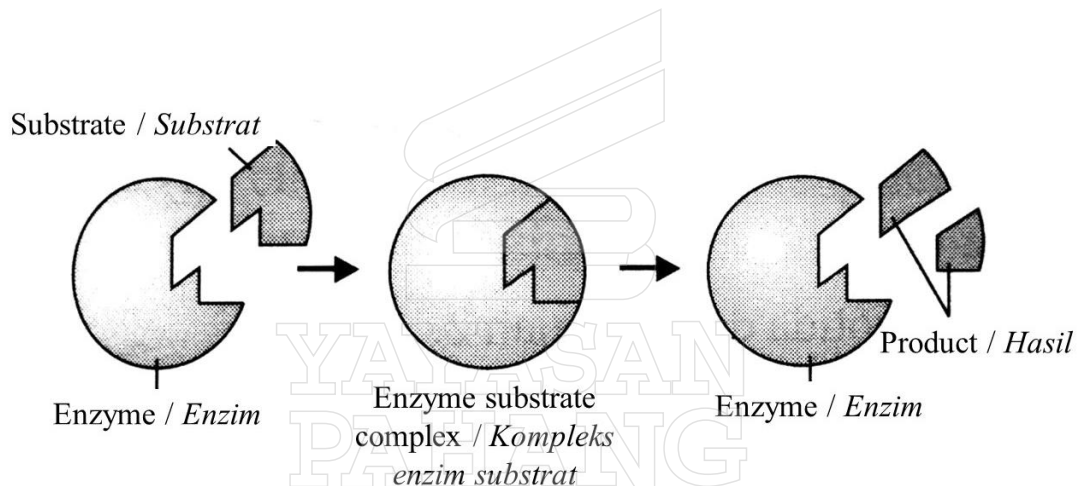


Diagram 6 / Rajah 6

Which of the following statements are not the enzyme properties as shown in Diagram 6?
 Antara pernyataan berikut, yang manakah bukan sifat enzim seperti yang ditunjukkan dalam Rajah 6?

- A Enzyme action is specific.
Tindakan enzim adalah spesifik.
- B Enzyme remains unchanged at the end of the reaction.
Enzim kekal tidak berubah di akhir tindak balas.

C The enzyme reaction is affected by the substrate concentration.

Tindak balas enzim dipengaruhi oleh kepekatan substrat.

D Enzymes can be used to catalyze other similar substrate.

Enzim boleh digunakan untuk memangkinkan substrat lain yang serupa.

- 11 Diagram 7 shows a baby cloth with a baby food stains before and after being washed with detergent containing enzyme.

Rajah 7 menunjukkan baju bayi dengan kesan kotoran makanan bayi sebelum dan selepas dibasuh dengan pencuci mengandungi enzim.

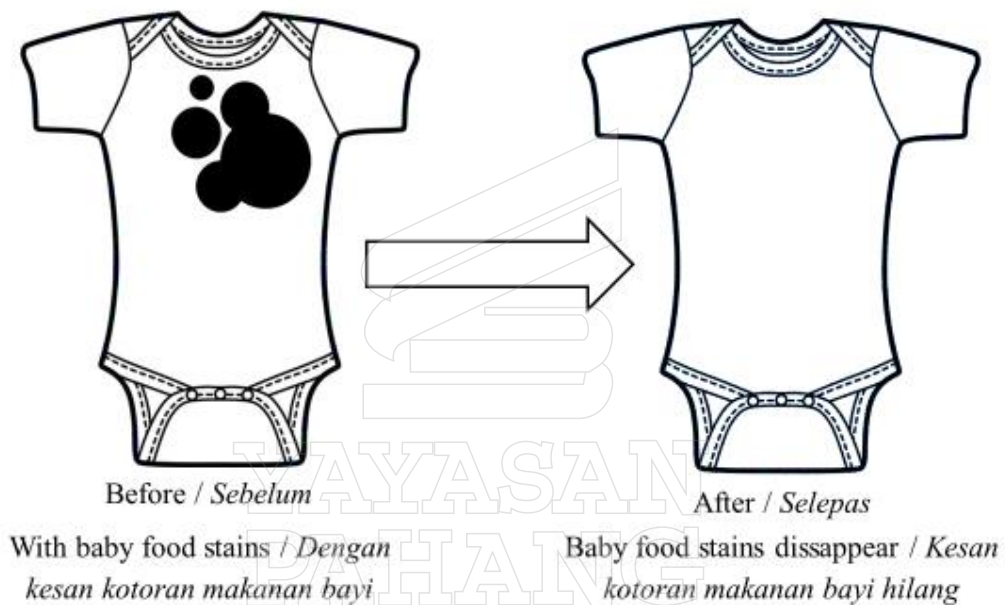


Diagram 7 / Rajah 7

Which are the most suitable enzyme and temperature to give the result shown?

Yang manakah enzim dan suhu yang paling sesuai untuk menghasilkan keputusan seperti di atas?

Enzyme / Enzim	Temperature / Suhu
A Lipase / Lipase	37°C
B Protease / Protease	18°C
C Lipase / Lipase	18°C
D Protease / Protease	37°C

- 12 Which of the following is the **correct** comparison between Meiosis I and Meiosis II?

*Manakah antara berikut perbandingan yang **betul** antara Meiosis I dan Meiosis II?*

	Meiosis I	Aspect <i>Aspek</i>	Meiosis II
A	Synapsis does not occur <i>Sinapsis tidak berlaku</i>	Prophase <i>Profasa</i>	Synapsis occurs <i>Sinapsis berlaku</i>
B	Chromosomes line up at metaphase plate. <i>Kromosom beratur di satah khatulistiwa.</i>	Metaphase <i>Metafasa</i>	Homologous chromosomes line up at metaphase plate. <i>Kromosom homolog beratur di satah khatulistiwa.</i>
C	Homologous chromosomes separate and pulled to the opposite poles. <i>Kromosom homolog berpisah dan tertarik ke kutub yang bertentangan.</i>	Anaphase <i>Anafasa</i>	Centromeres separate and chromatids are pulled to the opposite poles. <i>Sentromer berpisah dan kromatid tertarik ke kutub yang bertentangan.</i>
D	Two daughter cells are produced. <i>Dua sel anak terhasil.</i>	Telophase <i>Telofasa</i>	Two daughter cells are produced. <i>Dua sel anak terhasil.</i>

- 13 Diagram 8 shows a phase during meiosis.
Rajah 8 menunjukkan satu fasa semasa meiosis.

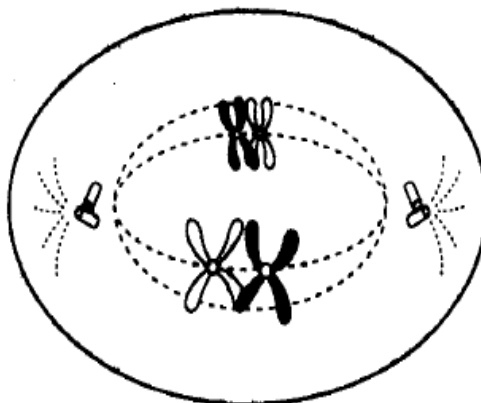


Diagram 8 / *Rajah 8*

What is the significance of the phase shown?

Apakah kepentingan fasa tersebut?

- A Produce daughter cell with equal number of chromosome as the parent cell.
Menghasilkan sel anak yang mempunyai bilangan kromosom yang sama dengan sel induk.
- B Cause crossing over occurs between homologous chromosomes.
Menyebabkan pindah silang berlaku antara kromosom homolog.
- C Halved the number of chromosome in each daughter cell.
Bilangan kromosom dalam sel anak menjadi separuh.
- D Produce variation in gamete.
Menghasilkan variasi pada gamet.

- 14 Diagram 9 shows the chromosomes in the liver cell of organisms X.
Rajah 9 menunjukkan kromosom dalam sel hati organisma X.

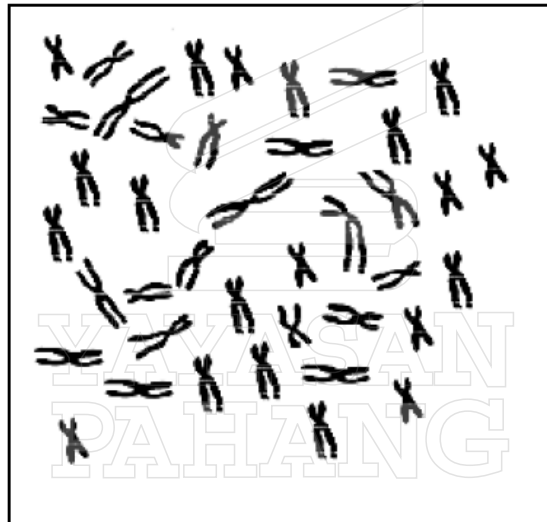


Diagram 9 / Rajah 9

How many chromosomes are in a gamete of organism X?

Berapakah bilangan kromosom dalam gamet organisma X?

- A 10
B 20
C 40
D 80

- 15 Diagram 10.1 shows 2 classes of foods.
Rajah 10.1 menunjukkan 2 kelas makanan.



Classes of food A

Kelas makanan A



Classes of food B

Kelas makanan B

Diagram 10.1 / *Rajah 10.1*

- Diagram 10.2 shows the human digestive system.
Rajah 10.2 menunjukkan sistem pencernaan manusia.

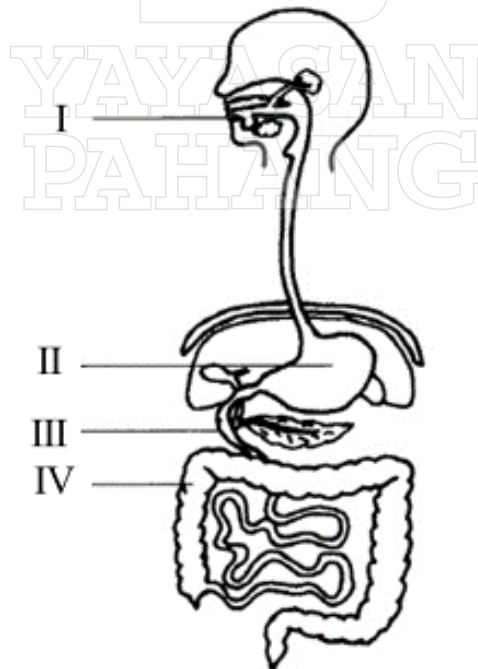


Diagram 10.2 / *Rajah 10.2*

Choose the correct match between classes of food with the correct part of the digestive system.

Pilih padanan yang betul antara kelas makanan dengan bahagian pada sistem pencernaan yang mencerna makanan tersebut.

	Classes of food <i>Kelas makanan</i>	Part of human digestive system <i>Bahagian pada sistem pencernaan manusia</i>
I	Classes of food A	I
II	Classes of food A	II
III	Classes of food B	III
IV	Classes of food B	IV

- A** I and III only
I dan III sahaja
- B** I and IV only
I dan IV sahaja
- C** II and IV only
II dan IV sahaja
- D** III and IV only
III dan IV sahaja

16 Which of the following food groups prevents constipation?

Antara kumpulan makanan yang berikut, yang manakah mencegah sembelit?

- A** Apple, corn cereals, spinach
Epal, bijirin jagung, bayam
- B** Chicken burger, low fat milk, wholemeal bread
Burger ayam, susu rendah lemak, roti berserat
- C** Mushroom soup, cheese, orange juice
Sup cendawan, keju, jus oren
- D** Seafood sup, chocolate cake, fish
Sup makanan laut, kek coklat, ikan

17 Diagram 16 shows the pathway of nutrients to body cell.

Rajah 16 menunjukkan laluan nutrien ke sel badan.

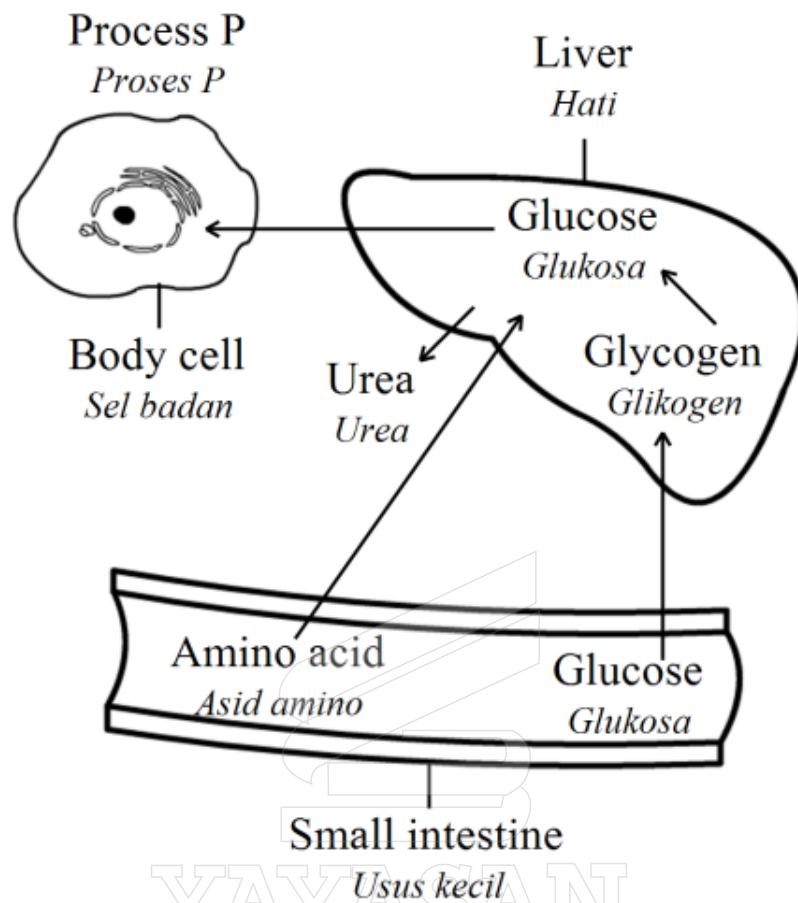


Diagram 11 / Rajah 11

Process P is

Proses P ialah

- A** Assimilation / Asimilasi
- B** Deamination / Pendeaminaan
- C** Detoxification / Detoksifikasi
- D** Hydrolysis / Hidrolisis

- 18 Diagram 12 shows the cross section of the ileum.

Rajah 12 menunjukkan keratan rentas ileum.

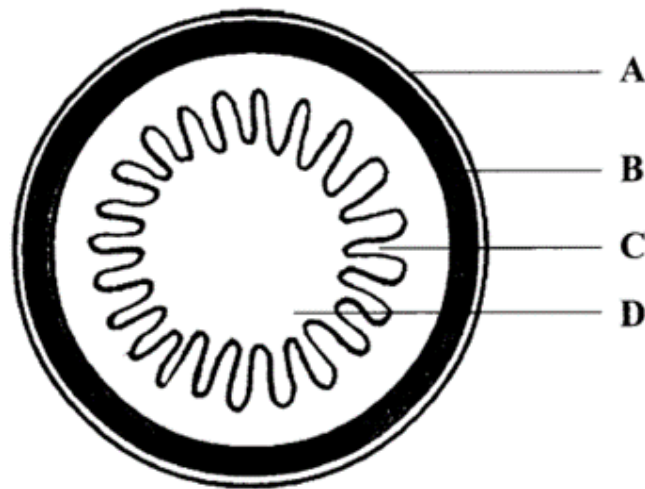


Diagram 12 / *Rajah 12*

Which parts labelled A, B, C or D contributes to the effectiveness of nutrient absorption?

Bahagian berlabel A, B, C atau D yang manakah membantu dalam keberkesanan penyerapan nutrient?

19. Diagram 13 shows a cross section of a leaf.

Rajah 13 menunjukkan keratan rentas daun.

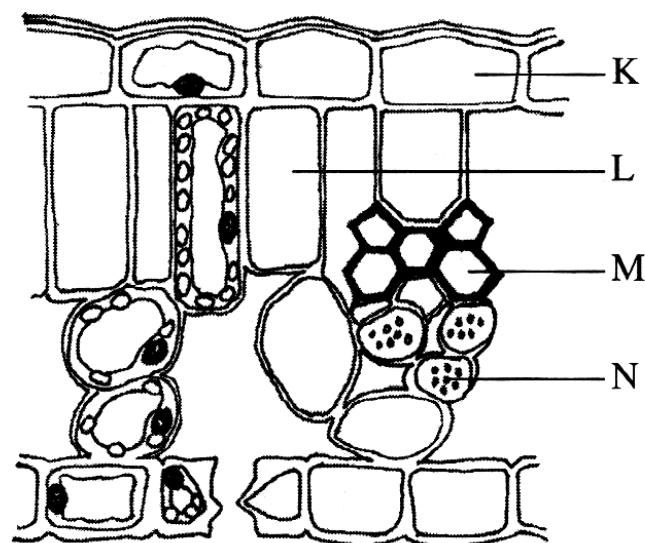


Diagram 13 / *Rajah 13*

Which of the cells labelled K, L, M and N, transport organic substances and water?

Antara sel berlabel K, L, M dan N, yang manakah mengangkut bahan organik dan air?

Transport / Pengangkutan

	Organic substances / <i>Bahan organik</i>	Water / <i>Air</i>
A	K	L
B	L	M
C	N	M
D	N	K

- 20 Which of the following are the products of aerobic and anaerobic respiration in muscle cells?

Manakah antara berikut adalah hasil dari respirasi aerob dan anaerob di sel-sel otot?

	Aerobic Respiration <i>Respirasi aerob</i>	Anaerobic Respiration <i>Respirasi anaerob</i>
A	Carbon dioxide and water <i>Karbon dioksida dan air</i>	Ethanol <i>Etanol</i>
B	Carbon dioxide and water <i>Karbon dioksida dan air</i>	Lactic acid <i>Asid laktik</i>
C	Lactic acid <i>Asid laktik</i>	Ethanol <i>Etanol</i>
D	Lactic acid <i>Asid laktik</i>	Carbon dioxide and water <i>Karbon dioksida dan air</i>

- 21 Diagram 14 shows the pathway of inhaled and exhaled air in the lungs.

Rajah 14 menunjukkan aliran udara sedutan dan udara hembusan di dalam peparu.

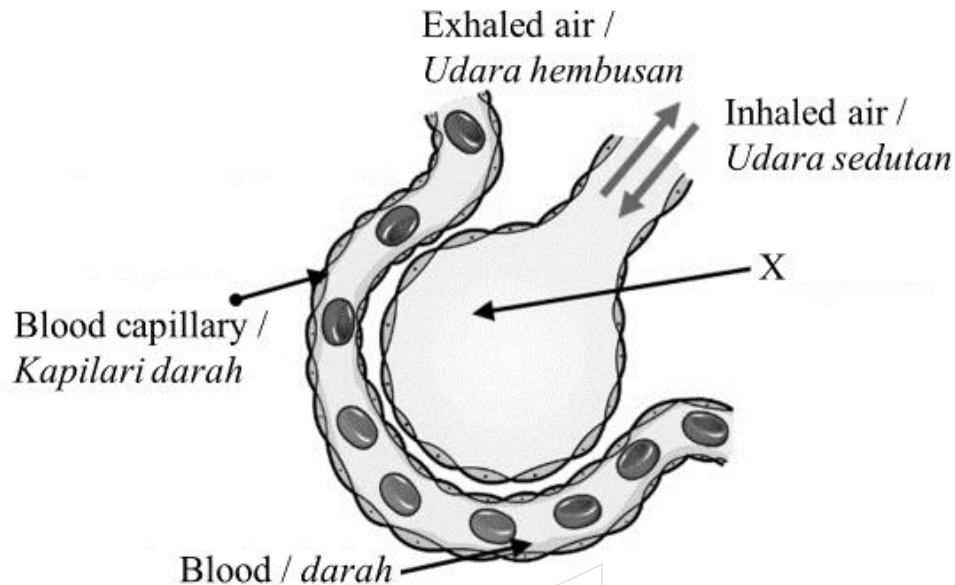


Diagram 14 / Rajah 14

Which of the following statements are **true** when a person inhales?

*Antara pernyataan berikut, yang manakah **benar** apabila seseorang individu menarik nafas?*

- I More oxyhaemoglobin will be formed.
Lebih banyak oksihemoglobin terbentuk.
- II Oxygen diffuses from X into the blood capillary.
Oksigen meresap dari X ke dalam kapilari darah.
- III The partial pressure of oxygen in X is higher than the partial pressure of oxygen in the blood capillary.
Tekanan separa oksigen di X adalah lebih tinggi daripada tekanan separa oksigen di dalam kapilari darah.
- IV The partial pressure of carbon dioxide in blood capillary is lower than the partial pressure of carbon dioxide in X.
Tekanan separa karbon dioksida di dalam kapilari darah adalah lebih rendah dari tekanan separa karbon dioksida di X.

- A I and II only / *I dan II sahaja*
- B III and IV only / *III dan IV sahaja*
- C I, II, and III only / *I, II dan III sahaja*
- D I, II, III, and IV / *I, II, III dan IV*

22 Which of the following is the different between photosynthesis and respiration?

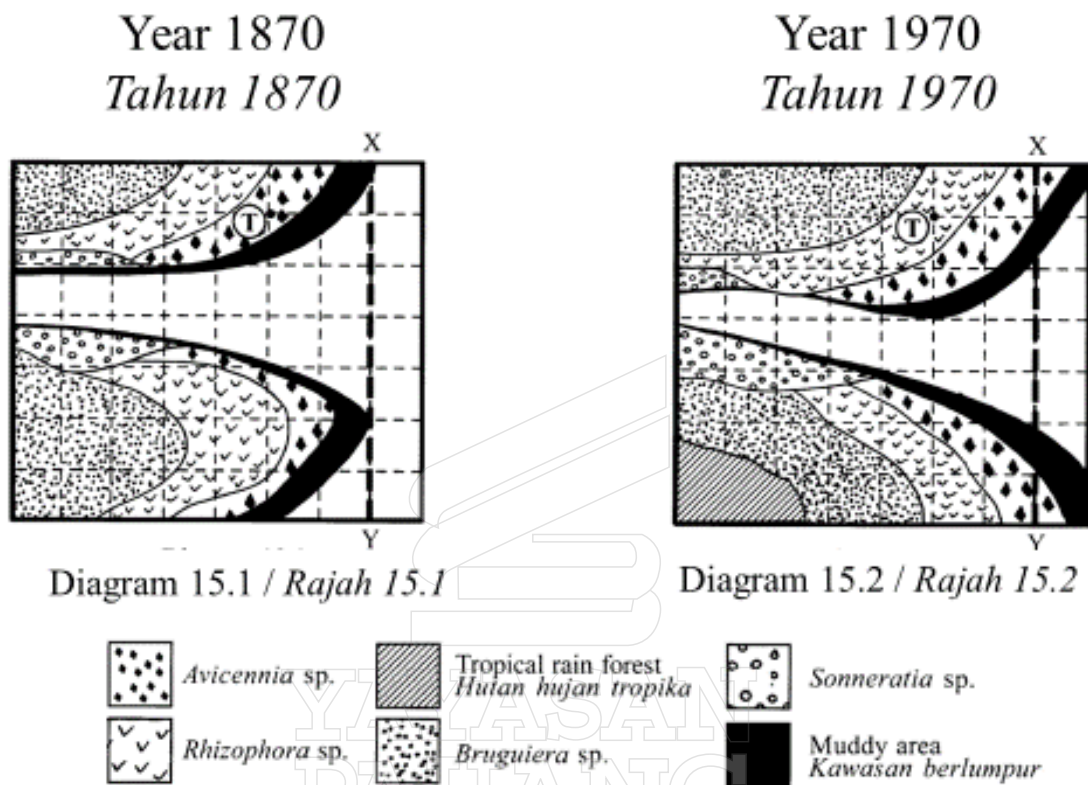
Yang manakah antara berikut adalah perbezaan antara fotosintesis dan respirasi?

	Photosynthesis / Fotosintesis	Respiration / Respirasi
A	Take place in mitochondrion <i>Berlaku dalam mitokondrion</i>	Take place in chloroplast <i>Berlaku dalam kloroplas</i>
B	Produce oxygen, glucose and energy <i>Menghasilkan oksigen, glukosa dan tenaga</i>	Produce energy, water and oxygen <i>Menghasilkan tenaga, air dan oksigen</i>
C	Take place in chloroplast <i>Berlaku dalam kloroplas</i>	Take place in mitochondrion <i>Berlaku dalam mitokondrion</i>
D	Produce energy, water and oxygen <i>Menghasilkan tenaga, air dan oksigen</i>	Produce oxygen, glucose and energy <i>Menghasilkan oksigen, glukosa dan tenaga</i>

- 23 Diagram 15.1 and 15.2 shows the distribution of mangroves at a river mouth near Pahang River in year 1870 and year 1970 respectively.

Line XY shows the original location of the beach in 1870.

Rajah 15.1 dan 15.2 masing-masing menunjukkan taburan tumbuhan paya bakau di suatu kawasan muara sungai berhampiran Sungai Pahang pada tahun 1870 dan tahun 1970. Garisan XY menunjukkan kedudukan asal pantai pada tahun 1870.



Which of the following will most probably replace the species at point T in year 2030?

Antara berikut, yang manakah mungkin akan menggantikan spesies di titik T pada tahun 2030?

- A Bruguiera sp.
- B Avicennia sp.
- C Sonneratia sp.
- D Rhizophora sp.

24 Which of the followings are abiotic components in an ecosystem?

Antara yang berikut, yang manakah merupakan komponen abiotik dalam suatu ekosistem?

- I Consumer / *Pengguna*
- II Humidity / *Kelembapan*
- III Decomposer / *Pengurai*
- IV Light intensity / *Keamatan cahaya*

- A I and II / *I dan II*
- B I and III / *I dan III*
- C II and IV / *II dan IV*
- D III and IV / *III dan IV*

25 Diagram 16 shows a type of plant in the mangrove swamp.

Rajah 16 menunjukkan sejenis tumbuhan bakau.



Diagram 16 / *Rajah 16*

What is structure X?

Apakah struktur X?

- A Prop roots / *Akar jangkang*
- B Vivipary seeds / *Biji benih vivipari*
- C Pneumatophore / *Pneumatofor*
- D Succulent leaves / *Daun sukulen*

- 26 The following statements are characteristics of a kingdom in the classification of organism.

Pernyataan di bawah adalah ciri-ciri bagi suatu alam dalam pengelasan organisma.

- Unicellular organisms
Organisma unisel
- Have cell wall
Mempunyai dinding sel
- No membrane-bound organelles
Organel tidak diselaputi membran
- The genetic material is scattered in the cytoplasm
Bahan-bahan genetik tersebar di dalam sitoplasma

Based on the statement above, choose the correct answer between type of kingdom and example of organism.

Berdasarkan pernyataan di atas, pilih padanan jawapan yang betul antara jenis alam dengan contoh organisma.

	Type of kingdom <i>Jenis alam</i>	Example of organism <i>Contoh organisma</i>
A	Protista	Bacteria / <i>Bakteria</i>
B	Monera	Algae / <i>Alga</i>
C	Protista	Protozoa / <i>Protozoa</i>
D	Monera	Bacteria / <i>Bakteria</i>

27 Diagram 17 shows the thinning of ozone layer in the earth's stratosphere.

Rajah 17 menunjukkan penipisan lapisan ozon dalam stratosfera bumi.

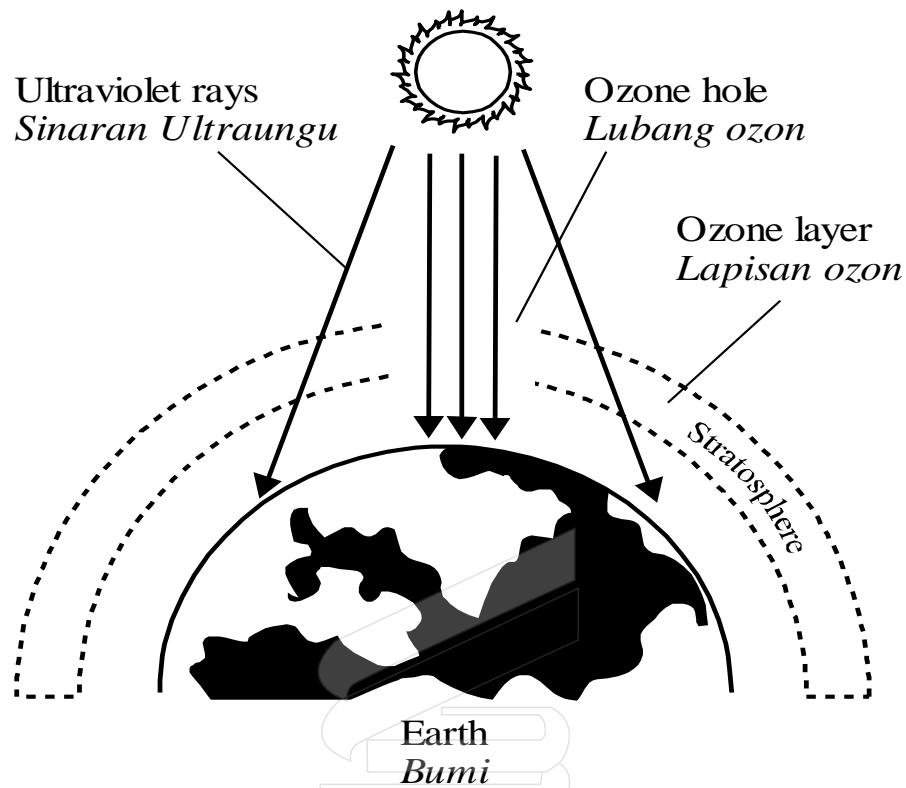


Diagram 17 / Rajah 17

Which of the following substances and its source causes this phenomenon?

Manakah antara bahan-bahan dan sumber berikut menyebabkan fenomena ini?

	Substances <i>Bahan-bahan</i>	Source <i>Sumber</i>
A	Carbon dioxide / <i>Karbon dioksida</i>	Burning / <i>Pembakaran</i>
B	Chlorofluorocarbon / <i>Klorofluorokarbon</i>	Air conditioner / <i>Penyaman udara</i>
C	Sulfur dioxide / <i>Sulfur dioksida</i>	Factory / <i>Kilang</i>
D	Carbon monoxide / <i>Karbon monoksida</i>	Smoke vehicle / <i>Asap kenderaan</i>

- 28 Diagram 18 shows the number of days taken to decolourise the blue methylene solution in three water samples.

Rajah 18 menunjukkan bilangan hari yang diambil untuk melunturkan larutan metilena biru dalam tiga sampel air.

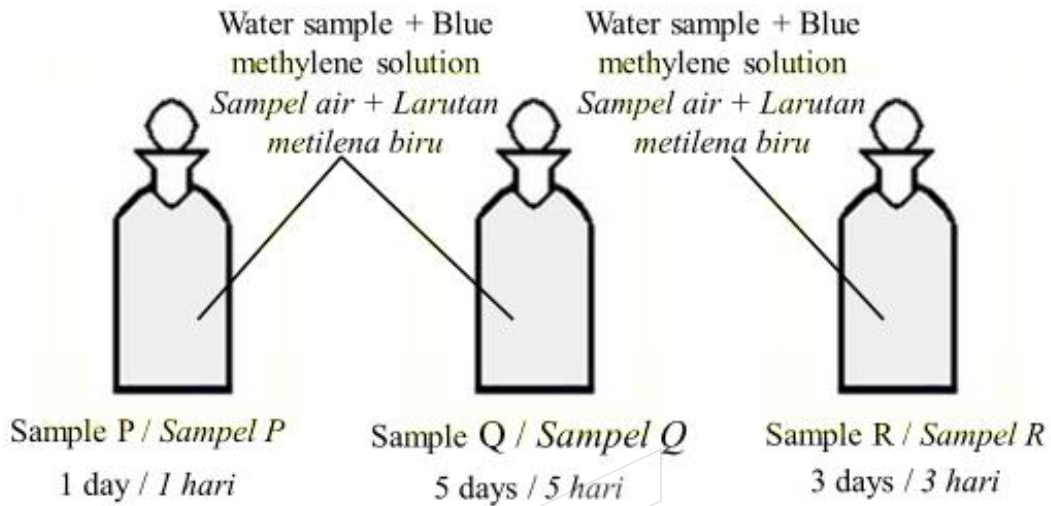


Diagram 18 / Rajah 18

What can be deduced from the result above?

Apakah yang boleh dideduksikan daripada keputusan di atas?

- I Sample Q is the most polluted compared to sample R and sample P.
Sampel Q paling tercemar berbanding sampel R dan sampel P.
 - II The highest decomposition process occurs in Q water sample.
Proses penguraian paling tinggi berlaku dalam sampel air Q.
 - III Sample P has the lowest oxygen content compared to sample Q and sample R.
Sampel P mempunyai kandungan oksigen yang paling rendah berbanding sampel R dan sampel Q.
 - IV Microorganisms are most commonly containing in the sample P.
Mikroorganisma paling banyak terkandung dalam sampel P.
- A I and IV only / I dan IV sahaja
 - B III and IV only / III dan IV sahaja
 - C I, II and IV only / I, II dan IV sahaja
 - D I, II, III and IV / I, II, III dan IV

29 Which of the following description is true about blood cells?

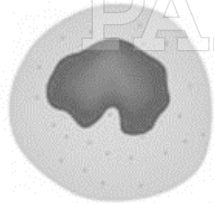
Antara keterangan berikut, yang manakah benar tentang sel-sel darah?

Blood Cell	Description
<i>Sel darah</i>	<i>Huraian</i>
A Erythrocyte <i>Eritrosit</i>	Biconcave in shape to enable the exchange of shape while passing the blood capillary. <i>Berbentuk dwicekung supaya boleh berubah bentuk semasa melalui kapilari darah.</i>
B Platelet <i>Platlet</i>	Without nucleus and involved in the blood clotting mechanism <i>Tanpa nuklues dan terlibat dalam mekanisma pembekuan darah</i>
C Monocytes <i>Monosit</i>	Produced in the bone marrow and produce antibodies to destroy pathogens. <i>Dihasilkan di sumsum tulang dan menghasilkan antibodi.</i>
D Neutrophil <i>Neutrofil</i>	Without granules and destroy pathogens by phagocytosis <i>Tanpa granul dan memusnahkan patogen secara fagositosis.</i>

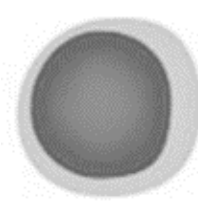
30 Which types of leucocytes are capable of carrying out phagocytosis?

Antara leukosit berikut, manakah boleh menjalankan proses fagositosis?

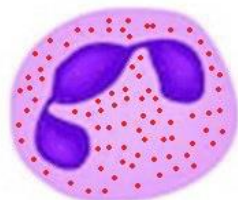
I



II



III



IV



- A I and III only / *I dan III sahaja*
- B III and IV only / *III dan IV sahaja*
- C I, II and IV only / *I, II dan IV sahaja*
- D II, III and IV only / *II, III dan IV sahaja*

31 Diagram 19 shows the movement of water in the xylem.

Rajah 19 menunjukkan pergerakan air dalam xilem.

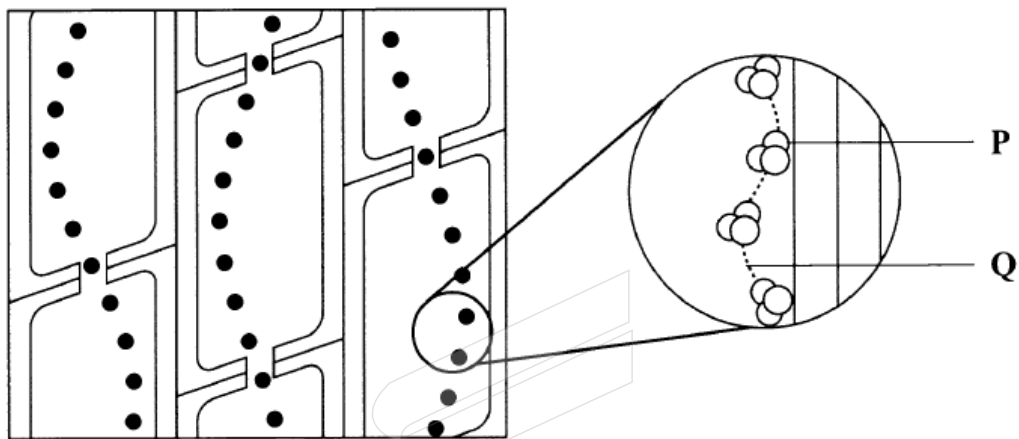


Diagram 19/ *Rajah 19*

What are forces P and Q?

Apakah daya P dan Q?

Force P

Daya P

Force Q

Daya Q

- | | |
|---|---|
| A Adhesion / <i>Lekatan</i> | Cohesion / <i>Lekitan</i> |
| B Transpiration pull / <i>Tarikan transpirasi</i> | Osmosis / <i>Osmosis</i> |
| C Cohesion / <i>Lekitan</i> | Adhesion / <i>Lekatan</i> |
| D Root pressure / <i>Tekanan akar</i> | Transpiration pull / <i>Tarikan transpirasi</i> |

- 32 A gardener experiences non-stop bleeding after hurting his foot while gardening.

What will happen if his blood is unable to clot?

Seorang pekebun mengalami pendarahan tidak henti setelah kakinya tercedera semasa berkebun. Apakah akan terjadi jika darahnya tidak dapat membeku?

- A** Blood pressure decreases / *Tekanan darah menurun*
- B** Blood capillaries enlarge / *Kapilari darah membesar*
- C** The rate of heart beat increases / *Kadar denyutan jantung bertambah*
- D** The rate of respiration increases / *Kadar respirasi bertambah*

- 33 Diagram 20 is a graph that shows the concentration of antibody in the blood.

Rajah 20 ialah graf yang menunjukkan kepekatan antibodi di dalam darah.

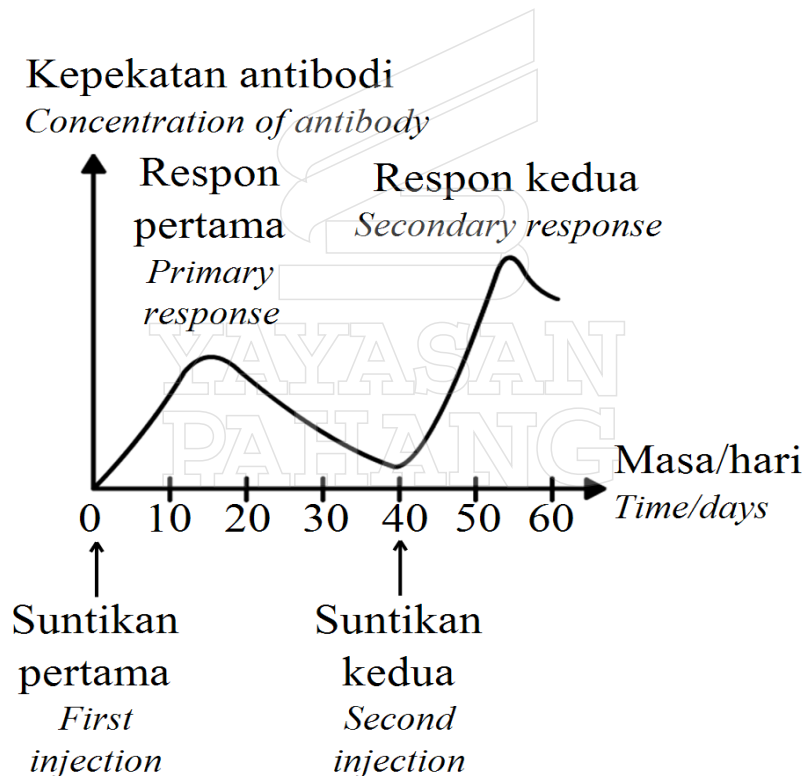


Diagram 20 / *Rajah 20*

What has been injected into the blood based on the graph?

Apakah yang telah disuntik ke dalam darah berdasarkan graf tersebut?

- A Colostrum / *Kolostrum*
- B Vaccine / *Vaksin*
- C Horse antiserum / *Antiserum kuda*
- D Blood plasma / *Plasma darah*

34 Carbon dioxide is a product of cellular respiration that needs to be eliminated from the body. In what form does carbon dioxide transport in the blood?

Karbon dioksida adalah hasil respirasi sel yang perlu disingkirkan dari badan.

Dalam bentuk apakah karbon dioksida diangkut dalam darah?

- I Hydrogen carbonate ions / *Ion hidrogen karbonat*
 - II Sodium carbonate compound / *Sebatian natrium karbonat*
 - III Carbaminohaemoglobin / *Karbaminohemoglobin*
 - IV Oxyhaemoglobin / *Oksihemoglobin*
-
- A I and II only / *I dan II sahaja*
 - B I and III only / *I dan III sahaja*
 - C II and IV only / *II dan IV sahaja*
 - D III and IV only / *III dan IV sahaja*

- 35 A student observes a fish swimming in an uncontrolled way. She notices the pectoral and pelvic fins of the fish are injured. Which diagram shows the movement of the fish?

Seorang murid memerhatikan seekor ikan berenang dalam keadaan tidak terkawal.

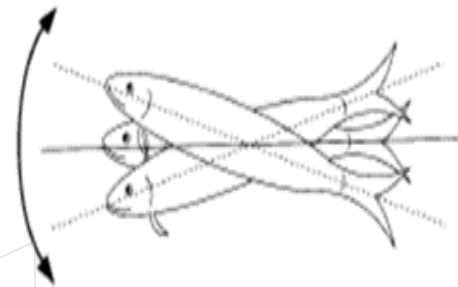
Dia mendapati sirip pectoral dan sirip pelvis ikan itu cedera.

Rajah yang manakah menunjukkan pergerakan ikan itu?

A



B



C



D



- 36 Which of the following conditions is not a problem related to the muscle skeletal system?

Antara keadaan berikut, yang manakah bukan masalah yang berkaitan dengan sistem otot rangka?

- A Osteoporosis
- B Osteomalacia
- C Rickets
- D Xeroftalmia

- 37 Diagram 21 shows three types of vertebrae on the human backbone.

Rajah 21 menunjukkan tiga jenis vertebra pada tulang belakang manusia.

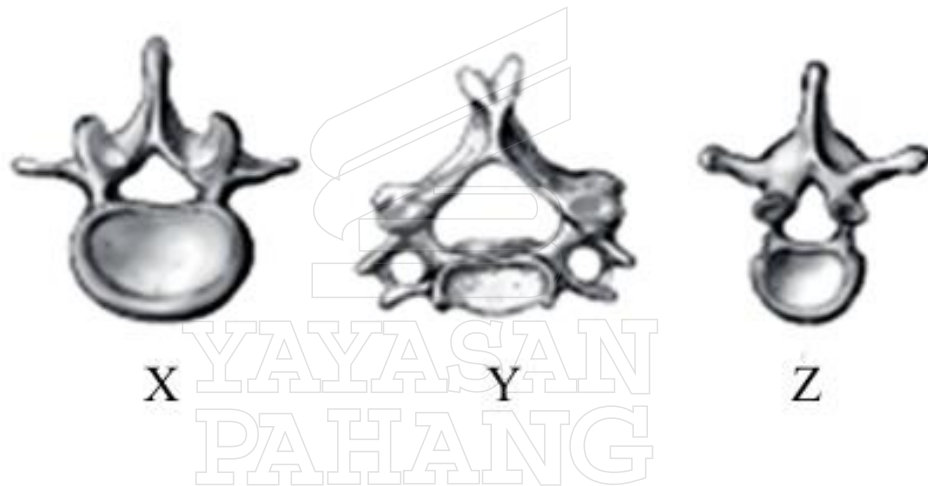


Diagram 21 / Rajah 21

Which of the following is the correct sequence of the vertebrae arrangement?

Manakah antara berikut merupakan urutan yang betul tentang susunan vertebra ini?

- A Y, Z, X
- B X, Y, Z
- C Y, X, Z
- D Z, X, Y

38 Diagram 22 shows part of the human arm.

Rajah 22 menunjukkan sebahagian daripada lengan manusia.

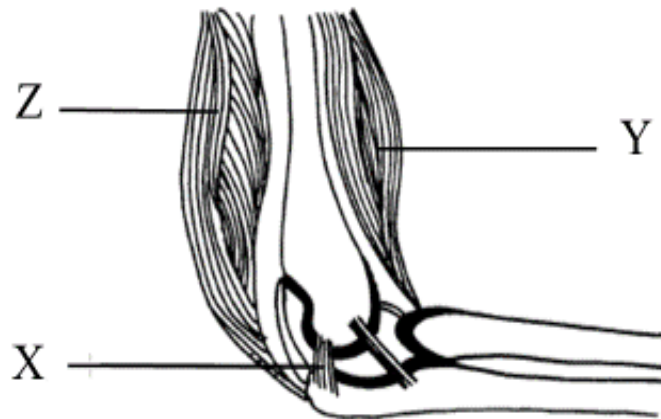


Diagram 22 / *Rajah 22*

Name structure X. What happen to Y and Z when the arm pulled downward?

Namakan struktur X. Apakah yang berlaku kepada Y dan Z apabila lengan di tarik ke bawah?

	X	Y	Z
A	Tendon <i>Tendon</i>	Contract <i>Meregang</i>	Relaxed <i>Mengendur</i>
B	Ligament <i>Ligamen</i>	Contract <i>Meregang</i>	Relaxed <i>Mengendur</i>
C	Tendon <i>Tendon</i>	Relaxed <i>Mengendur</i>	Contract <i>Meregang</i>
D	Ligament <i>Ligamen</i>	Relaxed <i>Mengendur</i>	Contract <i>Meregang</i>

39 What causes the shoot of a plant to grow towards light?

Apakah sebab pucuk tumbuhan tumbuh ke arah cahaya?

A The shoot needs light for photosynthesis

Pucuk memerlukan cahaya untuk berfotosintesis

B The shoot needs to grow longer to avoid competition for light

Pucuk perlu tumbuh lebih panjang untuk mengelakkan persaingan mendapatkan cahaya.

C The cells shaded from light elongate faster

Sel-sel terlindung dari cahaya memanjang lebih cepat.

D The concentration of auxin is higher in cells exposed to light

Kepekatan auksin lebih tinggi dalam sel yang terdedah pada cahaya.

40 Diagram 23 shows the structure of a synaptic knob.

Rajah 23 menunjukkan struktur bonggol sinaps.

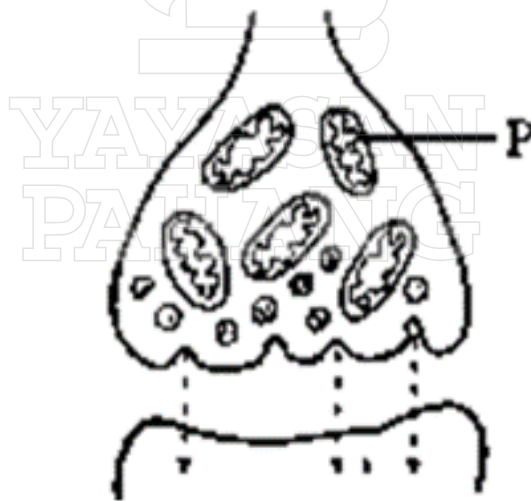


Diagram 23 / Rajah 23

What is structure P and its function?

Apakah struktur P dan fungsinya?

	Structure <i>Struktur</i>	Function <i>Fungsi</i>
A	Mitochondrion <i>Mitokondrion</i>	Generates energy to transmit impulses across synapse <i>Menghasilkan tenaga untuk pemindahan impuls merentasi sinaps</i>
B	Mitochondrion <i>Mitokondrion</i>	Transfers impulses to cell body <i>Memindahkan impuls ke badan sel</i>
C	Vesicle <i>Vesikel</i>	Secretes neurotransmitter <i>Merembeskan neurotransmitter</i>
D	Vesicle <i>Vesikel</i>	Transfers impulses to synaptic knob <i>Memindahkan impuls ke bonggol sinaps</i>

41 Diagram 24 show a process undergoes by an insect.

Rajah 24 menunjukkan suatu proses yang dijalankan oleh seekor serangga.

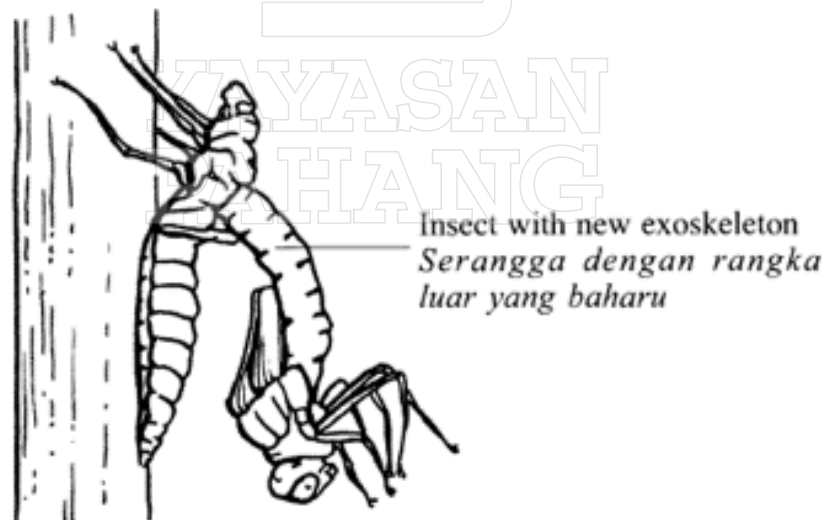


Diagram 24 / *Rajah 24*

What is the importance of this process to the insect?

Apakah kepentingan proses tersebut kepada serangga?

- A For reproduction / *Untuk pembiakan*
- B For respiration / *Untuk respirasi*
- C For nutrition / *Untuk nutrisi*
- D For growth / *Untuk pertumbuhan*

42 Diagram 25 shows the sequence of spermatogenesis.

Rajah 25 menunjukkan urutan spermatogenesis.

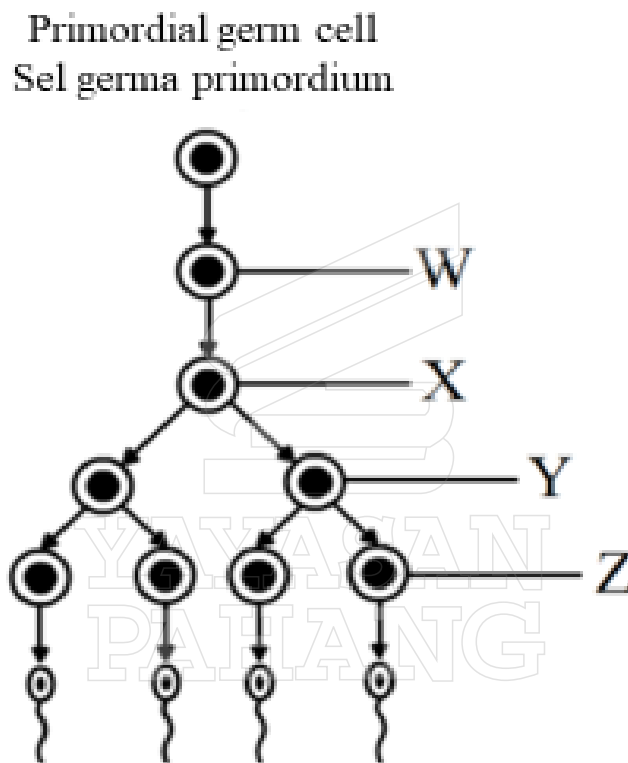


Diagram 25 / *Rajah 25*

Which of the groups of cells have a haploid number of chromosomes?

Kumpulan sel manakah yang mempunyai bilangan kromosom haploid?

- A W and Z / *W dan Z*
- B X and Y / *X dan Y*
- C Y and Z / *Y dan Z*
- D W and X / *W dan X*

43 Diagram 26 shows the foetus in the mother's womb.

Rajah 26 menunjukkan fetus di dalam rahim ibu.



Diagram 26 / *Rajah 26*

Name W and state the role of V?

Namakan W dan nyatakan fungsi V?

	Name of W <i>Nama W</i>	Function of V <i>Fungsi V</i>
A	Umbilical cord <i>Tali pusat</i>	Secretes progesterone and oestrogen after three months. <i>Merembeskan progesteron dan oestrogen selepas tiga bulan.</i>
B	Umbilical cord <i>Tali pusat</i>	Allow removal of carbon dioxide from foetus to the mother <i>Membenarkan penyingkiran karbon dioksida daripada fetus kepada ibu</i>
C	Placenta <i>Uri</i>	Transport blood from mother to the foetus. <i>Mengangkut darah daripada ibu kepada fetus.</i>
D	Placenta <i>Uri</i>	Secretes the amniotic fluids <i>Merembeskan bendalir amnion</i>

44 Diagram 27 is a graph that shows the growth of an insect.

Rajah 27 ialah satu graf yang menunjukkan pertumbuhan seekor serangga.

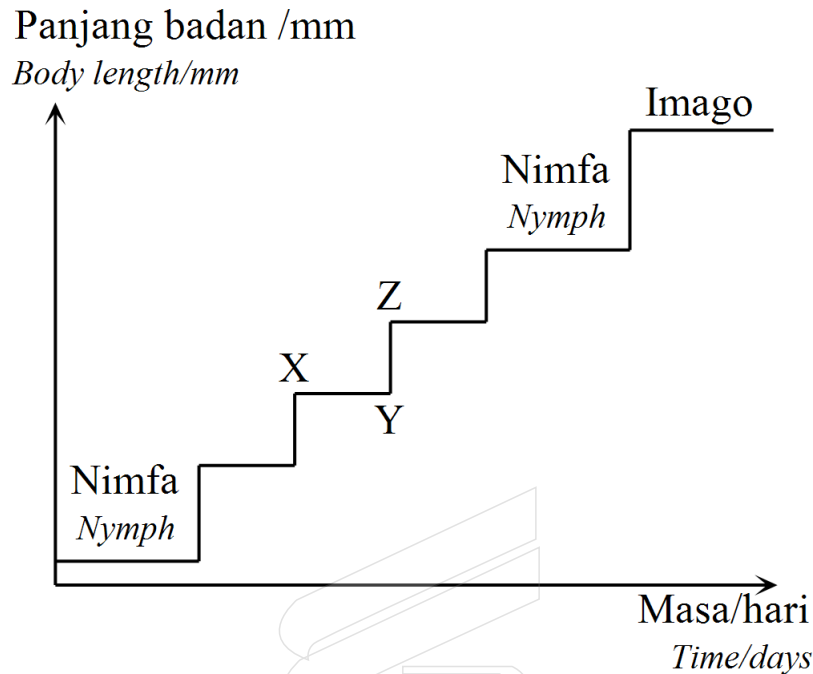


Diagram 27 / Rajah 27

Which of the following statement is true?

Antara pernyataan berikut, yang manakah benar?

- A** The body length of the insect does not increase at **XY** because the body tissue does not develop.
Panjang badan serangga tidak bertambah di XY kerana tisu badan tidak berkembang.
- B** The body length of the insect increases at **YZ** because the body mass increases.
Panjang badan serangga bertambah di YZ kerana jisim badan bertambah.
- C** The body length of the insect does not increase at **XY** because the body mass does not increase.
Panjang badan serangga tidak bertambah di XY kerana jisim badan tidak bertambah.
- D** The body length of the insect increases at **YZ** because of the soft exoskeleton.
Panjang badan serangga bertambah di YZ kerana rangka luar lembut.

- 45 Diagram 28 shows the tissues of a dicotyledonous stem.

Rajah 28 menunjukkan tisu bagi batang dikotiledon.

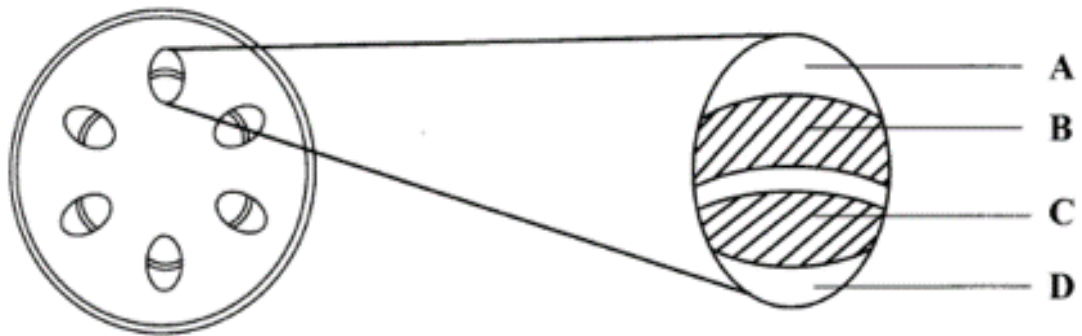


Diagram 28 / Rajah 28

Which tissue A, B, C or D is the result of secondary growth that gives mechanical support to the plant?

Antara tisu A, B, C dan D yang manakah hasil daripada pertumbuhan sekunder yang memberi sokongan mekanikal kepada tumbuhan?

- 46 A girl has blood group A and her brother has blood group B. Which is the correct combination of genotypes belonging to their parents?

Seorang gadis mempunyai kumpulan darah A dan abangnya mempunyai kumpulan darah B. Kombinasi genotip manakah yang betul yang dimiliki oleh ibu bapa mereka?

	Father / Bapa	Mother / Ibu
A	AB	AB
B	AA	BO
C	BB	AO
D	AA	BB

47 Diagram 29 shows parts of a DNA molecule.

Rajah 29 menunjukkan sebahagian daripada molekul DNA.

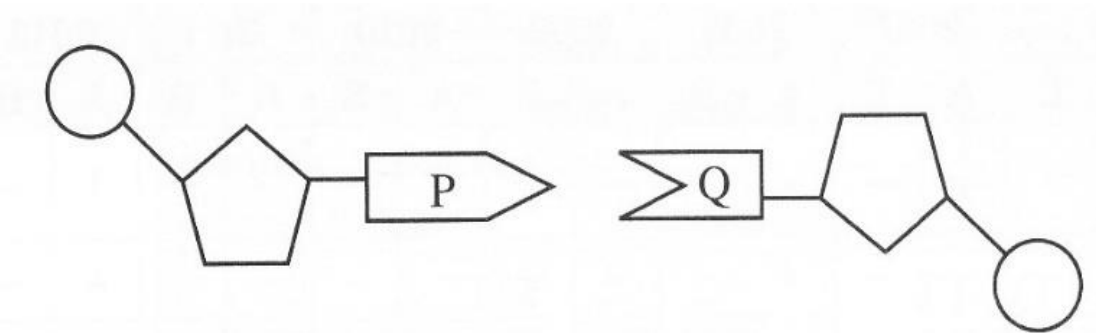


Diagram 29 / *Rajah 29*

Which pair of nitrogenous base represents P and Q?

Pasangan bes bemitrogen manakah yang mewakili P dan Q?

	P	Q
A	Adenine <i>Adenina</i>	Guanine <i>Guanina</i>
B	Cytosine <i>Sitosina</i>	Guanine <i>Guanina</i>
C	Cytosine <i>Sitosina</i>	Thymine <i>Tiamina</i>
D	Adenine <i>Adenina</i>	Cytosine <i>Sitosina</i>

48. Diagram 30 shows a type of chromosomal mutation.

Rajah 30 menunjukkan sejenis mutasi kromosom.

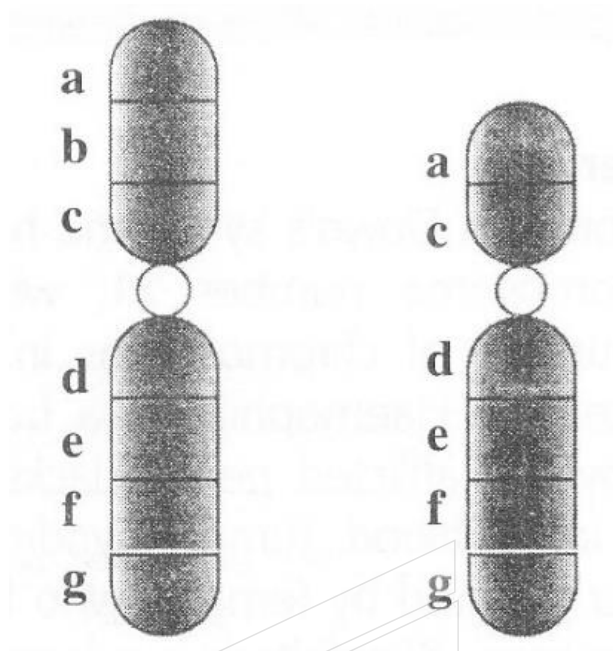


Diagram 30 / Rajah 30

What is the type of mutation?

Apakah jenis mutasi ini?

- A Deletion
Pelenyapan
- B Inversion
Penyongsangan
- C Duplication
Penggandaan
- D Translocation
Translokasi

- 49 Diagram 31 shows the variation of trait P in humans.

Rajah 31 menunjukkan variasi suatu trait P pada manusia.

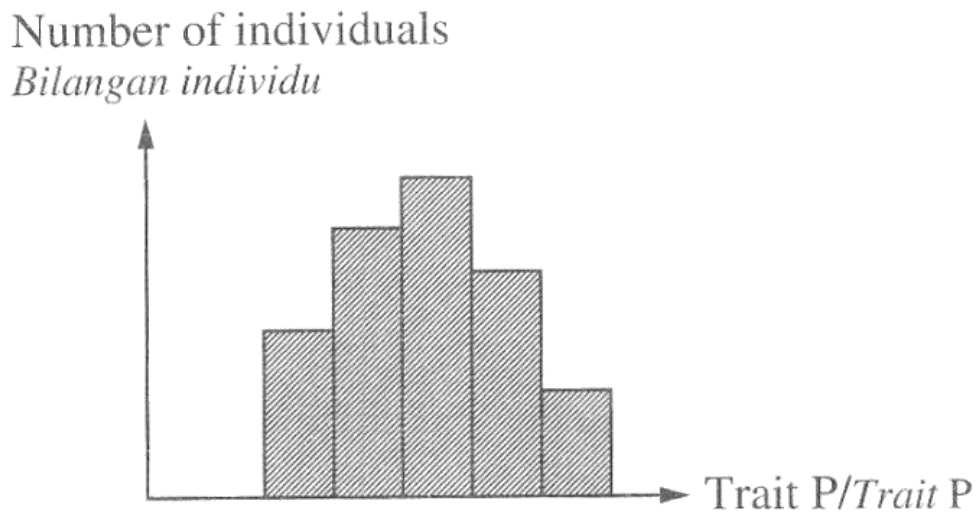


Diagram 31 / *Rajah 31*

Which of the following is **true** about the variation of trait P?

*Antara yang berikut, yang manakah **benar** mengenai variasi trait P?*

- A Involves only a pair of genes
Melibatkan hanya sepasang gen
- B Involves clear differences in the traits between individuals
Melibatkan perbezaan trait yang jelas antara individu
- C Influenced by environmental factors only
Dipengaruhi oleh faktor persekitaran sahaja
- D Influenced by genetic and environmental factors
Dipengaruhi oleh faktor genetik dan faktor persekitaran

50 Diagram 32 shows a karyotype of an individual.

Rajah 32 menunjukkan kariotip seorang individu.

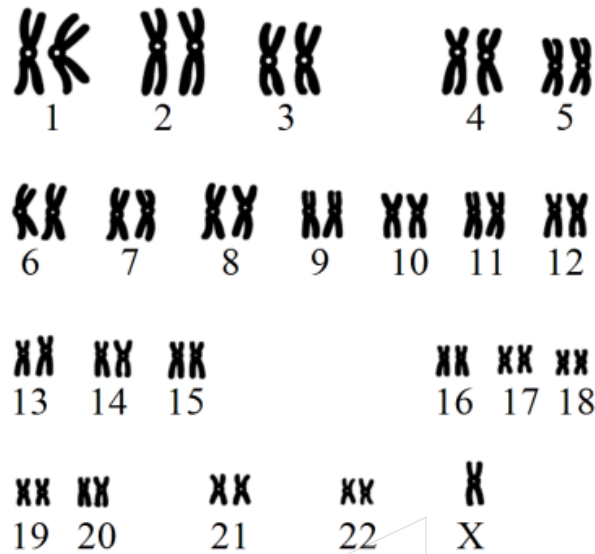


Diagram 32 / Rajah 32

Identify the gender and state the genetic disease suffered by the individual?

Kenal pasti jantina individu tersebut dan nyatakan penyakit genetik yang dialami oleh individu tersebut?

	Gender <i>Jantina</i>	Genetic disease <i>Penyakit genetik</i>
A	Woman <i>Perempuan</i>	Turner's Syndrome <i>Sindrom Turner</i>
B	Man <i>Lelaki</i>	Down Syndrome <i>Sindrom Down</i>
C	Woman <i>Perempuan</i>	Hemophilia <i>Hemofilia</i>
D	Man <i>Lelaki</i>	Klinefilter's Syndrome <i>Sindrom Klinefilter</i>

END OF QUESTIONS
KERTAS SOALAN TAMAT