

SULIT
4551/1
BIOLOGI
KERTAS 1
SEPTEMBER
2011
1 ¼ jam



PEPERIKSAAN PERCUBAAN BERSAMA
SIJIL PELAJARAN MALAYSIA 2011

ANJURAN
MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
CAWANGAN PERLIS

BIOLOGI

Kertas 1

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 **32** halaman bercetak

1. The following informations are features of an organelle in a cell.
Maklumat berikut adalah tentang ciri satu organel dalam sel.

- Spherical or oblong shaped
Berbentuk sfera atau bujur
- Smooth outer membrane and folded inner membrane
Membran luar licin dan membran dalam berlipat-lipat

Which of the following organelle has features as stated above?

Antara organel berikut yang manakah mempunyai ciri seperti di atas?

- | | |
|-----------------------------------|--------------------------------------|
| A Vacuole
<i>Vakuol</i> | B Nucleus
<i>Nukleus</i> |
| C Chloroplast
<i>Kloroplas</i> | D Mitochondria
<i>Mitokondria</i> |

2. Diagram 1 shows two cells, X and Y, which are stained with dilute iodine solution.
Rajah 1 menunjukkan sel X dan sel Y yang telah diwarnakan dengan larutan iodin cair.

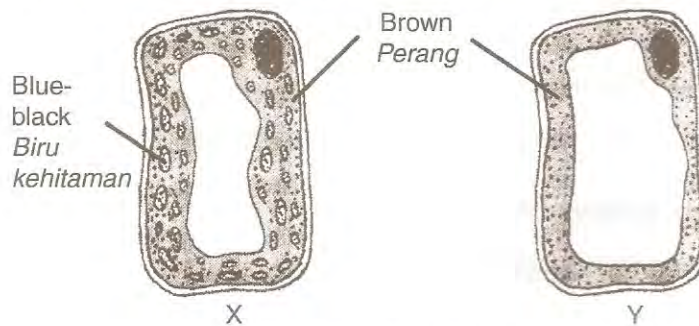


Diagram 1/Rajah 1

Which of the following explains why cell Y does not possess blue-black structure when it is stained with iodine solution?

Antara yang berikut, yang manakah menerangkan mengapa sel Y tidak mempunyai struktur berwarna biru kehitaman apabila diwarnakan dengan larutan iodin?

- | |
|--|
| A Cell Y does not possess centrioles.
<i>Sel Y tidak mempunyai sentriol.</i> |
| B Cell Y does not possess chloroplasts.
<i>Sel Y tidak mempunyai kloroplas.</i> |
| C Cell Y does not possess plasma membrane.
<i>Sel Y tidak mempunyai membran plasma.</i> |
| D Cell Y does not possess nucleus and cytoplasm.
<i>Sel Y tidak mempunyai nukleus dan sitoplasma.</i> |

3. Diagram 2 shows a structure of plasma membrane.
Rajah 2 menunjukkan struktur membran plasma.

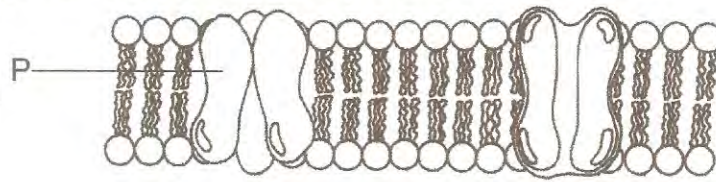


Diagram 2/Rajah 2

What is P?

Apakah P?

- | | |
|-------------------------------|--------------------------------------|
| A Cholesterol
Kolesterol | B Phospholipid
Fosfolipid |
| C Carbohydrate
Karbohidrat | D Carrier protein
Protein pembawa |
4. A cell is immersed in distilled water for 20 minutes. It is then taken out and immersed in 30% sucrose solution. Table 1 shows the observed condition of the cell.
Satu sel direndam dalam air suling selama 20 minit. Sel itu kemudian dikeluarkan dan direndam di dalam larutan sukrosa 30%. Jadual 1 menunjukkan pemerhatian ke atas keadaan sel tersebut.

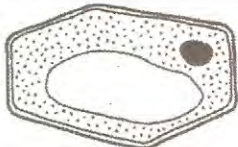
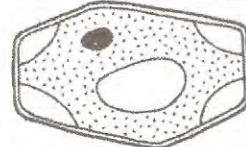
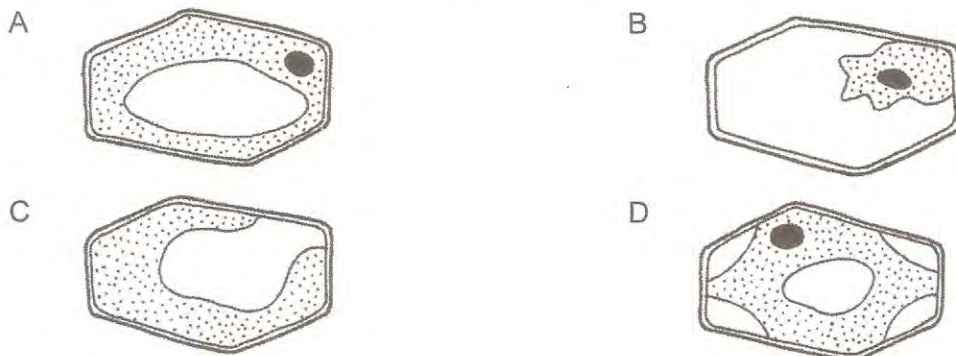
Condition of cell Keadaan sel		
Type of solution Jenis larutan	Distilled water Air suling	30% sucrose solution Larutan sukrosa 30%

Table 1/Jadual 1

If the cell is put back into the distilled water for 20 minutes, which condition of the cell would be expected?

Jika sel itu dimasukkan semula dalam air suling selama 20 minit, yang manakah keadaan sel yang dijangkakan?



5. Diagram 4 shows an experiment to investigate the changes of sucrose concentration in a visking tube.
Rajah 4 menunjukkan eksperimen untuk mengkaji perubahan kepekatan sukrosa dalam tiub visking.

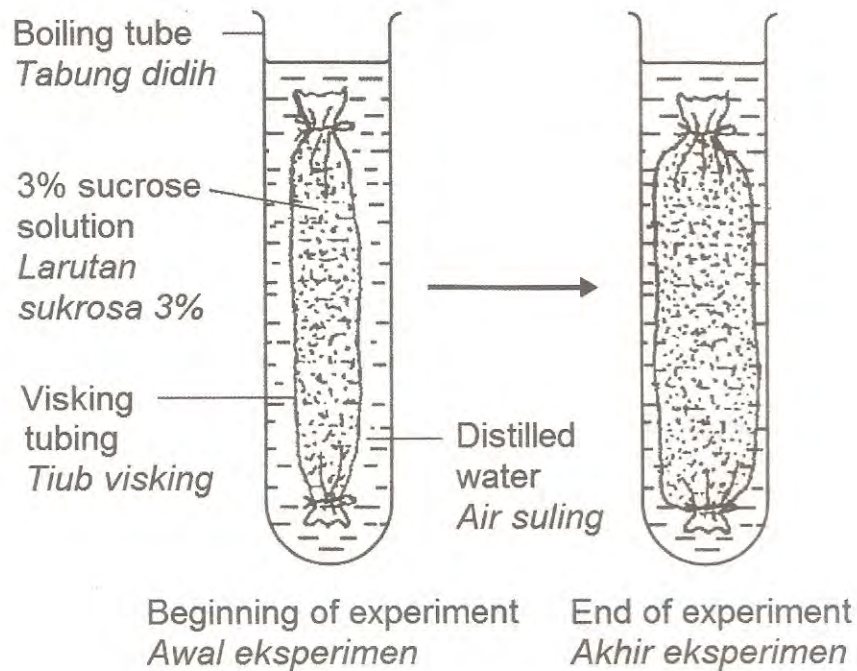
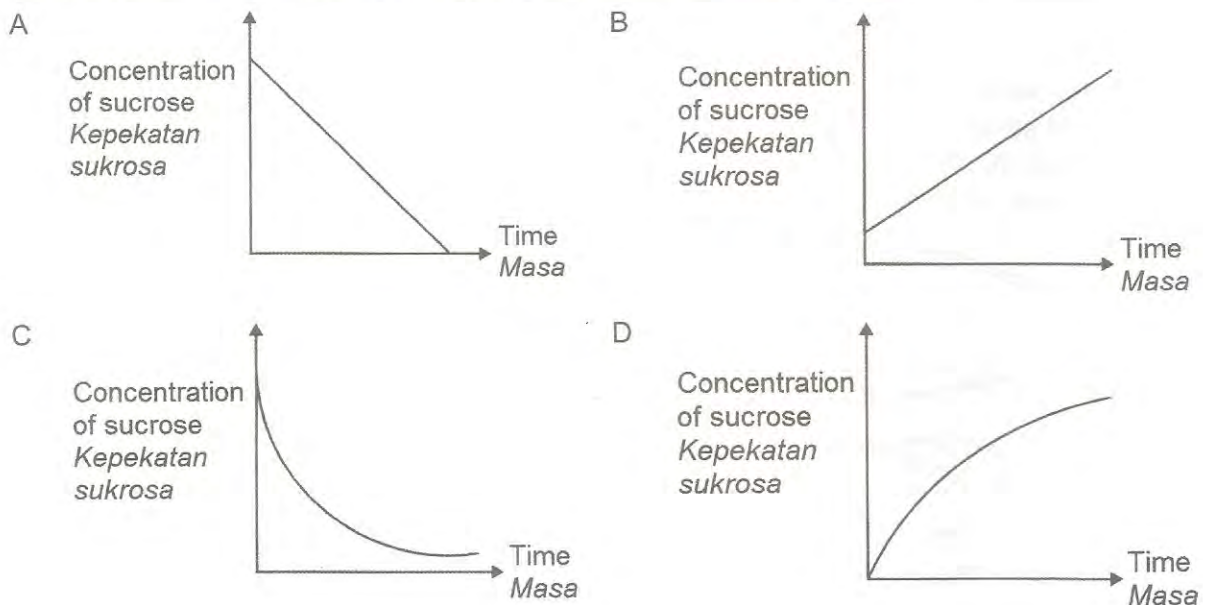


Diagram 4/Rajah 4

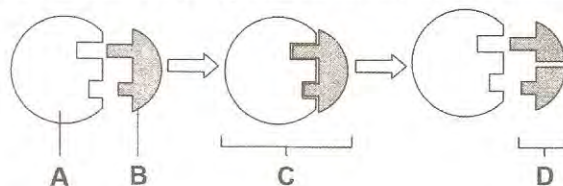
Which of the following graphs A, B, C or D represents the change?
Antara graf A, B, C dan D berikut, yang manakah mewakili perubahan itu?



6. The figure shows the breaking down of a complex molecule by an enzyme. Which of the molecules A, B, C or D, represents the substrate?

Rajah menunjukkan proses penguraian molekul kompleks oleh enzim.

Antara molekul A, B, C dan D, yang manakah mewakili substrat?



Questions 7 and 8 are based on the experiment below.

Soalan 7 dan 8 adalah berdasarkan kepada eksperimen di bawah.

Diagram 5 shows an experiment to study the activity of enzyme.

The test tubes are kept at 37°C for an hour.

Rajah 5 menunjukkan satu eksperimen untuk mengkaji tentang aktiviti enzim.

Semua tabung uji tersebut dibiarkan pada suhu 37°C selama 1 jam.

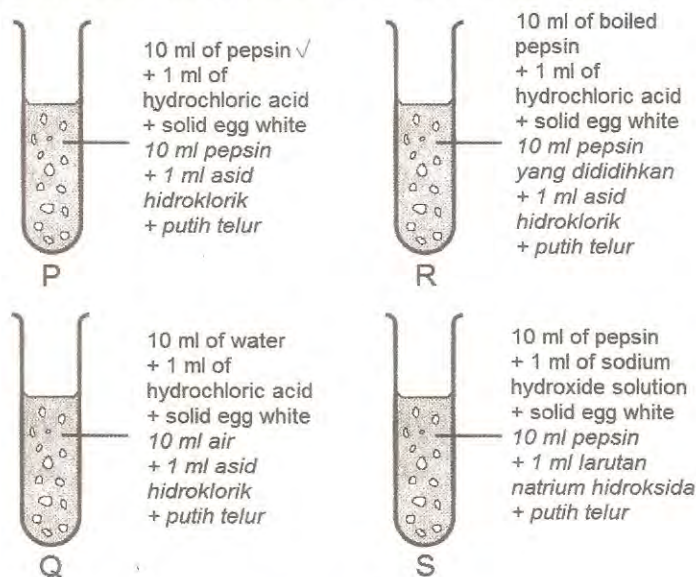


Diagram 5/Rajah 5

7. In which of the test tubes will the solid egg white disappear?
Telur putih pepejal di dalam tabung uji manakah tidak akan kelihatan?
- | | |
|----------------------------------|----------------------------------|
| A P only
P sahaja | B S only
S sahaja |
| C P and R only
P dan R sahaja | D Q and S only
Q dan S sahaja |

8. Which of the following is not true about this experiment?
 Antara berikut manakah tidak benar berkaitan eksperimen tersebut?
- A Pepsin can digest solid egg white
Pepsin boleh mencernakan pepejal putih telur
 - B Pepsin is active in an acidic medium
Pepsin aktif dalam medium berasid
 - C Pepsin is active in an alkaline medium
Pepsin aktif dalam medium beralkali
 - D Pepsin is most active at 37°C
Pepsin bertindak paling aktif pada suhu 37°C

9. Diagram 6 shows some stages of meiosis in a cell.
 Rajah 6 menunjukkan beberapa peringkat meiosis dalam suatu sel.

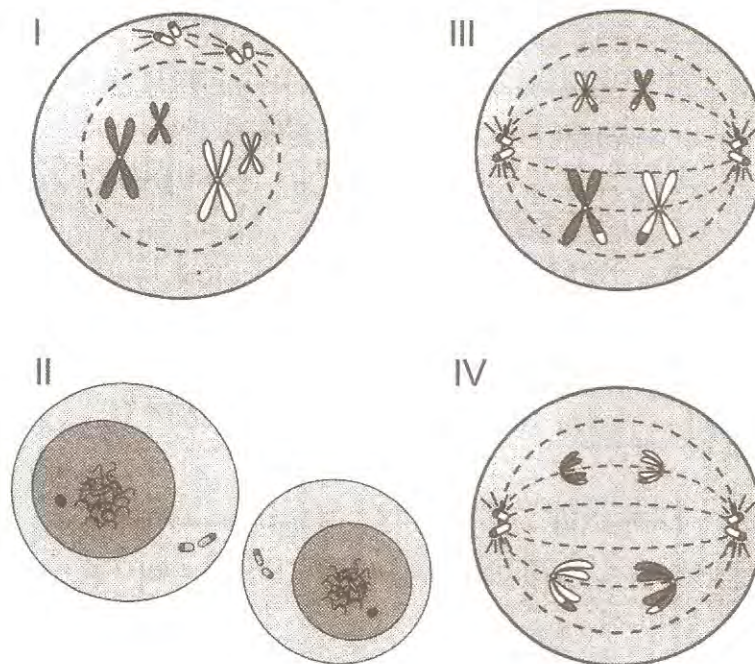


Diagram 6/Rajah 6

- Which of the following is the correct sequence of the stages?
 Antara berikut, yang manakah merupakan urutan yang benar bagi peringkat-peringkat itu?
- A I, III, IV, II
 - B II, III, I, IV
 - C II, I, III, IV
 - D IV, I, III, II

10. A grasshopper has 8 chromosomes in its egg cell. Which of the following cells is the somatic cell of a grasshopper?
Seekor belalang mempunyai 8 kromosom di dalam sel telurnya. Antara sel-sel berikut, yang manakah merupakan sel soma bagi belalang?
- A A cell with 4 chromosomes
Satu sel dengan 4 kromosom
- B A cell with 8 chromosomes
Satu sel dengan 8 kromosom
- C A cell with 4 pairs of chromosomes
Satu sel dengan 4 pasang kromosom
- D A cell with 8 pairs of chromosomes
Satu sel dengan 8 pasang kromosom
11. Diagram 7 shows a cell at one particular stage of mitosis.
Rajah 7 menunjukkan satu sel pada satu peringkat mitosis.

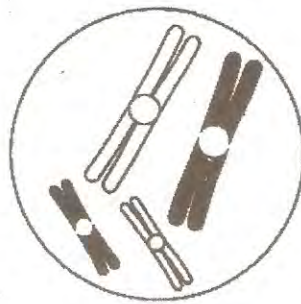
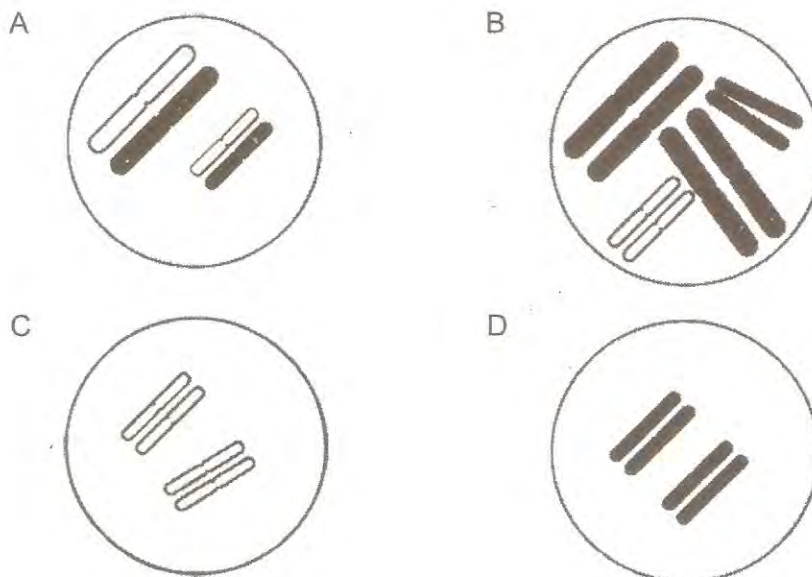


Diagram 7/Rajah 7

Which cell is produced by the cell division?
Sel manakah yang dihasilkan daripada pembahagian sel itu?



12. Diagram 8 shows the process of cloning a sheep.
Rajah 8 menunjukkan proses pengklonan kambing biri-biri.

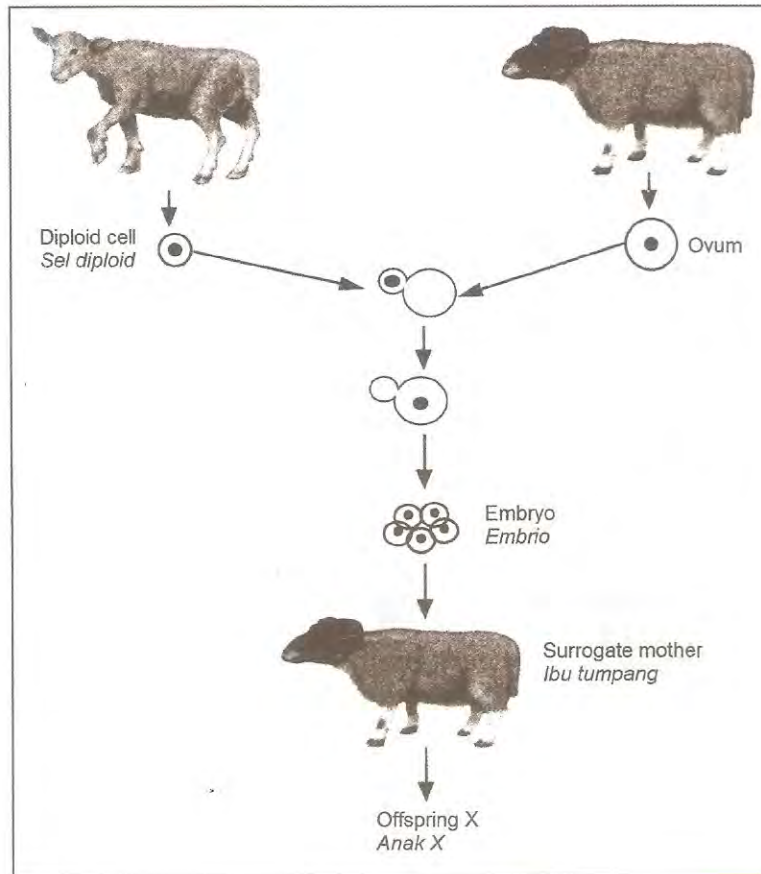
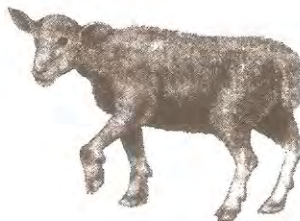


Diagram 8/Rajah 8

Which of the following is the offspring X?
Antara yang berikut, yang manakah anak X?

A



B



C



D



13. Diagram 9 shows a child with rickets.

Rajah 9 menunjukkan seorang kanak-kanak yang mengalami penyakit riket.



Diagram 9/Rajah 9

Which vitamin is he lacking?

Apakah vitamin yang dia kekurangan?

- A Vitamin B
- B Vitamin C
- C Vitamin D
- D Vitamin E

14. Which of the following method can improve the quality and quantity of food production?

Antara kaedah berikut manakah boleh meningkatkan kualiti dan kuantiti pengeluaran makanan?

- I Selective breeding
Pemilihan baka
- II Tissue culture
Kultur tisu
- III Sterilizing the soil
Tanah yang di steril
- IV Biological control of pest
Kawalan biologi haiwan perosak

- A III and IV only
III dan IV sahaja

- C II, III and IV only
II, III dan IV sahaja

- B I, II and IV only
I, II dan IV sahaja

- D I, II, III and IV
I, II, III dan IV

15. Folic acid is needed by pregnant mothers to
Asid folik diperlukan oleh ibu yang hamil untuk
- A produce red blood cell.
menghasilkan sel darah merah.
 - B prevent muscle cramp.
mengelakkan kekejangan otot.
 - C prevent the degeneration of blood vessel.
mengelakkan kemerosotan salur darah.
 - D produce coenzymes for vitamin C.
menghasilkan koenzim untuk vitamin C.
16. Diagram 10 is a graph showing the effect of light intensity on the rate of photosynthesis.
Rajah 10 ialah graf yang menunjukkan kesan keamatan cahaya ke atas kadar fotosintesis.

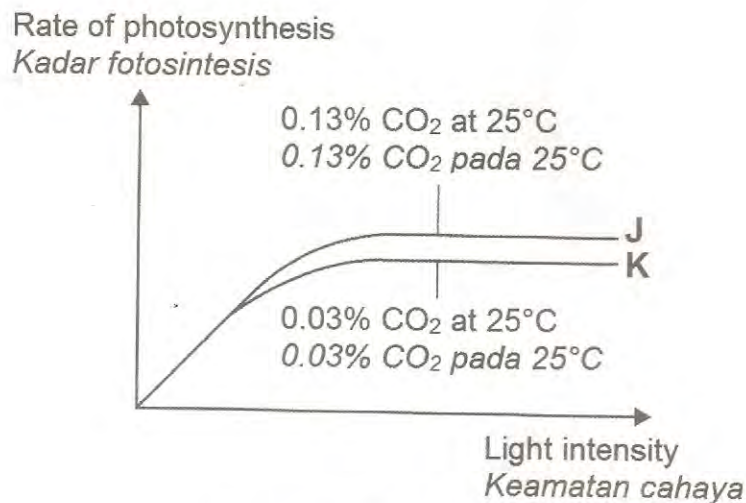


Diagram 10/Rajah 10

Which of the following can be concluded about the rate of photosynthesis between the curves J and K?

Antara yang berikut, yang manakah boleh dirumuskan tentang kadar fotosintesis di antara lengkung J dan K?

- A It is not influenced by the concentration of carbon dioxide.
Tidak dipengaruhi oleh kepekatan karbon dioksida.
- B It is limited by the concentration of carbon dioxide.
Dihadkan oleh kepekatan karbon dioksida.
- C It is limited by the light intensity.
Dihadkan oleh keamatan cahaya.
- D It is not influenced by the temperature.
Tidak dipengaruhi oleh suhu.

17. The following information shows the results of an experiment to determine the energy value of a cashew nut.

Maklumat berikut menunjukkan keputusan suatu eksperimen untuk menentukan nilai tenaga sebiji kacang gajus.

The mass of cashew nut	= 9 g
<i>Jisim kacang gajus</i>	
The volume of distilled water	= 20 ml
<i>Isipadu air suling</i>	
The density of water	= 1 g ml ⁻¹
<i>Ketumpatan air</i>	
Initial water temperature	= 29°C
<i>Suhu awal air</i>	
Final water temperature	= 38°C
<i>Suhu akhir air</i>	

Calculate the energy value of the cashew nut using the following formula below:

Hitung nilai tenaga kacang gajus itu dengan menggunakan formula di bawah:

Energy value =	$\frac{4.2 \text{ J g}^{-1} \text{ }^{\circ}\text{C} \times \text{mass of water (g)} \times \text{increase in temperature (}^{\circ}\text{C)}}{\text{Mass of cashew nut (g)}}$
Nilai tenaga =	$\frac{4.2 \text{ J g}^{-1} \text{ }^{\circ}\text{C} \times \text{jisim air (g)} \times \text{peningkatan suhu (}^{\circ}\text{C)}}{\text{Jisim kacang gajus (g)}}$

- A 4.2 J g⁻¹
- B 84.0 J g⁻¹
- C 93.3 J g⁻¹
- D 840.0 J g⁻¹

18. Diagram 11 shows a cross section of an alveolus in the lung of a mammal.
Rajah 11 menunjukkan keratan rentas satu alveolus di dalam paru-paru mamalia.

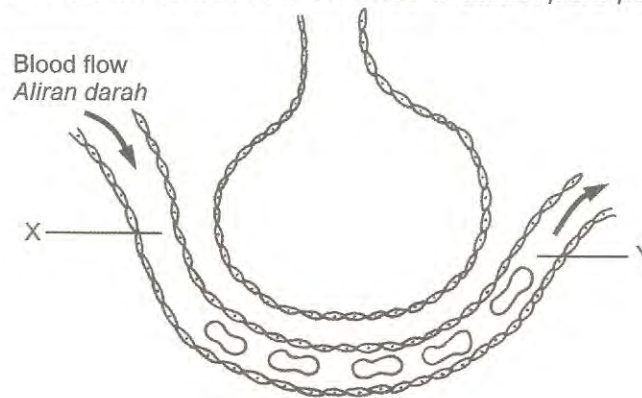


Diagram 11/Rajah 11

Which of the following is correct about oxygen and carbon dioxide concentrations at X and Y?

Manakah antara berikut yang benar tentang kepekatan oksigen dan karbon dioksida pada X dan Y?

	Oxygen Oksigen		Carbon dioxide Karbon dioksida	
	X	Y	X	Y
A	Low <i>Rendah</i>	High <i>Tinggi</i>	High <i>Tinggi</i>	Low <i>Rendah</i>
B	High <i>Tinggi</i>	Low <i>Rendah</i>	Rendah <i>Low</i>	High <i>Tinggi</i>
C	High <i>Tinggi</i>	Low <i>Rendah</i>	High <i>Tinggi</i>	Low <i>Rendah</i>
D	Low <i>Rendah</i>	High <i>Tinggi</i>	Low <i>Rendah</i>	High <i>Tinggi</i>

19. Which of the following adaptations is meant to increase the efficiency of gaseous exchange in plants?

Manakah antara berikut merupakan adaptasi untuk meningkatkan keberkesanan pertukaran gas di dalam tumbuhan?

- A Dropping the old leaves
Menggugurkan daun tua
- B Having a large number of leaves
Mempunyai bilangan daun yang banyak
- C More stomata in the upper epidermis
Lebih banyak stomata di bahagian epidermis atas
- D Having the intercellular spaces filled with fluid
Mempunyai cecair di ruang antara sel.

20. Diagram 12 shows an experimental set up used to show yeast fermentation.
Rajah 12 menunjukkan susunan radas untuk menunjukkan proses penapaian yis.

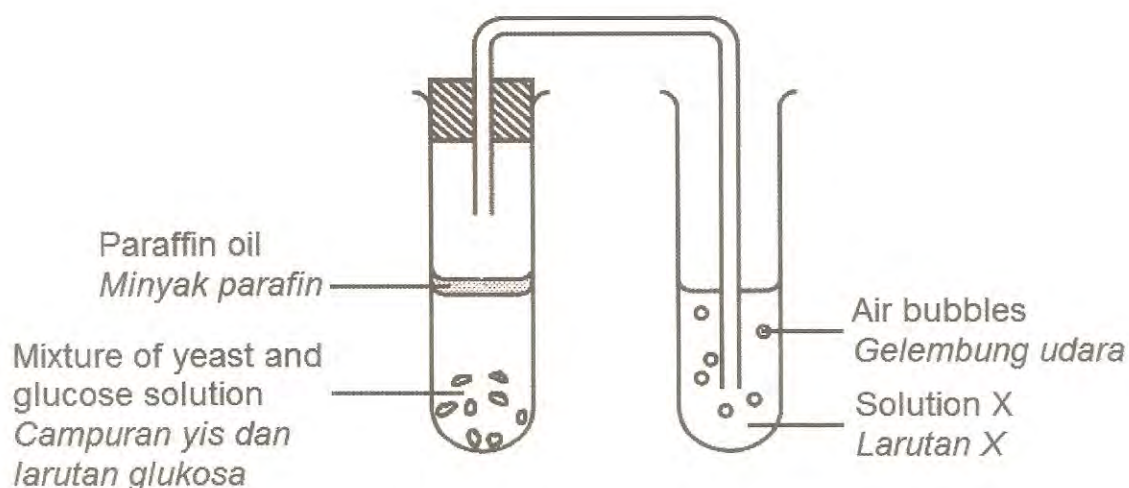


Diagram 12/Rajah 12

Which of the following solution can be used to test the gas produced?
Manakah antara larutan berikut boleh digunakan untuk menguji gas yang terhasil?

- I Alkaline potassium pyrogallate solution
Larutan potassium pirogalat beralkali
 - II Bicarbonate indicator solution
Larutan penunjuk bikarbonat
 - III Iodine solution
Larutan iodin
 - IV Lime water
Air kapur
- A II and III only
II dan III 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

21. Diagram 13 shows a model of a rib cage prepared by a student to study the respiratory mechanism in humans.

Rajah 13 menunjukkan model sangkar rusuk yang disediakan oleh seorang pelajar untuk mengkaji mekanisme respirasi manusia.

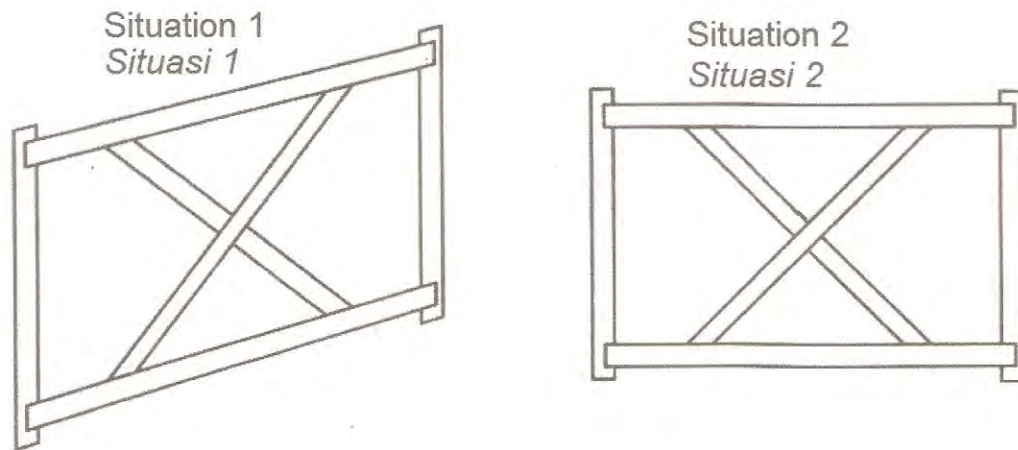


Diagram 13/Rajah 13

Which of the following will happen if the position of the ribs is changed from situation 1 to situation 2?

Antara yang berikut, yang manakah akan berlaku sekiranya kedudukan tulang rusuk itu bertukar dari situasi 1 ke situasi 2?

- | | |
|-----|--|
| I | The pressure in the lungs increases.
<i>Tekanan di dalam paru meningkat.</i> |
| II | The volume of the thoracic cavity decreases.
<i>Isipadu rongga toraks berkurang.</i> |
| III | The rib cage moves upwards and outwards.
<i>Sangkar rusuk bergerak ke atas dan ke luar.</i> |
| IV | Inhalation takes place.
<i>Penyedutan nafas berlaku.</i> |
| A | I and II only
<i>I dan II sahaja</i> |
| B | III and IV only
<i>III dan IV sahaja</i> |
| C | I, III and IV only
<i>I, III dan IV sahaja</i> |
| D | I, II, III and IV
<i>I, II, III dan IV</i> |

22. The following information is about a sampling technique to estimate the population size of garden snails in a habitat.

Maklumat berikut adalah tentang teknik persampelan untuk menganggar saiz populasi siput babi dalam satu habitat.

- P - Capture at random a number of garden snails and record the number which are marked.
Tangkap secara rawak siput babi dan catat bilangan yang bertanda.
- Q - Release the garden snails in the same habitat.
Lepaskan semula siput babi dalam habitat yang sama.
- R - Capture a large number of garden snails and mark each shell.
Tangkap sejumlah besar siput babi dan tandakan setiap cengkerang.
- S - Calculate the population of the garden snails.
Hitung populasi siput babi.

Which sequence is correct?

Urutan manakah yang betul?

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

23. Which of the following are abiotic components in an ecosystem?

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

- I Consumer
Pengeluar
- II Humidity
Kelembapan
- III Decomposer
Pengurai
- IV Light intensity
Keamatan cahaya

- | | |
|---------------------------------|-----------------------------------|
| A I and II
<i>I dan II</i> | B I and III
<i>I dan III</i> |
| C II and IV
<i>II dan IV</i> | D III and IV
<i>III dan IV</i> |

24. Diagram 14 shows an interaction between two organisms.
Rajah 14 menunjukkan interaksi antara dua organisma.

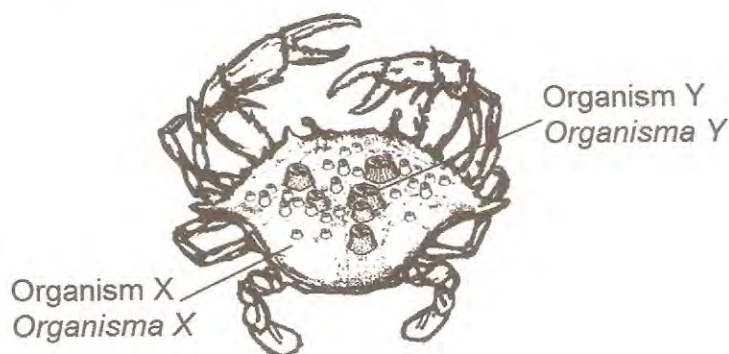


Diagram 14/Rajah 14

What is the type of interaction shown?

Apakah jenis interaksi yang ditunjukkan?

- | | |
|--------------------------------|--------------------------------|
| A Commensalism
Komensalisme | B Mutualism
Mutualisme |
| C Parasitism
Parasitisme | D Saprophytism
Saprofitisme |

25. The following information shows a type of epiphyte in a habitat.
Maklumat berikut menunjukkan sejenis epifit dalam satu habitat.

Habitat: Tree trunk

Habitat : Batang pokok

Type of epiphyte on tree trunk: Unicellular alga, Pleurococcus

Jenis epifit pada batang pokok: Alga unisel Pleurococcus

Which of the following is most suitable to estimate the coverage of Pleurococcus species?

Antara yang berikut, yang manakah paling sesuai untuk menganggar litupan spesies Pleurococcus?

- | |
|---|
| A A transparent quadrat of 1 cm x 1 cm
Satu kuadrat lutsinar 1 cm x 1 cm |
| B A transparent quadrat of 10cmx10cm
Satu kuadrat lutsinar 10 cm x 10 cm |
| C An iron frame quadrat of 10 cm x 10 cm
Satu kuadrat besi 10 cm x 10 cm |
| D Belt transect using nail and string
Garis transek yang menggunakan paku dan tali |

26. Table 2 shows the number of plant P present in 10 different quadrats, each measuring 1 m x 1 m.

Jadual 2 menunjukkan bilangan tumbuhan P dalam 10 kuadrat yang berlainan. setiap satu berukuran 1 m x 1 m.

Quadrat number <i>Nombor kuadrat</i>	I	II	III	IV	V	VI	VII	VIII	IX	X
Number of plant P <i>Bilangan tumbuhan P</i>	14	10	0	22	18	16	12	0	15	13

Table 2/Jadual 2

Calculate the density of P.

Hitung kepadatan P.

- A 8 m⁻²
B 12 m⁻²
C 15 m⁻²
D 120 m⁻²
27. The following steps are carried out to reduce damage to the environment.
Langkah-langkah berikut dilaksanakan untuk mengurangkan kemusnahan terhadap alam sekitar.
- I Replanting trees
Menanam semula pokok
 - II Sharing transport
Berkongsi kenderaan
 - III Reducing the usage of fossil fuel
Mengurangkan penggunaan bahan api fosil
 - IV Reducing the leftovers of industrial solid waste
Mengurangkan pembuangan sisa pepejal industry

Which of the following steps can help to reduce the problem of global warming?

Antara langkah-langkah berikut, yang manakah boleh membantu mengurangkan masalah pemanasan global?

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

28. Which of the following activities causes the thinning of the ozone layer?

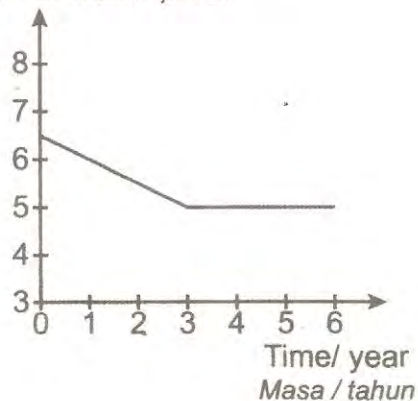
Antara aktiviti-aktiviti berikut, yang manakah menyebabkan penipisan lapisan ozon?

- A Burning of fossil fuels
Pembakaran bahan api fosil
- B Throwing of rubbish into the rivers
Pembuangan sampah ke dalam sungai
- C Use of substances that contains chlorine
Penggunaan bahan-bahan yang mengandungi klorin
- D Construction of glass buildings
Pembinaan bangunan-bangunan berkaca

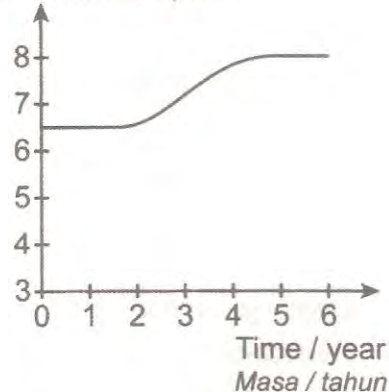
29. The acidic chemical waste from a factory is drained into a lake. Which of the following graphs shows the changes in pH value of the lake water over a period of six years?

Sisa kimia yang berasid daripada sebuah kilang dialirkan ke sebuah tasik. Antara graf-graf berikut, yang manakah menunjukkan perubahan nilai pH air tasik dalam tempoh enam tahun?

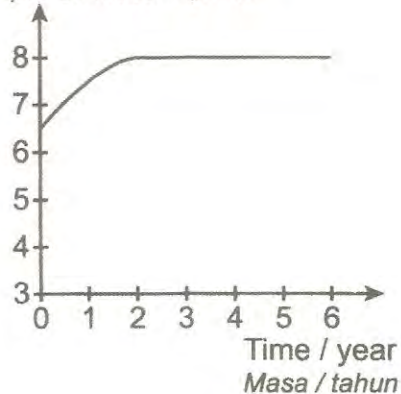
A pH of water / pH air



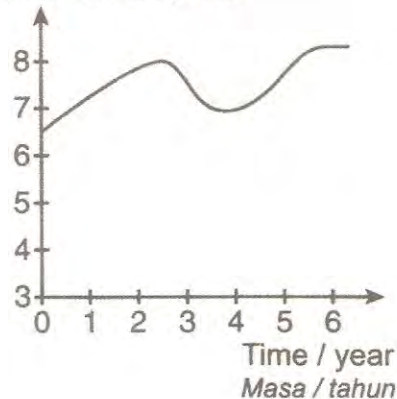
B pH of water / pH air



C pH of water / pH air



D pH of water / pH air



30. Which of the following **is not** a function of the lymphatic system?

*Antara pernyataan berikut, yang manakah **bukan** fungsi sistem limfa?*

- A Lymph nodes destroy old red blood cells.
Nodus limfa memusnahkan sel darah merah (eritrosit) yang lama.
- B Lacteals transport fatty acids and glycerol from the small intestine.
Lakteal mengangkut asid lemak dan gliserol dari usus kecil.
- C Lymph vessels return interstitial fluid into the circulatory system.
Salur limfa mengembalikan bendalir interstis ke dalam sistem peredaran.
- D Lymph transports lymphocytes throughout the body.
Limfa mengangkut limfosit ke seluruh bahagian badan.

31. Diagram 15 shows a type of vascular tissue found in plants.

Rajah 15 menunjukkan sejenis tisu vaskular yang terdapat dalam tumbuhan.

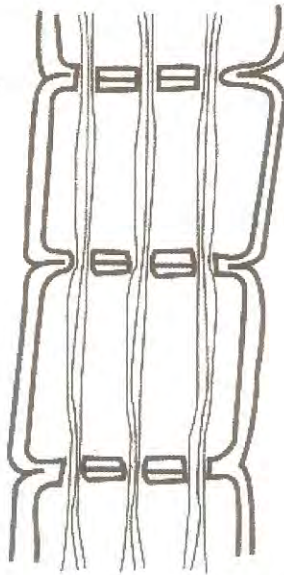


Diagram 15/Rajah 15

Which substance is transported by this tissue in a plant?

Bahan yang manakah diangkut oleh tisu ini dalam tumbuhan?

- A Water
Air
- B Glucose
Glukosa
- C Oxygen
Oksigen
- D Mineral salts
Garam mineral

32. Which types of leucocytes are capable of carrying out phagocytosis?

Antara leukosit berikut, manakah boleh menjalankan proses fagositosis?

- I Basophils
Basofil
II Eosinophils
Eosinofil
III Neutrophils
Neutrofil
IV Monocytes
Monosit
A I and II only
I dan II sahaja
C I, II and IV only
I, II dan IV sahaja

- B III and IV only
III dan IV sahaja
D II, III and IV only
II, III dan IV sahaja

33. Diagram 16 shows part of the tracheal system of insects.

Rajah 16 menunjukkan sebahagian pada sistem trakea pada serangga.

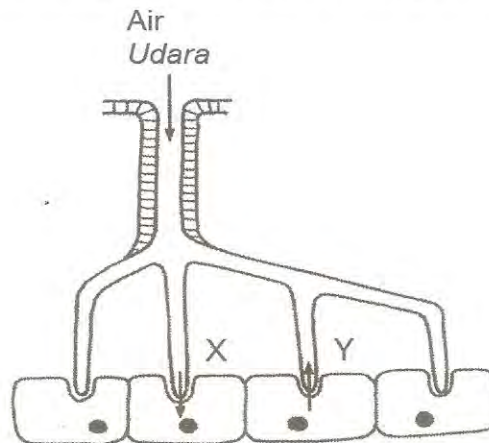


Diagram 16/Rajah 16

What are substances X and Y?

Apakah bahan X dan Y?

	X	Y
A	Oxygen <i>Oksigen</i>	Carbon dioxide <i>Karbon dioksida</i>
B	Carbon dioxide <i>Karbon dioksida</i>	Oxygen <i>Oksigen</i>
C	Oxygen <i>Oksigen</i>	Water <i>Air</i>
D	Water <i>Air</i>	Oxygen <i>Oksigen</i>

34. Diagram 17 shows the lymphatic system.
Rajah 17 menunjukkan sistem limfa.

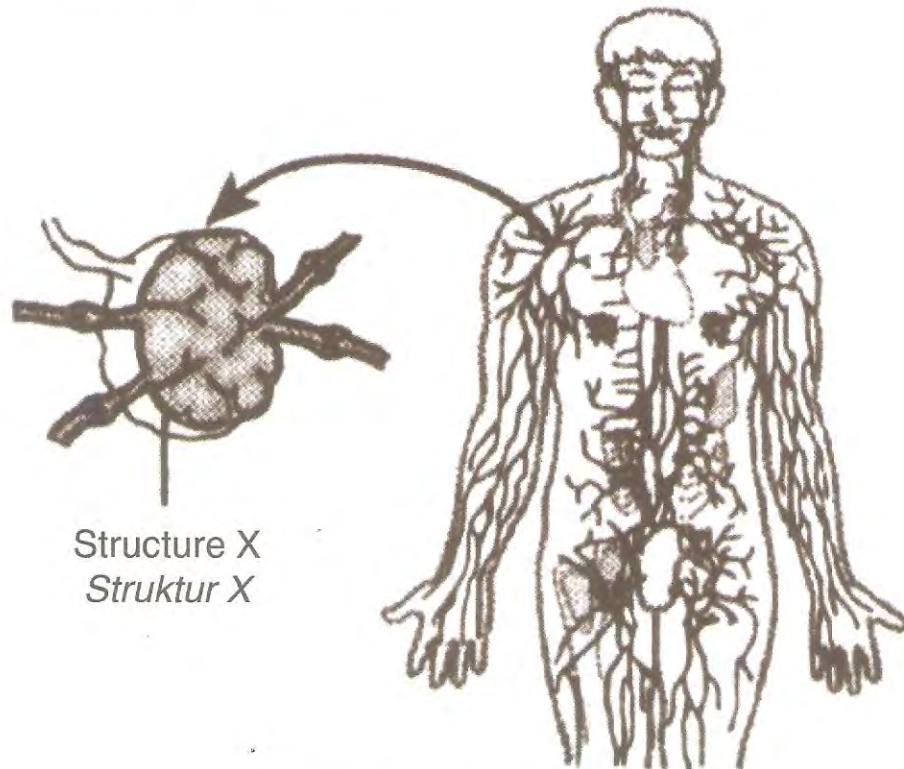


Diagram 17/Rajah 17

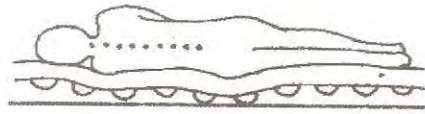
Which of the following are functions of structure X?
Antara berikut manakah merupakan fungsi struktur X?

- | | |
|-----|---|
| I | It filters out foreign particles.
<i>Ia menapis keluar partikel asing.</i> |
| II | Macrophages in X engulf and destroy bacteria.
<i>Makrofaj di X mengepung dan memusnahkan bakteria.</i> |
| III | Lymphocytes in X produce antibodies to destroy antigens.
<i>Limfosit di X menghasilkan antibody untuk memusnahkan antigen.</i> |
| IV | It prevents accumulation of tissue fluid.
<i>Ia menghalang pengumpulan cecair tisu.</i> |
| A | I and III only
<i>I dan III sahaja</i> |
| B | I, II and III only
<i>I, II dan III sahaja</i> |
| C | I, II and IV only
<i>I, II dan IV sahaja</i> |
| D | I, II, III and IV only
<i>I, II, III dan IV sahaja</i> |

35. Which of the following shows a good posture?

Antara berikut, yang manakah menunjukkan posisi badan yang baik?

A



B



C



D



36. Diagram 18 shows part of the human skeletal system.

Rajah 18 menunjukkan sebahagian daripada sistem rangka manusia.

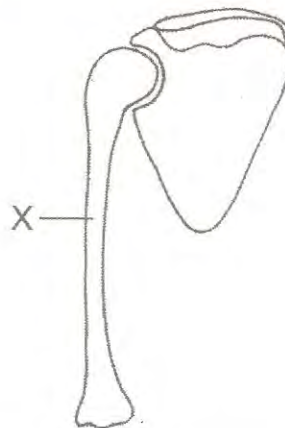


Diagram 18/Rajah 18

What is X?

Apakah X?

A Ulna

Ulna

C Humerus

Humerus

B Scapula

Skapula

D Clavicle

Klavikel

37. Diagram 19 shows the forearm of humans.

Rajah 19 menunjukkan lengan manusia.

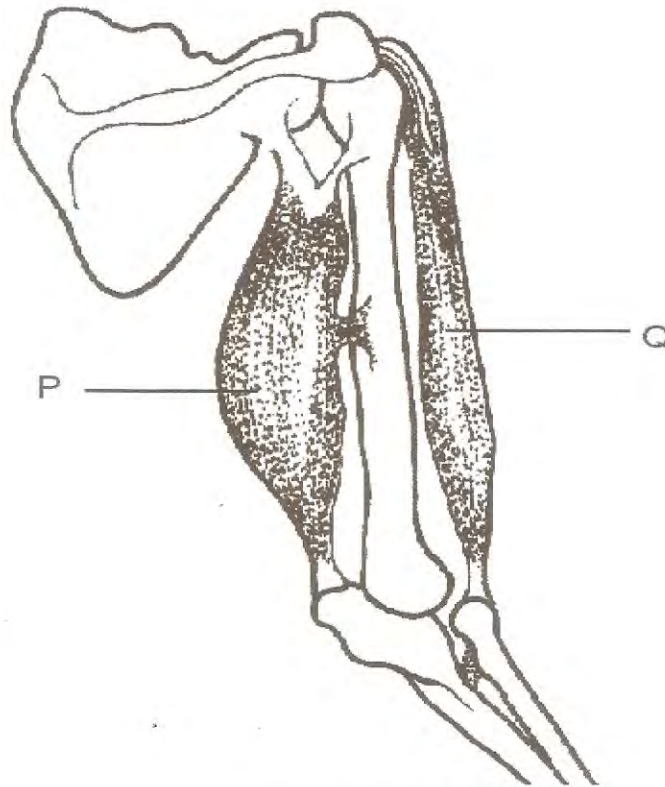


Diagram 19/Rajah 19

Which of the following makes the forearm bends upward?

Antara berikut, yang manakah menyebabkan lengan dibengkokkan ke atas?

- A Muscle P contracts.
Otot P mengecut.
- B Muscle Q contracts.
Otot Q mengecut.
- C Muscle P and and muscle Q contract.
Otot P dan otot Q mengecut.
- D Muscle P and the muscle Q relax.
Otot P dan otot Q mengendur.

38. Diagram 20 below shows a synapse at the nerve ending.
Rajah 20 menunjukkan sinaps pada hujung saraf.

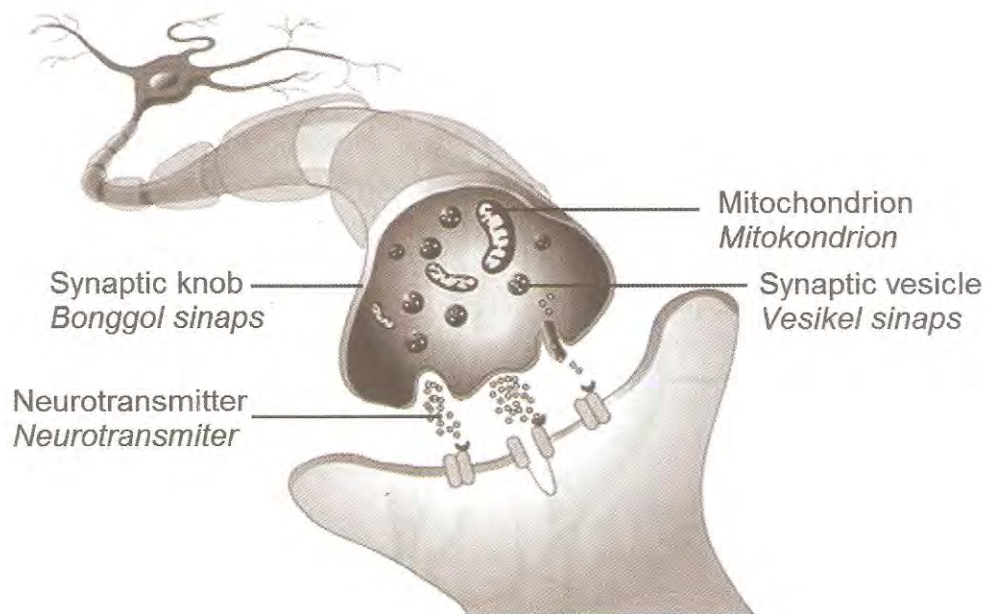


Diagram 20/Rajah 20

Neurotransmitters are released into the synapse when an impulse arrived at the synaptic knob. Which of the following are examples of neurotransmitters?

Neurotransmitter dirembes ke dalam sinaps apabila impuls tiba di bonggol sinaps.

Manakah antara berikut merupakan contoh neurotransmitter?

I Dopamine

Dopamine

II Adrenaline

Adrenalin

III Noradrenaline

Noradrenalin

IV Acetylcholine

Asetilkolin

A I, II and III

I, II dan III

C II, III and IV

II, III dan IV

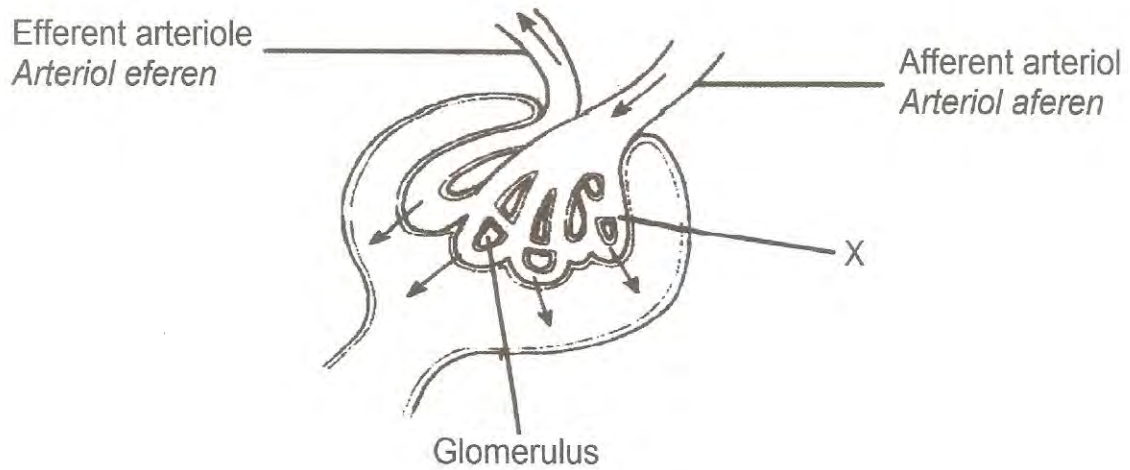
B I, II and IV

I, II dan IV

D I, III and IV

I, III dan IV

39. Diagram 21 shows ultrafiltration that occurs in kidney.
Rajah 21 menunjukkan ultraturasan yang berlaku dalam ginjal.



Which of the following substances **cannot** move across X?
*Bahan manakah antara berikut, **tidak boleh** merentasi X?*

- A Fibrinogen
Fibrinogen
- B Glucose
Glukosa
- C Water molecule
Molekul air
- D Urea
Urea

40. Diagram 22 shows part of the nervous system, including a reflex arc. It has been cut at X. The finger is pricked by a thumbtack, as shown.
Rajah 22 menunjukkan sebahagian daripada sistem saraf, termasuk arka reflex. Ia telah terpotong di bahagian bertanda X. Jari itu telah tertusuk paku tekan, seperti ditunjukkan.

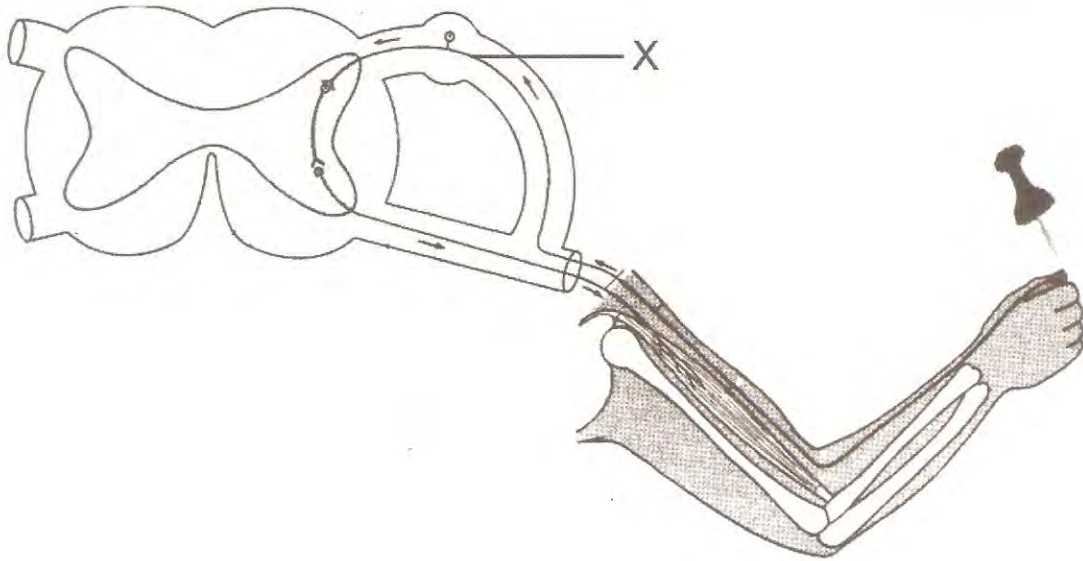


Diagram 22/Rajah 22

What are the effects of the prick?
Apakah kesan akibat tusukan itu?

	Pain felt Rasa sakit	Arm moved Penarikan tangan
A	No <i>Tidak</i>	No <i>Tidak</i>
B	No <i>Tidak</i>	Yes <i>Ya</i>
C	Yes <i>Ya</i>	No <i>Tidak</i>
D	Yes <i>Ya</i>	Yes <i>Ya</i>

41. Which method of family planning prevents ovulation?
Manakah cara perancangan keluarga di bawah yang boleh menghalang ovulasi?

- | | |
|---|---|
| A Use of IUDs
<i>Penggunaan IUD</i> | B Tubal ligation
<i>Ligasi tubul</i> |
| C Using diaphragm
<i>Menggunakan diafragma</i> | D Consuming contraceptive pills
<i>Mengambil pil perancang</i> |

42. Diagram 23 shows part of a flower at one stage during reproduction.
Rajah 23 menunjukkan bahagian pada sekuntum bunga pada satu peringkat semasa proses persenyawaan.

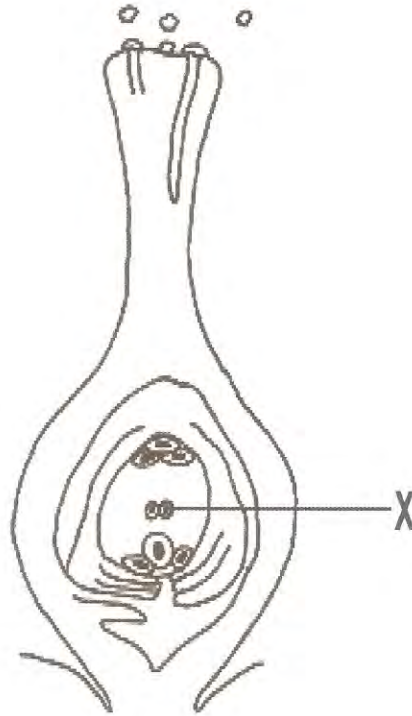


Diagram 23/Rajah 23

Which of the following is structure X?

Manakah antara berikut merupakan struktur X?

- A Polar nuclei
Nukleus kutub
- B Pollen grain
Butir debunga
- C Synergid cell
Sel sinergid
- D Antipodal cell
Sel antipodal

43. Diagram 24 shows the sigmoid curve of growth of an organism.
Rajah 24 menunjukkan lengkung sigmoid bagi pertumbuhan suatu organisma.

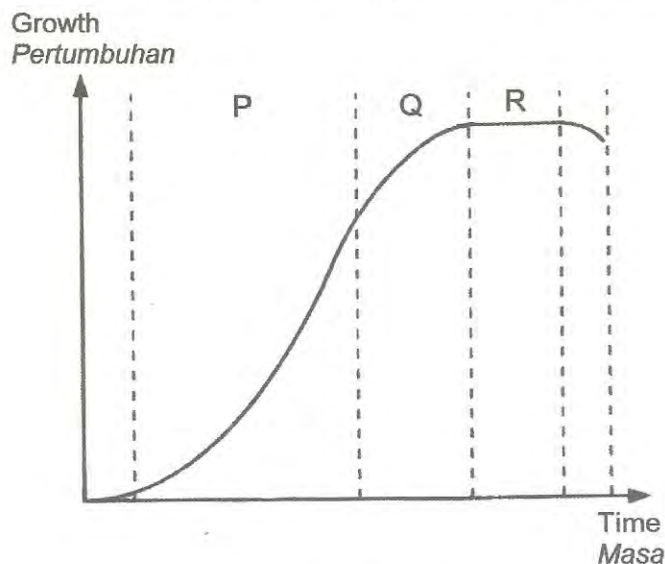


Diagram 24/Rajah 24

- Which of the following shows the growth rates at parts P, Q and R?
Manakah di antara berikut menerangkan kadar pertumbuhan di bahagian P, Q and R?

	P	Q	R
A	Slow <i>Perlahan</i>	Fast <i>Cepat</i>	Zero <i>Sifar</i>
B	Fast <i>Cepat</i>	Zero <i>Sifar</i>	Slow <i>Perlahan</i>
C	Zero <i>Sifar</i>	Slow <i>Perlahan</i>	Fast <i>Cepat</i>
D	Fast <i>Cepat</i>	Slow <i>Perlahan</i>	Zero <i>Sifar</i>

44. The following sequence is related to human spermatogenesis process.
Urutan berikut berkaitan dengan proses spermatogenesis manusia.

Germinal epithelial cell → X → Primary spermatogonia → Y → Spermatids
Sel germa epitelial → X → Spermatogonium primer → Y → Spermatid

- Which of the following is true on the chromosomal numbers of both X and Y?
Antara berikut, manakah benar tentang bilangan kromosom bagi X dan Y?

	X	Y
A	23	46
B	46	23
C	46	46
D	23	23

45. Diagram 25 shows a part of the DNA structure.
Rajah 25 menunjukkan sebahagian struktur DNA.

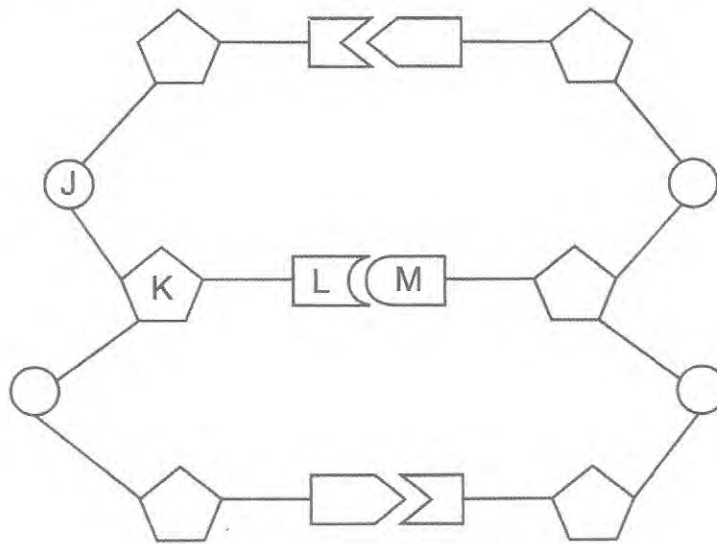


Diagram 25/Rajah 25

Which of the following represent J, K, L and M?

Yang manakah mewakili J, K, L dan M?

	J	K	L	M
A	Deoxyribose Sugar <i>Gula Deoksiribosa</i>	Nitrogenous Base <i>Bes Bernitrogen</i>	Phosphate Group <i>Kumpulan Fosfat</i>	Phosphate Group <i>Kumpulan Fosfat</i>
B	Phosphate Group <i>Kumpulan Fosfat</i>	Deoxyribose Sugar <i>Gula Deoksiribosa</i>	Nitrogenous Base <i>Bes Bernitrogen</i>	Nitrogenous Base <i>Bes Bernitrogen</i>
C	Phosphate Group <i>Kumpulan Fosfat</i>	Nitrogenous Base <i>Bes Bernitrogen</i>	Deoxyribose Sugar <i>Gula Deoksiribosa</i>	Phosphate Group <i>Kumpulan Fosfat</i>
D	Nitrogenous Base <i>Bes Bernitrogen</i>	Deoxyribose Sugar <i>Gula Deoksiribosa</i>	Nitrogenous Base <i>Bes Bernitrogen</i>	Phosphate Group <i>Kumpulan Fosfat</i>

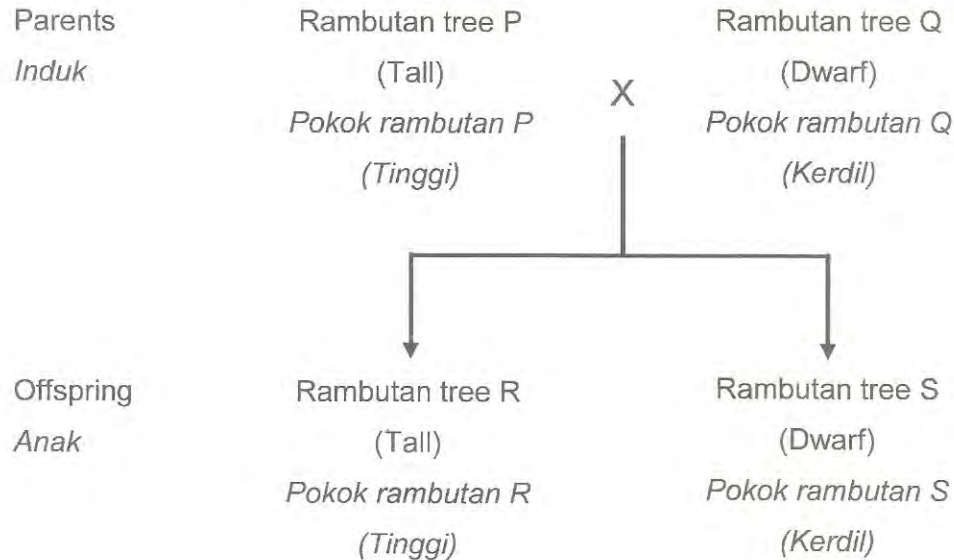
46. The allele for black hair in human is dominant to the allele for brown hair. A man with black hair is heterozygous while his wife has brown hair. What is the probability of getting a child with brown hair?

Alél rambut hitam pada manusia adalah dominan kepada alél rambut coklat. Seorang lelaki berambut hitam adalah heterozigot manakala isteri berambut coklat. Apakah kebangkalian untuk mendapat anak berambut coklat?

- A 1
B $\frac{3}{4}$
C $\frac{1}{2}$
D $\frac{1}{4}$

47. The figure shows a monohybrid cross between a rambutan tree P and a rambutan tree Q. 50% of the offspring are tall and 50% are dwarf.

Rajah menunjukkan kacukan monohibrid antara pokok rambutan P dengan pokok rambutan Q. 50% daripada anaknya adalah tinggi dan 50% lagi adalah kerdil.



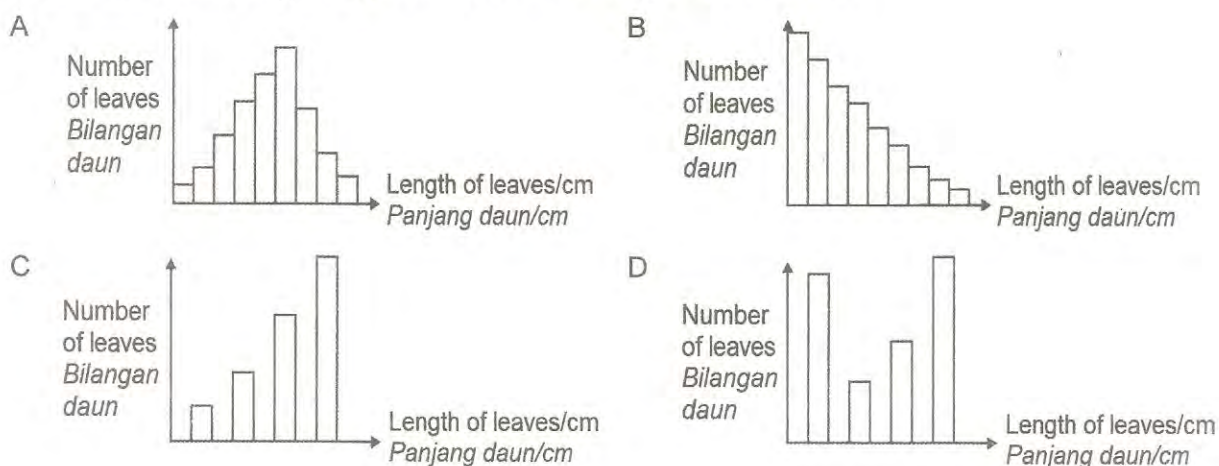
If rambutan tree R is crossed with rambutan tree S, what percentage of the trees produced will be dwarfed?

Jika pokok rambutan R dikacukkan dengan pokok rambutan S, berapa peratus pokok rambutan yang dihasilkan adalah kerdil?

- A 0%
 B 25%
 C 50%
 D 75%
48. Which of the following examples is continuous variation?
Antara yang berikut, yang manakah merupakan contoh variasi selanjar?
- A Blood group
Kumpulan darah
 B Rhesus factor
Faktor Rhesus
 C Width of palm
Lebar tapak tangan
 D Fingerprint pattern
Corak cap jari

49. The durian tree has leaves of various sizes. Which of the following graphs represents the variation shown by the characteristic of the leaves?

Pokok durian mempunyai daun-daun yang pelbagai saiz. Antara graf berikut, manakah mewakili variasi yang ditunjukkan oleh ciri daun pokok tersebut?



50. Table 3 shows the results of blood group tests from donors P, Q, R and S.
Jadual 3 menunjukkan satu keputusan ujian darah dari penderma P, Q, R dan S.

Donor Penderma	Anti-A Anti-A	Anti-B Anti-B
P	No agglutination Tiada pengumpulan	No agglutination Tiada pengumpulan
Q	Agglutination Pengumpulan	Agglutination Pengumpulan
R	No agglutination Tiada pengumpulan	Agglutination Pengumpulan
S	Agglutination Pengumpulan	No agglutination Tiada pengumpulan

Table 3/Jadual 3

Which of the following blood groups of P, Q, R and S is true?

Antara yang berikut, manakah kumpulan darah bagi P, Q, R dan S yang betul?

	Individual Individu	Blood group Kumpulan darah
A	P	A
B	Q	O
C	R	B
D	S	AB

END OF QUESTION PAPER