

SULIT

4551/1

NO. KAD PENGENALAN

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ANGKA GILIRAN

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**PEPERIKSAAN PERCUBAAN
NEGERI PERAK**

**PEPERIKSAAN PERNILAIAN BERSAMA
SIJIL PELAJARAN MALAYSIA 2009**

4551/1

BIOLOGY

Kertas 1

September

$1\frac{1}{4}$ 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.
3. Calon dikehendaki membaca maklumat di halaman belakang kertas soalan ini.

Kertas soalan ini mengandungi 31 halaman bercetak dan 1 halaman tidak bercetak.

Dapatkan skema Jawapan di Laman

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SULIT

- 1 Which of the following organelles contains chromosome?
Di antara organel berikut yang manakah mengandungi kromosom?
- A Ribosome
Ribosom
- B Golgi apparatus
Jasad Golgi
- C Nucleus
Nukleus
- D Chloroplast
Kloroplas
- 2 The following statements are about an organelle of a cell.
Pernyataan berikut adalah berkaitan dengan organel suatu sel.

- Attached to the rough endoplasmic reticulum
Melekat pada jalinan endoplasma kasar
- Exist freely in the cytoplasm
Terdapat di dalam sitoplasma secara bebas
- Site for protein synthesis
Tapak untuk sintesis protein

What is the organelle?
Apakah organel itu?

- A Golgi apparatus
Jasad Golgi
- B Vacuole
Vakuol
- C Ribosome
Ribosom
- D Chloroplast
Kloroplas

Dapatkan skema Jawapan di Laman

- 3 Which of the following organelles is **wrongly** named?
Di antara organel berikut, yang manakah salah dinamakan?

A Chloroplast
Kloroplas



C Mitochondrion
Mitokondria



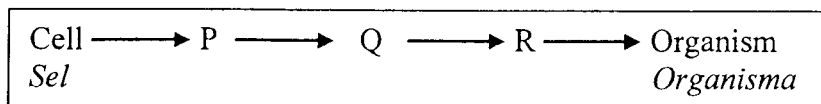
B Lysosome
Lisosom



D Rough endoplasmic reticulum
Jalinan endoplasma kasar



- 4 The flow chart below shows the organisation of multicellular organism.
Carta alir berikut menunjukkan organisasi sel bagi organisma multisel.



What are P, Q and R?
Apakah P, Q dan R?

	P	Q	R
A	Smooth muscle <i>Otot licin</i>	Epithelial <i>Epitelial</i>	Stomach <i>Perut</i>
B	Epithelial <i>Epitelial</i>	Stomach <i>Perut</i>	Digestive <i>Pencernaan</i>
C	Small intestine <i>Usus kecil</i>	Epithelial <i>Epitelial</i>	Digestive <i>Pencernaan</i>
D	Cardiac muscle <i>Otot kardiak</i>	Epithelial <i>Epitelial</i>	Circulatory <i>Peredaran</i>

Dapatkan skema Jawapan di Laman

- 5 Diagram 1 shows the change in shape of a few red blood cells after being immersed in a solution for thirty minutes.

Rajah 1 menunjukkan perubahan rupa bentuk beberapa sel darah merah selepas direndam dalam suatu larutan selama 30 minit.

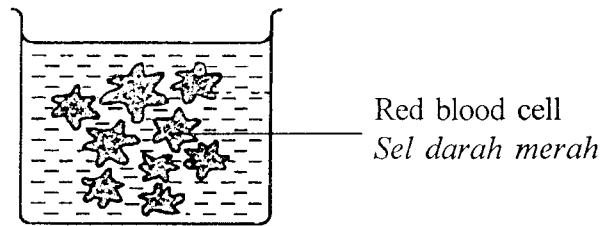


Diagram 1
Rajah 1

The red blood cells have undergone
Sel darah merah tersebut telah mengalami

- A Osmosis
Osmosis
 - B Haemolysis
Hemolisis
 - C Crenation
Krenasi
 - D Plasmolysis
Plasmolisis
- 6 Diagram 2 shows *Paramecium* sp.
Rajah 2 menunjukkan Paramecium sp.

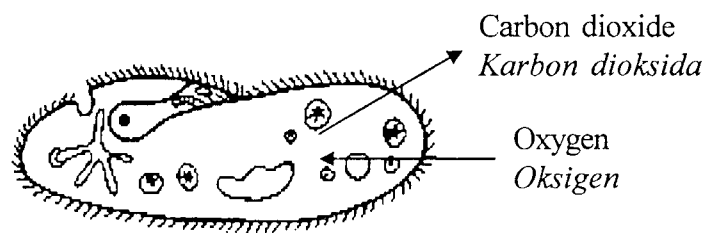


Diagram 2
Rajah 2

What is the process by which substances move in and out of the organism as shown in the Diagram 2?

Apakah proses yang menyebabkan pergerakan masuk dan keluar bahan dari organisma yang ditunjukkan dalam Rajah 2?

- A Simple diffusion
Resapan ringkas
- B Facilitated diffusion
Resapan berbantu
- C Osmosis
Osmosis
- D Active transport
Pengangkutan aktif

Dapatkan skema Jawapan di Laman

- 7 Diagram 3 shows an active transport of sodium ions across a plasma membrane.
Rajah 3 menunjukkan pengangkutan aktif bagi ion natrium merentasi membran plasma.

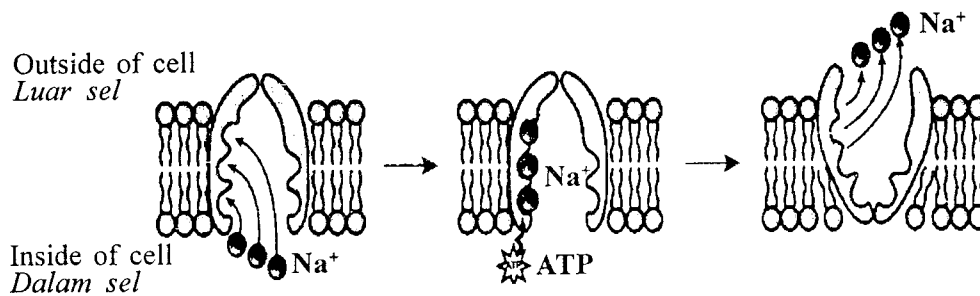


Diagram 3
Rajah 3

Which of the following is **not** true?

Manakah antara berikut adalah tidak benar?

- A The outside of a cell has a higher concentration of sodium ions than the inside of the cell
Di bahagian luar sel mempunyai kepekatan ion natrium yang tinggi berbanding di dalam sel
- B Sodium ions are transported by the carrier protein
Ion natrium diangkut oleh protein pembawa
- C The sodium ions move from a region of higher concentration to a region of lower concentration
Ion natrium bergerak dari kawasan yang berkepekatan tinggi ke kawasan yang berkepekatan rendah
- D Energy from the ATP molecule causes the shape of the carrier protein to change
Tenaga dari molekul ATP yang menyebabkan perubahan rupa bentuk protein pembawa

Dapatkan skema Jawapan di Laman

- 8 Diagram 4 shows samples of potato strips placed in sucrose solutions of different concentrations. Any changes in mass of the samples were recorded.

Rajah 4 menunjukkan sampel jalur ubi kentang yang dimasukkan ke dalam larutan sukrosa yang berbeza kepekatan. Perubahan pada jisim sampel direkodkan.

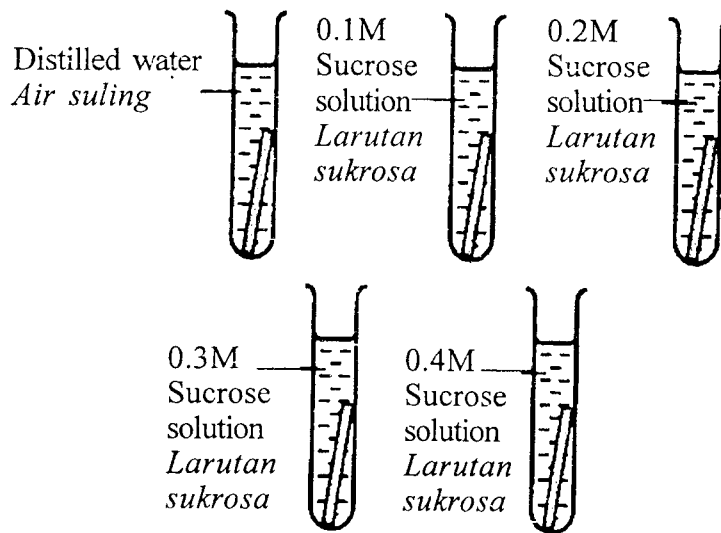
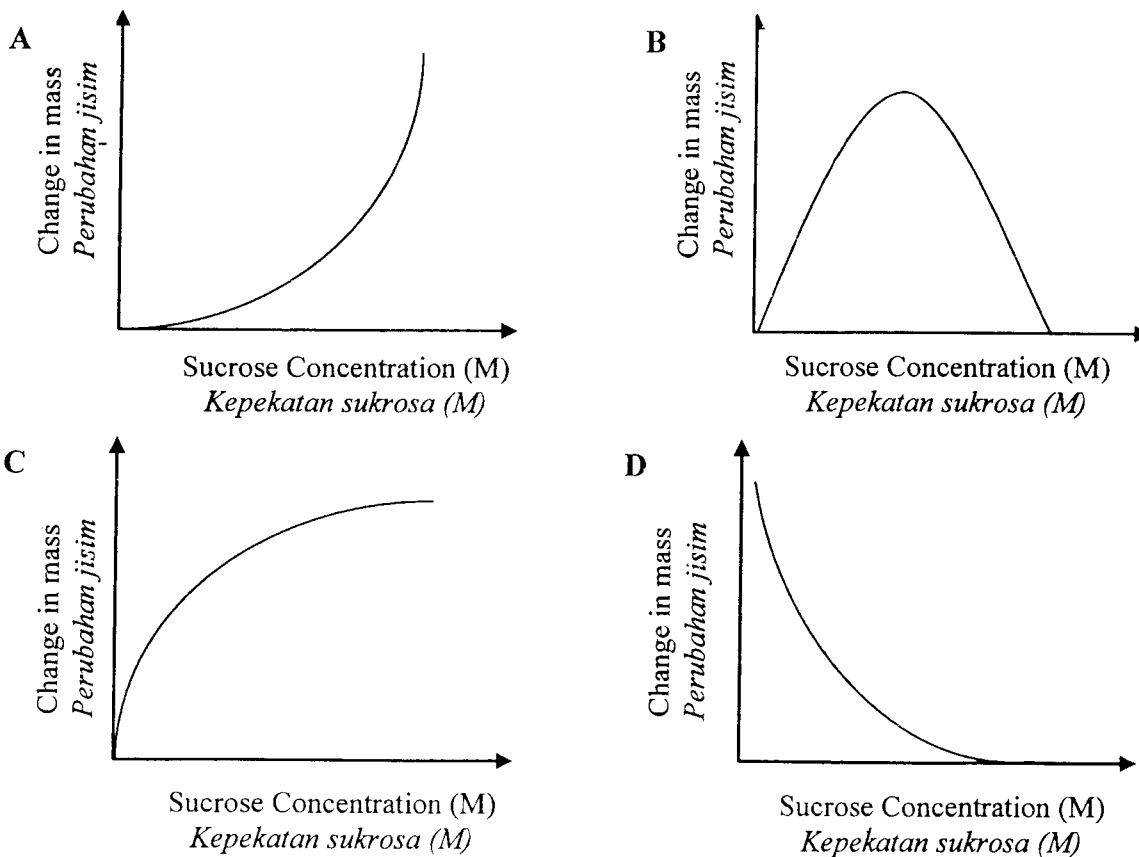


Diagram 4
Rajah 4

Which graph shows the result of the experiment?

Graf yang manakah menunjukkan keputusan eksperimen ini?



Dapatkan skema Jawapan di Laman

- 9 What is the form of carbohydrate stored in the animal body?
Apakah bentuk karbohidrat yang di simpan dalam badan haiwan?
- A Starch
Kanji
- B Fat
Lemak
- C Glycogen
Glikogen
- D Glycerol
Gliserol
- 10 The monomer of cellulose is
Monomer selulosa ialah
- A Amino acid
Acid amino
- B Glucose
Glukosa
- C Galactose
Galaktosa
- D Maltose
Maltosa
- 11 Diagram 5 shows an enzyme-catalysed reaction.
Rajah 5 menunjukkan tindakbalas yang dimungkinkan oleh enzim.

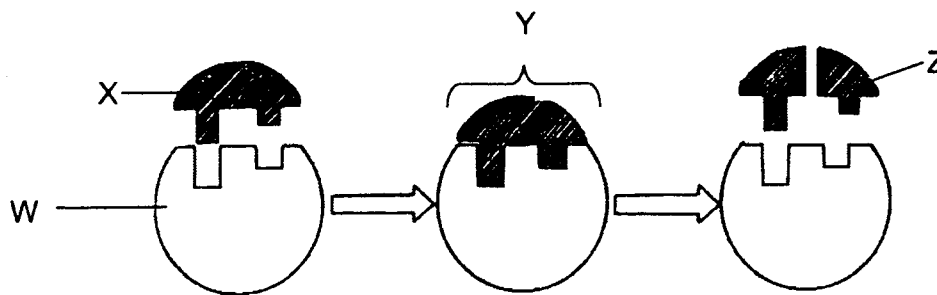


Diagram 5
Rajah 5

Which of the following is the enzyme?
Antara berikut, yang manakah enzim?

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

- 12 Diagram 6 shows the basic DNA structure
Rajah 6 menunjukkan struktur asas DNA

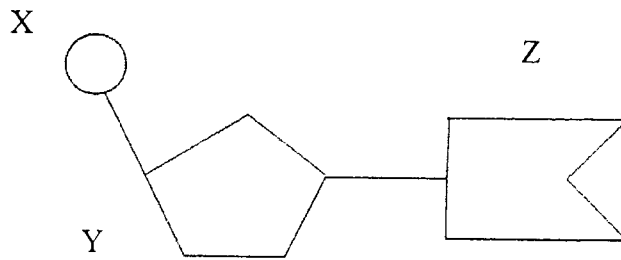


Diagram 6
Rajah 6

What are X, Y and Z?
Apakah X, Y dan Z ?

	X	Y	Z
A	Nucleotide <i>Nukleotida</i>	Phosphate <i>Fosfat</i>	Deoxyribose sugar <i>Gula deoksiribosa</i>
B	Phosphate <i>Fosfat</i>	Ribose sugar <i>Gula ribosa</i>	Nitrogenous base <i>Bes bernitrogen</i>
C	Phosphate <i>Fosfat</i>	Nucleotide <i>Nukleotida</i>	Nitrogenous base <i>Bes bernitrogen</i>
D	Nitrogenous base <i>Bes bernitrogen</i>	Phosphate <i>Fosfat</i>	Nucleotide <i>Nukleotida</i>

- 13 Diagram 7 shows a stage of mitosis in the plant.
Rajah 7 menunjukkan satu peringkat mitosis pada tumbuhan.

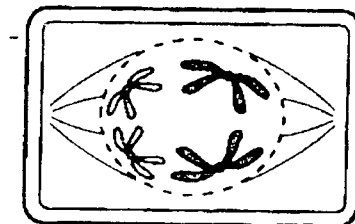
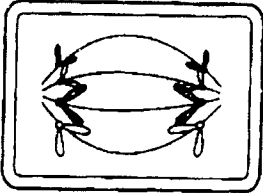
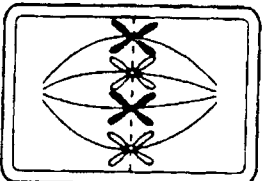
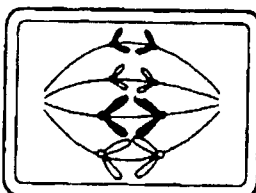


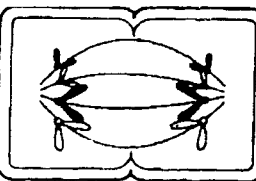
Diagram 7
Rajah 7

Which of the following is the next stage ?
Antara berikut, manakah merupakan peringkat seterusnya ?

A 

B 

C 

D 

- 14 Diagram 8 shows a flowering plant.
Rajah 8 menunjukkan tumbuhan berbunga.

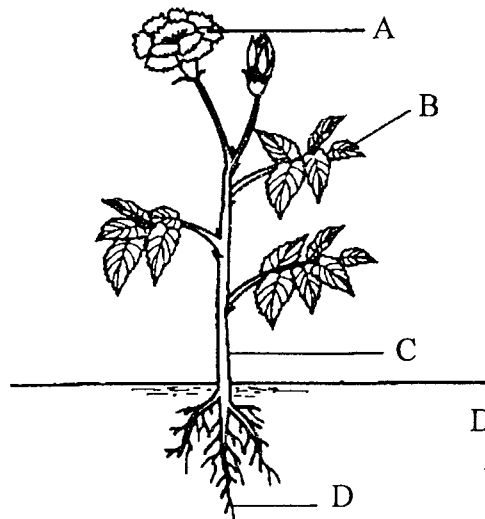


Diagram 8
Rajah 8

Which of the parts labelled A, B, C and D does meiosis occur?
Manakah antara bahagian berlabel A, B, C dan D berlakunya meiosis?

- 15 Which of the following differences between mitosis and meiosis are **true**?
Manakah antara berikut yang **benar** mengenai perbezaan antara mitosis dan meiosis?

	Mitosis <i>Mitosis</i>	Meiosis <i>Meiosis</i>
I	Produces cells which are genetically different <i>Menghasilkan sel-sel yang berbeza dari segi genetik</i>	Produces cells which are genetically identical <i>Menghasilkan sel-sel yang seiras dari segi genetik</i>
II	The chromosome number remains the same <i>Bilangan kromosom tetap sama</i>	The chromosome number is halved <i>Bilangan kromosom menjadi separuh</i>
III	Two daughter cells are produced <i>Dua sel anak dihasilkan</i>	Four daughter cells are produced <i>Empat sel anak dihasilkan</i>
IV	Associated with sexual reproduction <i>Berkaitan dengan pembiakan seks</i>	Associated with asexual reproduction <i>Berkaitan dengan pembiakan aseks</i>

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

Dapatkan skema Jawapan di Laman

- 16 Diagram 9 shows the molecule structure for two classes of food
Rajah 9 menunjukkan struktur molekul bagi dua kelas makanan.

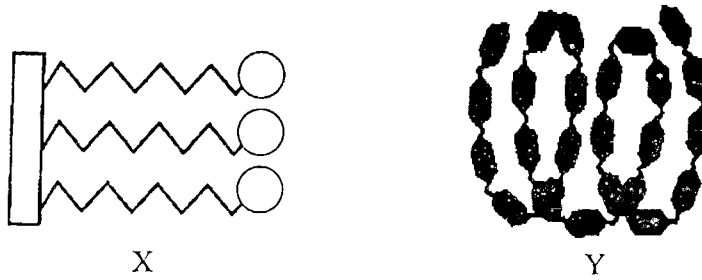


Diagram 9
Rajah 9

What food classes does molecule X and Y respectively belongs to?
Apakah kelas makanan bagi molekul X dan Y?

	X	Y
A	Proteins <i>Protein</i>	Lipids <i>Lipid</i>
B	Carbohydrates <i>Karbohidrat</i>	Lipids <i>Lipid</i>
C	Carbohydrates <i>Karbohidrat</i>	Proteins <i>Protein</i>
D	Lipids <i>Lipid</i>	Carbohydrates <i>Karbohidrat</i>

- 17 Diagram 10 shows a part of the human digestive system.
Rajah 10 menunjukkan sebahagian sistem pencernaan manusia.

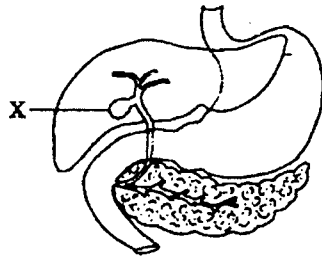


Diagram 10
Rajah 10

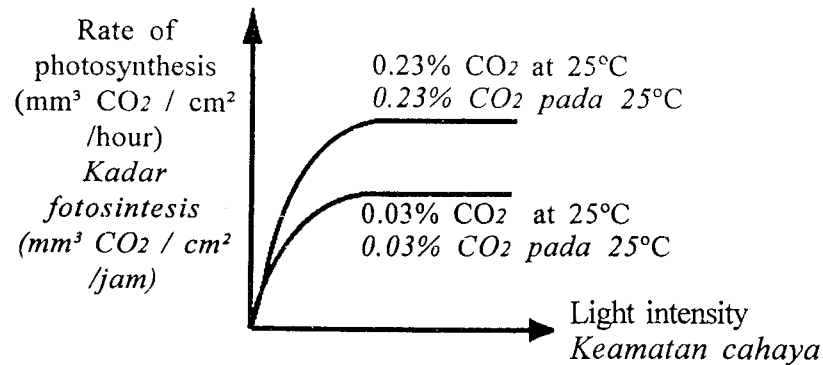
What will happen if X is removed?
Apakah akan berlaku jika X di buang?

- A Lipase is not produced
Lipase tidak dapat di hasilkan
- B Fats will not be digested
Lemak tidak dapat dicernakan
- C Proteins will not be digested
Protein tidak dapat dicernakan
- D Pancreatic juice does not reach the duodenum
Jus pankreas tidak akan sampai ke duodenum

Dapatkan skema Jawapan di Laman

- 18 Graph 1 shows the rate of photosynthesis against light intensity at two different concentrations of carbon dioxide.

Graf 1 menunjukkan kadar fotosintesis melawan keamatan cahaya pada dua kepekatan karbon dioksida yang berbeza.



Graph 1
Graf 1

What conclusions can be drawn from the Graph 1?

Apakah kesimpulan yang boleh dibuat berdasarkan Graf 1?

- I When the light intensity increases, the rate of photosynthesis increases.
Apabila keamatan cahaya meningkat, kadar fotosintesis meningkat.
 - II Carbon dioxide concentration becomes a limiting factor.
Kepekatan karbon dioksida menjadi faktor penghad.
 - III The rate of photosynthesis increases when the concentration of carbon dioxide increases.
Kadar fotosintesis meningkat apabila kepekatan karbon dioksida meningkat.
 - IV The rate of photosynthesis depends on the surrounding temperature.
Kadar fotosintesis bergantung kepada suhu persekitaran.
- A I and II only
I dan II sahaja
 - B I, II, and III only
I, II dan III sahaja
 - C II, III, and IV only
II, III dan IV sahaja
 - D I, II, III, and IV
I, II, III dan IV

Dapatkan skema Jawapan di Laman

- 19 Table 1 shows the results of an experiment to study the effects of macronutrient deficiency in plants.

Jadual 1 menunjukkan keputusan eksperimen untuk mengkaji kesan kekurangan makronutrien dalam tumbuhan.

Solution <i>Larutan</i>	Observations after a few weeks <i>Pemerhatian selepas beberapa minggu</i>	
	Plants <i>Tumbuhan</i>	Leaf colour <i>Warna daun</i>
X	Stunted growth <i>Tumbesaran terbantut</i>	Yellowish <i>Kekuningan</i>
Y	Premature death <i>Kematian pramatang</i>	Yellowish at the edges <i>Pinggir daun menjadi kekuningan</i>

Table 1
Jadual 1

What element is lacking in solutions X and Y respectively?

Apakah elemen yang kurang dalam larutan X dan Y?

	Solution X <i>Larutan X</i>	Solution Y <i>Larutan Y</i>
A	Phosphorus <i>Fosforus</i>	Magnesium <i>Magnesium</i>
B	Nitrogen <i>Nitrogen</i>	Potassium <i>Kalium</i>
C	Potassium <i>Kalium</i>	Nitrogen <i>Nitrogen</i>
D	Magnesium <i>Magnesium</i>	Phosphorus <i>Fosforus</i>

- 20 What is the structure that increases the total surface area of gills?

Apakah struktur yang menambahkan luas permukaan insang?

- A Filament
Filamen
- B Lamella
Lamela
- C Tracheole
Trakiol
- D Blood capillaries
Kapilari darah

Dapatkan skema Jawapan di Laman

21 Where does anaerobic respiration take place?

Di manakah respirasi anaerob berlaku?

- A Nucleus
Nukleus
- B Ribosome
Ribosom
- C Mitochondrion
Mitokondria
- D Cytoplasm
Sitoplasma

22 Diagram 11 shows respiratory system in humans.

Rajah 11 menunjukkan sistem pernafasan manusia

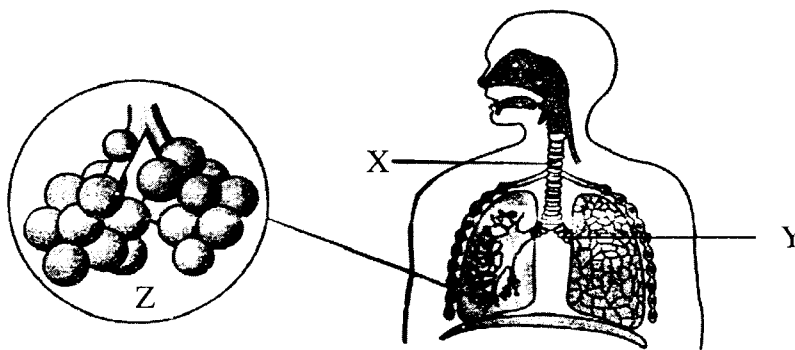


Diagram 11
Rajah 11

What are represented by X, Y and Z respectively?

Apakah yang diwakili oleh X, Y dan Z?

	X	Y	Z
A	Trachea <i>Trakea</i>	Bronchus <i>Bronkus</i>	Alveolus <i>Alveolus</i>
B	Trachea <i>Trakea</i>	Alveolus <i>Alveolus</i>	Bronchus <i>Bronkus</i>
C	Alveolus <i>Alveolus</i>	Trachea <i>Trakea</i>	Bronchus <i>Bronkus</i>
D	Bronchus <i>Bronkus</i>	Alveolus <i>Alveolus</i>	Trachea <i>Trakea</i>

Dapatkan skema Jawapan di Laman

23 Diagram 12 shows the food web in the pond ecosystem.

Rajah 12 menunjukkan jaringan makanan dalam ekosistem kolam.

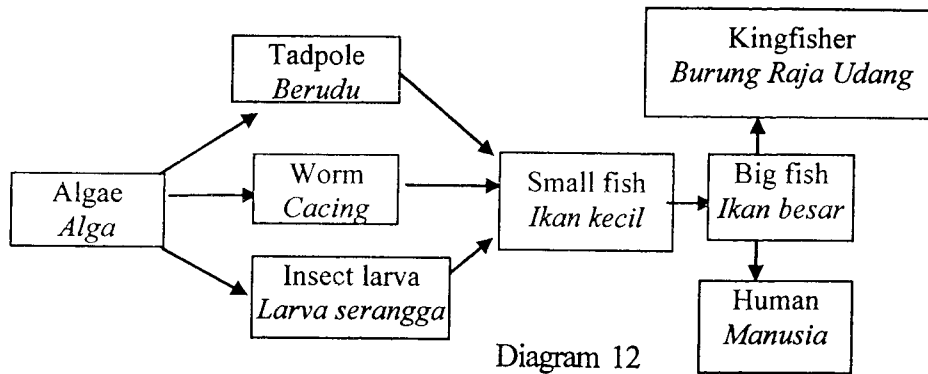


Diagram 12
Rajah 12

Which of the following is correct about the ecosystem?

Antara berikut, yang manakah benar tentang ekosistem tersebut?

- A The small fish is the primary consumer
Ikan kecil adalah konsumer primer
- B Big fish and small fish compete for the same food resources
Ikan besar dan ikan kecil bersaing mendapatkan sumber makanan yang sama.
- C Tadpole, insect larva and worm receive the lowest energy from algae
Berudu, larva serangga, cacing menerima tenaga terendah dari algae
- D The number of algae is the largest in the ecosystem
Jumlah alga di dalam ekosistem adalah yang terbanyak
- 24 Diagram 13 shows a seedling of *Bruguiera* sp.
Rajah 13 menunjukkan anak benih *Bruguiera* sp.

Diagram 13
Rajah 13



Root
Akar

Why does *Bruguiera* sp. need to have the root as shown in Diagram 13?

Mengapa *Bruguiera* sp. perlu mempunyai akar seperti dalam Rajah 13?

- A To give support and to trap more silt
Memberi sokongan dan memerangkap lebih banyak lumpur.
- B To trap oxygen from the habitat for cellular respiration
Memerangkap oksigen dari habitat untuk respirasi sel
- C To trap more soil, silt particles and organic substances
Memerangkap lebih banyak partikel tanah, lumpur dan bahan organik
- D To enable the plant live longer in the muddy area
Membolehkan tumbuhan ini hidup lebih lama dalam kawasan berlumpur

Dapatkan skema Jawapan di Laman

- 25 Name the interaction between fungus and dead plants in any ecosystem.
Namakan jenis interaksi antara kulat dan pokok mati dalam sesuatu ekosistem?
- A Competition
Persaingan
- B Prey-predator
Mangsa-pemangsa
- C Saprophytism
Saprofitisme
- D Parasitism
Parasitisme
- 26 Which of the following microorganisms are involved in the nitrogen cycle?
Antara berikut, manakah mikroorganisma yang terlibat dalam kitar nitrogen?
- I. *Nitrobacter* sp.
II. *Nitrosomonas* sp.
III. *Rhizobium* sp.
IV. *Rhododendron* sp.
- A I, II, III and IV
I, II, III dan IV
- B I, II, and III
I, II dan III
- C II, III and IV
II, III dan IV
- D I, III and IV
I, III and IV
- 27 Which of the following activities is the main cause of global warming?
Antara aktiviti-aktiviti berikut, manakah merupakan punca utama pemanasan global?

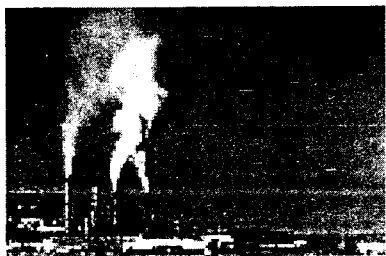
A



C



B



D



Dapatkan skema Jawapan di Laman

- 28 Which of the following is a correct match between human activity and the effect on the environment?

Antara berikut, manakah padanan aktiviti manusia dan kesan ke atas persekitaran yang paling tepat?

	Human Activity <i>Aktiviti manusia</i>	Effect on the environment <i>Kesan ke atas persekitaran</i>
A	Deforestation <i>Penyahhutan</i>	Eutrophication <i>Eutrofikasi</i>
B	Open burning <i>Pembakaran terbuka</i>	Landslide and air pollution <i>Tanah runtuh dan pencemaran udara</i>
C	Ploughed down the slope for agricultural purposes <i>Membajak tanah cerun untuk pertanian</i>	Soil erosion and landslides <i>Hakisan tanah dan tanah runtuh</i>
D	Open more heavy industrial area <i>Membuka lebih banyak kawasan perindustrian berat</i>	Soil erosion and thinning of ozone layer <i>Hujan asid dan penipisan lapisan ozon</i>

- 29 Chlorofluorocarbon (CFC) is the chemical substance that causes the thinning of the ozone layer.

What is the main source of chlorofluorocarbon (CFC)?

Klorofluorokarbon (CFC) adalah bahan kimia yang menyebabkan penipisan lapisan ozon. Apakah sumber utama klorofluorokarbon (CFC)?

- A Motor vehicle
Kenderaan bermotor
- B Nuclear reactor
Reaktor nuklear
- C Tall glass building
Bangunan tinggi bercermin
- D Solvent in electronics industry
Pelarut dalam industri elektronik

Dapatkan skema Jawapan di Laman

- 30 The following are the components of human blood.
Berikut adalah komponen darah manusia.

J	Antibodies <i>Antibodi</i>
K	Fibrinogen <i>Fibrinogen</i>
L	Globulin <i>Globulin</i>
M	Erythrocytes <i>Eritrosit</i>
N	Leucocytes <i>Leukosit</i>

Which of the above components are involved in the body defence against infection of pathogens?

Antara komponen di atas, yang manakah terlibat dalam pertahanan badan menentang jangkitan patogen?

- A J and N
J dan N
- B K and L
K dan L
- C J and M
J dan M
- D K and N
K dan N

Dapatkan skema Jawapan di Laman

- 31 Diagram 14 shows the relationship between the lymphatic vessels, blood capillaries and body cells.

Rajah 14 menunjukkan perkaitan antara salur limfa, kapilari darah dan sel badan.

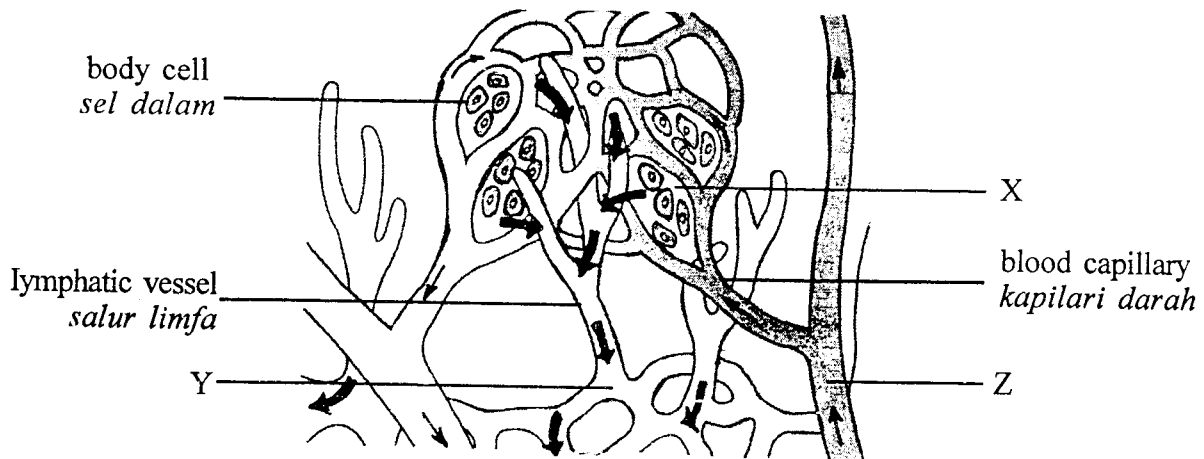


Diagram 14
Rajah 14

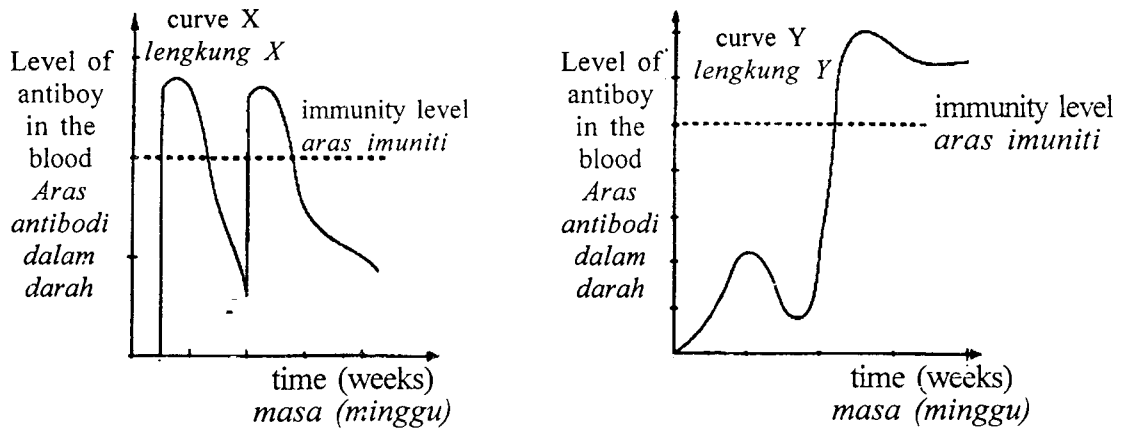
Which of the following statement is **true**?

Antara berikut, manakah pernyataan yang benar?

I	Fluid X contains leucocytes <i>Bendalir X mengandungi leukosit</i>
II	Fluid Y does not contain platelets <i>Bendalir Y tidak mengandungi platlet</i>
III	Z does not contain erythrocytes <i>Z tidak mengandungi eritrosit</i>
IV	Fluid Y contains more lymphocytes than fluid X <i>Bendalir Y mengandungi lebih banyak limfosit berbanding dengan bendalir X</i>

- 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 and IV only
I, II dan IV sahaja

32 Curve X and Y in Graph 2 shows the changes in the level of antibody of a person.
Lengkung X dan Y dalam Graf 2 menunjukkan perubahan pada aras antibodi pada seseorang.



Graph 2
 Graf 2

Which of the comparison is **correctly** matched between curve X and curve Y?
Antara berikut, manakah padanan perbandingan yang benar antara lengkung X dan lengkung Y?

Statement <i>Pernyataan</i>	Curve X <i>Lengkung X</i>	Curve Y <i>Lengkung Y</i>
K	Temporary immunity <i>Immuniti sementara</i>	Long life immunity <i>Immuniti kekal lama</i>
L	Immunity obtained after recovery from a certain disease <i>Immuniti diperolehi selepas sembuh dari penyakit</i>	Immunity obtained after an vaccination <i>Immuniti diperolehi selepas vaksinasi</i>
M	Artificial passive immunity <i>Keimunan pasif buatan</i>	Artificial active immunity <i>Keimunan aktif buatan</i>
N	The effects of immunity is fast <i>Kesan immuniti adalah cepat</i>	The effects of immunity is slow <i>Kesan immuniti adalah lambat</i>

- A K, L and M only
K, L dan M sahaja
- B K, M and N only
K, M dan N sahaja
- C L, M and N only
L, M dan N sahaja
- D K, L, M and N
K, L, M dan N

Dapatkan skema Jawapan di Laman

- 33 Diagram 15 shows the structure of a human heart.
Rajah 15 menunjukkan struktur jantung manusia.

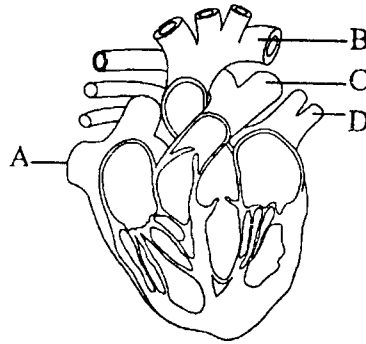


Diagram 15
Rajah 15

Which of the blood vessels labelled A, B, C and D transports oxygenated blood into the heart?
Manakah antara salur darah berlabel A, B, C dan D mengangkut darah beroksigen ke jantung?

- 34 Diagram 16 shows the muscles and bones on the upper arm.
 Which of the following tissue holds the parts labelled P and Q?
Rajah 16 menunjukkan otot dan tulang pada lengan.
Antara tisu berikut, yang manakah melekatkan bahagian yang berlabel P dan Q?

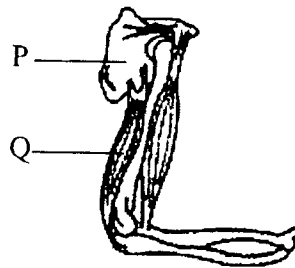


Diagram 16
Rajah 16

- A Cartilage
Rawan
- B Skeletal muscle
Otot rangka
- C Ligament
Ligamen
- D Tendon
Tendon

Dapatkan skema Jawapan di Laman

- 35 Which of the following groups of organisms have exoskeletons?
Manakah antara kumpulan haiwan berikut mempunyai rangka luar?

- A Snail, turtle, beetle
Siput, penyu, kumbang
 B Grasshopper, crab, prawn
Belalang, ketam, udang
 C Bird, cockroach, tortoise
Burung, lipas, kura-kura
 D Caterpillar, cockle, earthworm
Beluncas, kerang, cacing tanah

- 36 Diagram 17 shows three human vertebrae.
Rajah 17 menunjukkan tiga vertebra manusia.

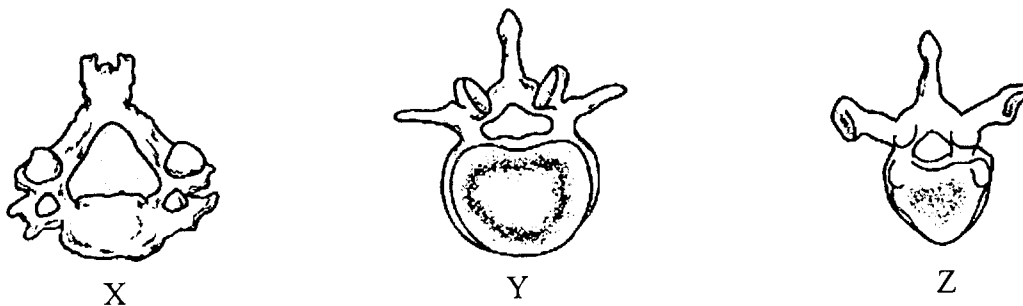


Diagram 17
Rajah 17

- Which of the following is named **correctly** for X, Y and Z respectively?
Antara berikut, manakah nama yang betul bagi X, Y dan Z?

	X	Y	Z
A	Lumbar <i>Lumbar</i>	Thoracic <i>Toraks</i>	Cervical <i>Serviks</i>
B	Thoracic <i>Toraks</i>	Cervical <i>Serviks</i>	Lumbar <i>Lumbar</i>
C	Cervical <i>Serviks</i>	Lumbar <i>Lumbar</i>	Thoracic <i>Toraks</i>
D	Cervical <i>Serviks</i>	Thoracic <i>Toraks</i>	Lumbar <i>Lumbar</i>

Dapatkan skema Jawapan di Laman

- 37 Diagram 18 shows a cross section of the human spinal cord.
Rajah 18 menunjukkan keratan rentas saraf tunjang manusia.

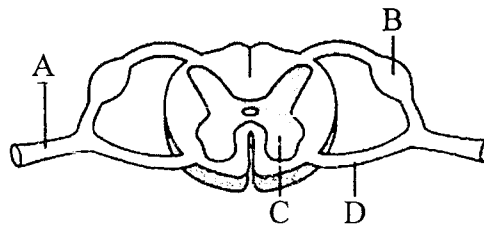


Diagram 18
Rajah 18

Which of the parts labelled A, B, C and D contains the cell body of afferent neurone? :
Antara bahagian berlabel A, B, C dan D manakah mengandungi jasad sel neuron aferen?

- 38 Diagram 19 shows a type of neurone.
Rajah 19 menunjukkan sejenis neuron.

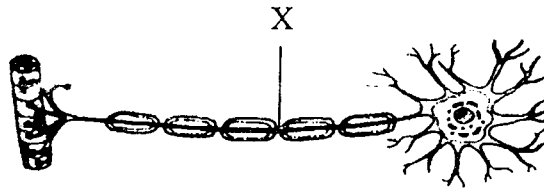
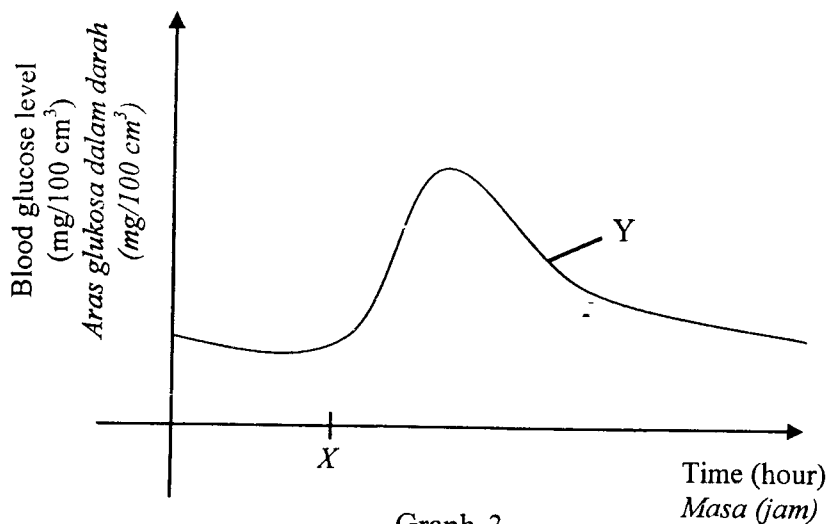


Diagram 19
Rajah 19

What is X?
Apakah X?

- A Myelin sheath
Selaput Mielin
- B Node of Ranvier
Nodus Ranvier
- C Axon
Akson
- D Dendrites
Dendrit

- 39 Graph 3 shows the blood glucose level in a healthy person after a meal is taken at time X.
 Graf 3 menunjukkan paras glukosa dalam darah individu yang sihat selepas mengambil makanan pada masa X.



Graph 3
 Graf 3

Which of the following are the **correct** processes occurring at Y?

Manakah antara berikut menunjukkan proses-proses yang **betul** berlaku di Y?

- I Glucose is oxidised into energy.
Glukosa dioksidakan kepada tenaga.
 - II Glucose is stored in the liver and skeletal muscle.
Glukosa disimpan di hati dan otot rangka.
 - III Insulin converts the glucose into glycogen in the liver.
Insulin menukarkan glukosa kepada glikogen di hati.
 - IV The rate of respiration is decreased.
Kadar respirasi menurun.
- A I and III
I dan III
 - B II and IV
II dan IV
 - C I, III and IV
I, III dan IV
 - D II, III and IV
II, III dan IV

Dapatkan skema Jawapan di Laman

- 40 Diagram 20 shows the structure of the human brain.
Rajah 20 menunjukkan struktur otak manusia.

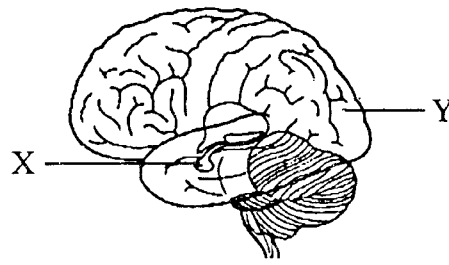


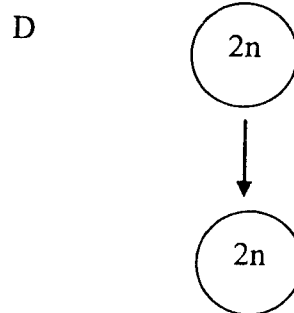
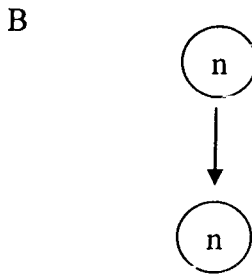
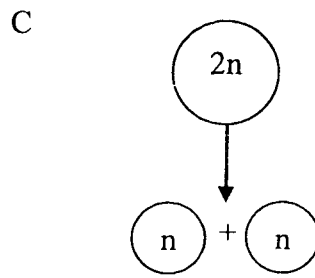
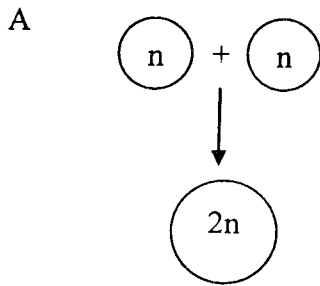
Diagram 20
Rajah 20

Which of the following is **correctly** matched between the parts labelled X and Y and their function respectively?

Antara berikut, manakah padanan pasangan yang **betul** antara bahagian berlabel X dan Y dan fungsi masing-masing?

	X	Y
A	Control the body temperature <i>Kawal suhu badan</i>	Control breathing rate and heart beat <i>Kawal kadar pernafasan dan degupan jantung</i>
B	Control breathing rate and heart beat <i>Kawal kadar pernafasan dan degupan jantung</i>	Control the body temperature <i>Kawal suhu badan</i>
C	Control body temperature and osmoregulation <i>Mengawal atur suhu badan dan osmokewalaturan</i>	Control the body balance <i>Mengawal keseimbangan badan</i>
D	Control the body balance <i>Mengawal keseimbangan badan</i>	Control coordination between muscles and sensory organs <i>Mengawal koordinasi antara otot dan organ deria</i>

41 Which of the following represent the fertilisation process?
 Antara berikut, yang manakah mewakili proses persenyawaan?



42 Diagram 21 shows the early development of the human foetus.
 How many cells will be formed at X?

Rajah 21 menunjukkan perkembangan fetus manusia.
 Berapakah sel yang akan terbentuk pada X?

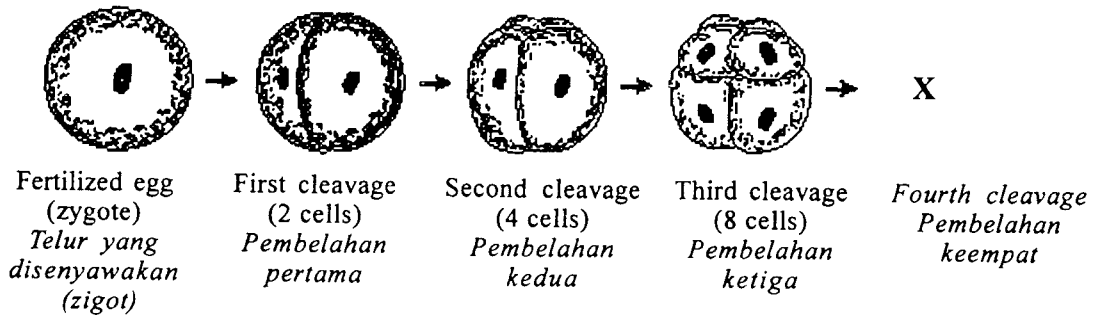


Diagram 21
 Rajah 21

- A 4
- B 16
- C 32
- D 64

Dapatkan skema Jawapan di Laman

- 43 Diagram 22 shows a cross section of an embryo sac in the ovule of a flowering plant.
Rajah 22 menunjukkan keratan rentas pundi embrio di dalam ovul satu tumbuhan berbunga.

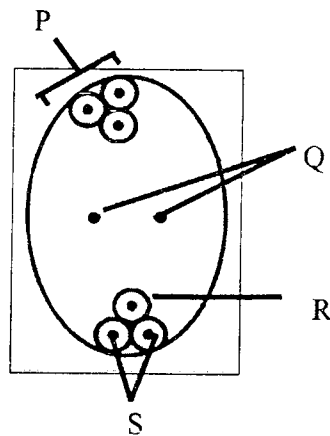


Diagram 22
Rajah 22

Which of the following parts labelled P, Q, R and S, will fuse with one male gamete nuclei forming a triploid nucleus ?

Antara bahagian yang berlabel P, Q, R dan S, yang manakah akan bergabung dengan nukleus gamet jantan membentuk nukleus triploid?

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

- 44 Table 2 shows the different methods of contraception and their functions.
Jadual 2 menunjukkan pelbagai kaedah mencegah kehamilan dan fungsinya.

Method <i>Kaedah</i>	Functions <i>Fungsi</i>
P	To prevent the formation of an ovum in the ovary <i>Untuk menghalang pembentukkan ovum di ovari</i>
Q	To prevent the implantation of an embryo <i>Untuk menghalang penempelan embrio</i>
R	To prevent sperms from entering the uterus <i>Untuk menghalang sperma memasuki uterus</i>
S	To kill the sperms <i>Untuk membunuh sperma</i>

Table 2
Jadual 2

What are P, Q, R and S?
Apakah P, Q, R dan S?

	P	Q	R	S
A	IUD device <i>Alat IUD</i>	Contraceptive pills <i>Pil pencegah kehamilan</i>	Diaphragm <i>Diafragma</i>	Condom <i>Kondom</i>
B	Condom <i>Kondom</i>	Diaphragm <i>Diafragma</i>	IUD device <i>Alat IUD</i>	Contraceptive pills <i>Pil pencegah kehamilan</i>
C	Contraceptive pills <i>Pil pencegah kehamilan</i>	Diaphragm <i>Diafragma</i>	Condom <i>Kondom</i>	IUD device <i>Alat IUD</i>
D	Contraceptive pills <i>Pil pencegah kehamilan</i>	IUD device <i>Alat IUD</i>	Diaphragm <i>Diafragma</i>	Spermicide <i>Spermisid</i>

Dapatkan skema Jawapan di Laman

- 45 In monohybrid cross, the two parental genotypes are RR and rr.
What percentage of F₂ generation will have the recessive phenotype?
*Dalam kacukan monohibrid, genotip induk adalah RR dan rr.
Apakah peratus generasi F₂ yang akan mendapat fenotip resesif?*
- A 25%
B 50%
C 75%
D 100%
- 46 Diagram 23 shows karyotype of an individual.
Rajah 23 menunjukkan kariotip seorang individu.

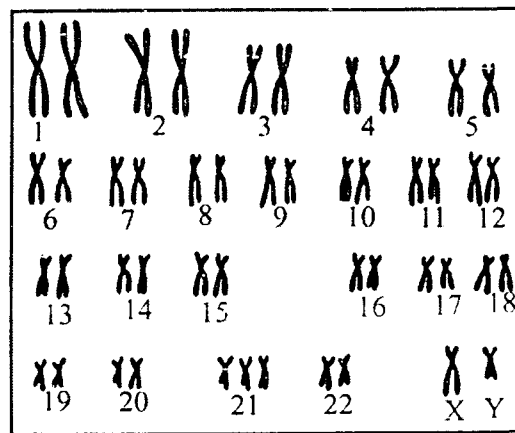


Diagram 23
Rajah 23

Which of the following individual have the karyotype shown in above diagram?
Antara individu berikut, yang manakah mempunyai kariotip seperti dalam rajah di atas?

- A A male with Turner's syndrome
Lelaki Sindrom Turner
- B A female with Turner's syndrome
Perempuan Sindrom Turner
- C A male with Down's syndrome
Lelaki Sindrom Down
- D A female with Down's syndrome
Perempuan Sindrom Down

Dapatkan skema Jawapan di Laman

47 Which of the following diseases are caused by the recessive allele on the X chromosome?
Antara berikut, penyakit yang manakah disebabkan oleh alel resesif yang terdapat pada kromosom X?

- A Down's syndrome and thalassaemia
Sindrom Down dan thalassemia
- B Down's syndrome and haemophilia
Sindrom Down dan hemofilia
- C Thalassaemia and colour blindness
Thalassemia dan buta warna
- D Haemophilia and colour blindness
Hemofilia dan buta warna

48 An individual has sickle-shaped red blood cell. He suffers chronic anaemia as the haemoglobin cannot transport enough oxygen.
Seorang individu mempunyai sel darah merah berbentuk sabit. Beliau menderita anaemia yang kronik disebabkan hemoglobin gagal mengangkut cukup oksigen.

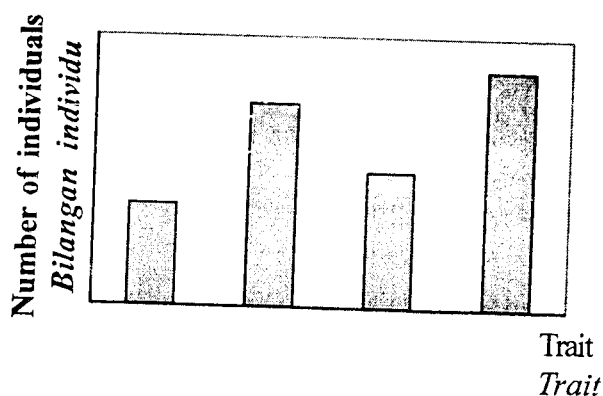
Which of the following are the causes of the cell abnormality?

Manakah antara berikut merupakan punca-punca ketidaknormalan sel tersebut?

- I Chromosomal mutation
Mutasi kromosom
 - II Gene Mutation
Mutasi gen
 - III The presence of mutagens
Kehadiran mutagen
 - IV Lack of oxygen
Kekurangan oksigen
- A I and III
I dan III
 - B II and III
II dan III
 - C I, II and IV
I, II dan IV
 - D II, III and IV
II, III dan IV

Dapatkan skema Jawapan di Laman

- 49 The bar chart shows the distribution of a particular trait in humans.
Carta bar menunjukkan taburan trait tertentu pada manusia.



Which of the following traits is represented by the bar chart above?
Manakah di antara trait yang berikut mewakili carta bar di atas?

- A Body weight
Berat badan
- B Body height
Ketinggian
- C Intelligence
Kecerdasan
- D Blood group
Kumpulan darah

50

Tissue culture technique allows biotechnologist to produce more seedlings in a shorter period of time.

Teknik kultur tisu membolehkan ahli bioteknologi menghasilkan banyak anak benih dalam jangka masa yang singkat.

What is the disadvantage of tissue culture?

Apakah keburukan kultur tisu?

- A Produce identical plants with desirable characteristics.
Menghasilkan tumbuhan yang seiras mengikut ciri yang dikehendaki.
- B Producing thousands of plants that can be used for commercial values.
Menghasilkan beribu-ribu tumbuhan yang mempunyai nilai komersial.
- C Prevent genetic variation between individuals.
Menghalang variasi genetik antara individu.
- D Preventing extinction of certain rare plants.
Mengelakkan kepupusan tumbuhan yang jarang ditemui.

Dapatkan skema Jawapan di Laman