Nama :..... Kelas : .....

SULIT
4551/1
Biologi
Kertas 1
Ogos
2017

1¼ jam

4551/1

4551/1
BIOLOGI

MAKTAB RENDAH SAINS MARA

PEPERIKSAAN AKHIR SIJIL PENDIDIKAN MRSM 2017

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 buku soalan.*

Kertas soalan ini mengandungi 43 halaman bercetak dan 1 halaman tidak bercetak

[Lihat sebelah
SULIT

1. Diagram 1 shows the structure of an animal cell.

Rajah 1 *menunjukkan satu struktur sel haiwan.*

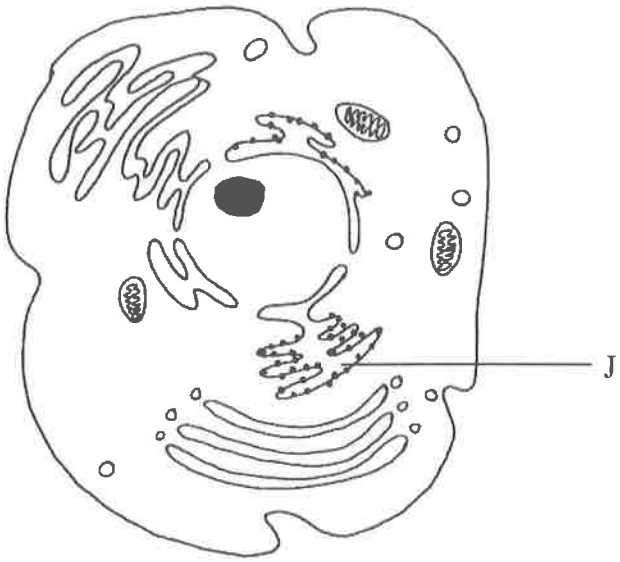


Diagram 1
Rajah 1

What is organelle J?

Apakah organel J?

A Mitochondria
Mitokondria

B Golgi apparatus
Jasad Golgi

C Rough endoplasmic reticulum
Retikulum endoplasma kasar

D Smooth endoplasmic reticulum
Retikulum endoplasma licin

2. Diagram 2 shows a type of plant tissues.

Rajah 2 menunjukkan sejenis tisu tumbuhan.

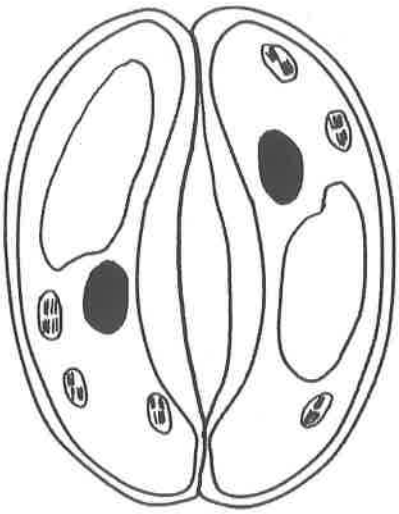


Diagram 2
Rajah 2

Which of the following organelle is found abundantly in the tissue?

Antara berikut, organel manakah paling banyak terdapat dalam tisu tersebut?

A Chloroplast

Kloroplas

B Mitochondria

Mitokondria

C Golgi apparatus

Jasad Golgi

D Endoplasmic reticulum

Jalinan endoplasma

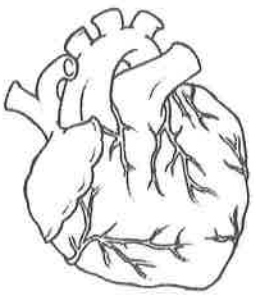
3. Diagram 3 shows cell organisation in multicellular organism.
Rajah 3 menunjukkan organisasi sel pada organisma multisel.

Cell *Sel*	→	X X	→	Organ *Organ*	→	System *Sistem*	→	Multicellular Organism *Organisma Multisel*

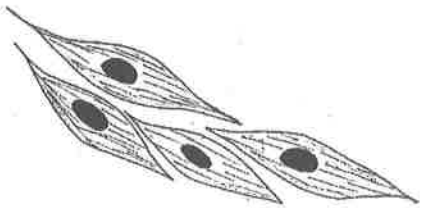
Diagram 3
Rajah 3

Which of the following is an example of X?
Antara berikut, yang manakah contoh bagi X?

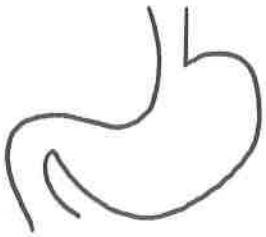
A



C



B



D

4. Which of the following solutions has the lowest osmotic pressure?
Antara berikut, larutan manakah mempunyai tekanan osmosis paling rendah?

A Pipe water
Air paip

B Boiled water
Air masak

C Distilled water
Air suling

D Unfiltered water
Air tidak bertapis

5. Diagram 4 shows two type of cells, cell S and cell T.

Rajah 4 *menunjukkan dua jenis sel, sel* S *dan sel* T.

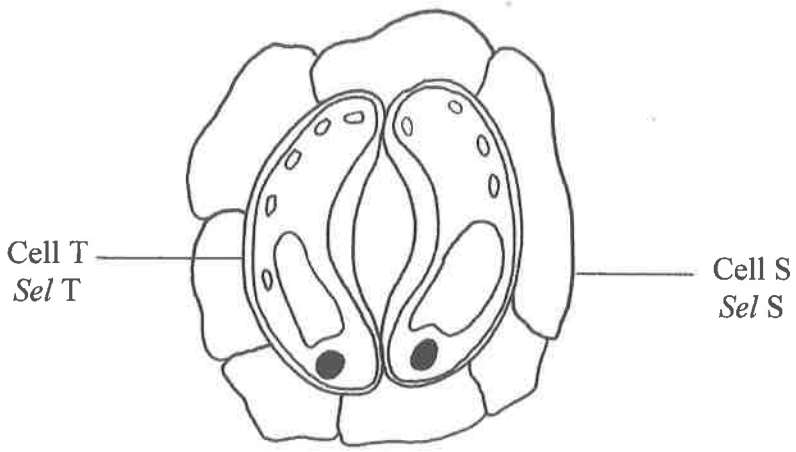


Diagram 4
Rajah 4

In which direction and by what process will water molecules diffuse between two cells during the day?

Ke arah mana dan melalui proses apakah molekul air meresap antara dua sel pada waktu siang?

	Direction of movement ***Arah pergerakan***	**Process** ***Proses***
A	T to S T *ke* S	Osmosis *Osmosis*
B	S to T S *ke* T	Active transport *Pengangkutan aktif*
C	S to T S *ke* T	Osmosis *Osmosis*
D	T to S T *ke* S	Active transport *Pengangkutan aktif*

6. Protease enzyme is added to a suspension of egg albumen in a test tube and kept in a water bath at 37°C. After 8 minutes, the suspension appearence changes from cloudy to clear.

Which of the following is now present in the test tube?

Enzim protease ditambah ke dalam tabung uji yang mengandungi ampaian albumin telur dan dibiarkan di dalam kukus air pada suhu 37°C. *Selepas* 8 *minit, ampaian kelihatan bertukar dari keruh ke jernih.*

Antara berikut, yang manakah terdapat dalam tabung uji sekarang?

A Water
Air

B Glucose
Glukosa

C Amino acid
Asid amino

D Fatty acid
Asid lemak

7. Which of the following is an enzyme cofactor?

Antara berikut, yang manakah kofaktor bagi enzim?

A Vitamin A
Vitamin A

B Vitamin B
Vitamin B

C Vitamin E
Vitamin E

D Vitamin K
Vitamin K

8. Diagram 5 shows a food molecules X which undergoes hydrolysis process to produce Y molecule.

Rajah 5 menunjukkan satu molekul makanan X *yang mengalami proses hidrolisis untuk menghasilkan molekul* Y.

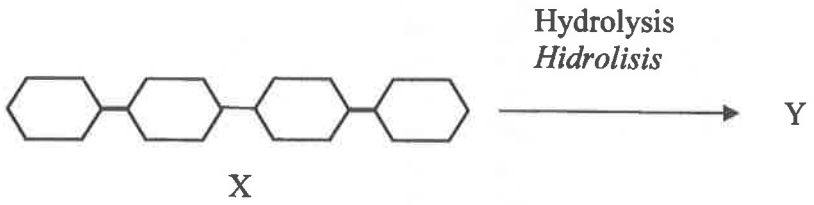
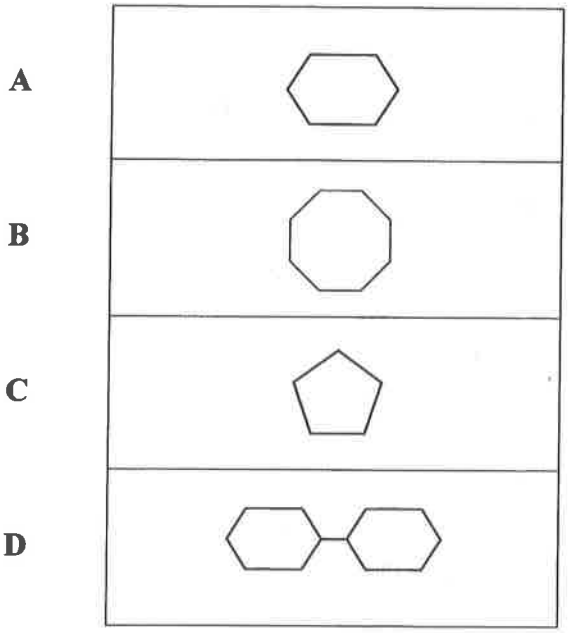


Diagram 5
Rajah 5

What is Y molecule?

Apakah molekul Y?



9. Diagram 6 shows an animal cell undergoing mitotic cell division.

Rajah 6 menunjukkan sel haiwan yang sedang menjalani pembahagian sel secara mitosis.

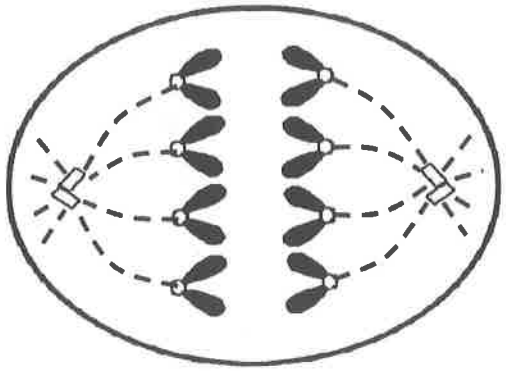


Diagram 6
Rajah 6

What is the stage?

Apakah peringkat tersebut?

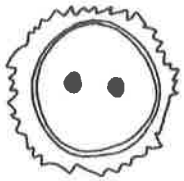
A Prophase
Profasa

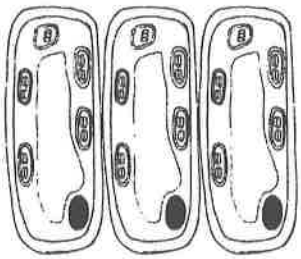
B Metaphase
Metafasa

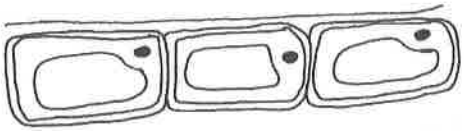
C Anaphase
Anafasa

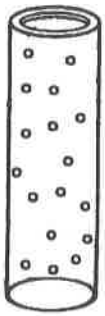
D Telophase
Telofasa

10. Which of the following cells is the product of the meiotic division?
Antara berikut, sel yang manakah hasil pembahagian secara meiosis?

A 

B 

C 

D 

11. Diagram 7 shows a type of tropical plant.
Rajah 7 menunjukkan sejenis tumbuhan tropika.

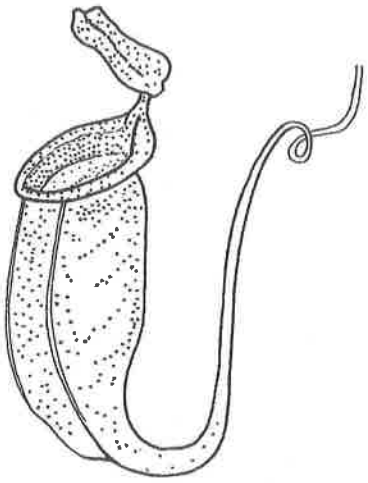


Diagram 7
Rajah 7

What is the type of nutrition for this plant?
Apakah jenis nutrisi bagi tumbuhan ini?

A Holozoic
Holozoik

B Parasitism
Parasitisme

C Saprophytism
Saprofitisme

D Chemosynthesis
Kemosintesis

12. Diagram 8 shows the chambers in cow's stomach.

Rajah 8 *menunjukkan ruang-ruang dalam perut lembu.*

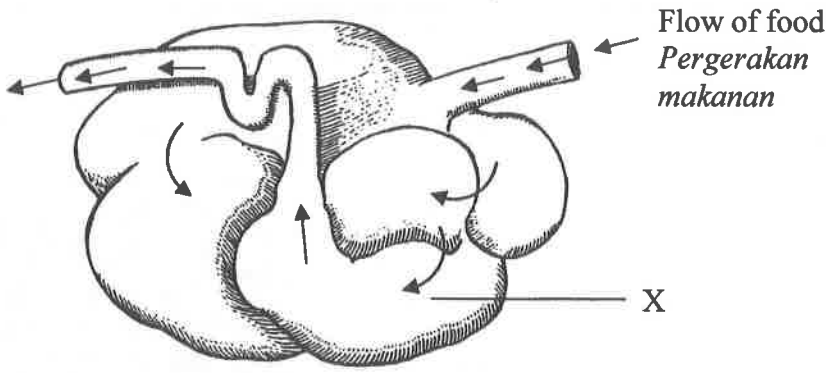


Diagram 8
Rajah 8

What is structure X?

Apakah struktur X?

A Rumen

Rumen

B Reticulum

Retikulum

C Omasum

Omasum

D Abomasum

Abomasum

13. Diagram 9.1 shows the gum of a normal individual.
Diagram 9.2 shows the gum of a person suffering from a disease related to malnutrition.

Rajah 9.1 *menunjukkan gusi individu yang normal.*
Rajah 9.2 *menunjukkan gusi individu yang mengalami penyakit berkaitan dengan malnutrisi.*

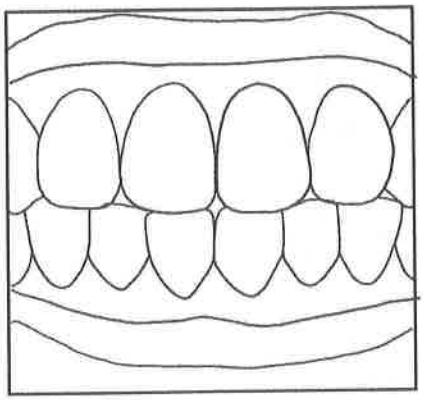


Diagram 9.1
Rajah 9.1

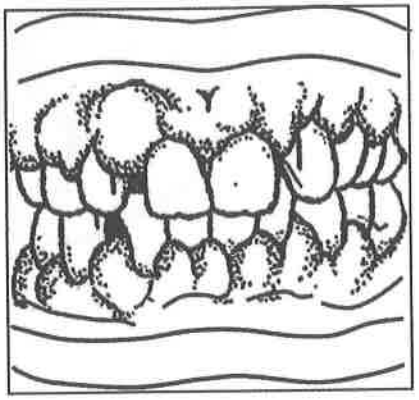


Diagram 9.2
Rajah 9.2

What type of food need to be consumed by the individual to prevent the disease?

Apakah jenis makanan yang perlu di ambil oleh individu ini untuk mencegah penyakit tersebut?

A Guava
Jambu batu

B Carrot
Lobak merah

C Tomato
Tomato

D Banana
Pisang

14. Table 1 shows the result that was obtained in an experiment to determine the energy value of a cashew nut.

Jadual 1 *menunjukkan keputusan yang diperolehi dalam satu eksperimen untuk menentukan nilai tenaga dalam sebiji kacang gajus.*

The mass of cashew nut (g) *Jisim kacang gajus* (g)	9
The volume of distilled water (ml) *Isipadu air suling* (ml)	20
Initial water temperature (°C) *Suhu awal air* (°C)	29
Final water temperature (°C) *Suhu akhir air* (°C)	38

Table 1
Jadual 1

The specific heat capacity of water is 4.2 $Jg^{-1}\,{}^{o}C^{-1}$.
Calculate the energy content in the cashew nut.

Muatan haba tentu air ialah 4.2 $Jg^{-1}\,{}^{o}C^{-1}$
Hitungkan kandungan tenaga di dalam kacang gajus itu.

A 4.2 $J\,g^{-1}$

B 84 $J\,g^{-1}$

C 420 $J\,g^{-1}$

D 840 $J\,g^{-1}$

15. For a normal boy, he should consume at least 2 liters of water per day.
What will happen if a boy drink less than 1.5 litres of plain water per day?

Untuk budak lelaki normal, dia sepatutnya mengambil sekurang-kurangnya 2 *liter air sehari.*
Apakah yang akan berlaku jika seorang budak lelaki minum air kurang daripada 1.5 *liter sehari?*

A Increase amount of glucose
Meningkatkan jumlah glukosa

B Decrease body temperature
Merendahkan suhu badan

C Increase the risk of heart disease
Meningkatkan risiko penyakit jantung

D Toxin cannot be flushed out from the body
Toksin tidak dapat dibuang daripada badan

16. Which of the following methods can improve the quality and quantity of food production?

Antara berikut, kaedah yang manakah dapat meningkatkan kualiti dan kuantiti penghasilan makanan?

I Pasteurisation

Pempasteuran

II Tissue culture

Kultur tisu

III Sterilising the soil

Pensterilan tanah

IV Biological control of pest

Kawalan biologi serangga

A III and IV only

III *dan* IV *sahaja*

B I and IV only

I *dan* IV *sahaja*

C II and IV only

II *dan* IV *sahaja*

D II and III only

II *dan* III *sahaja*

17. Diagram 10 shows the structure of a villus in the ileum
Rajah 10 *menunjukkan struktur satu vilus di dalam ileum*

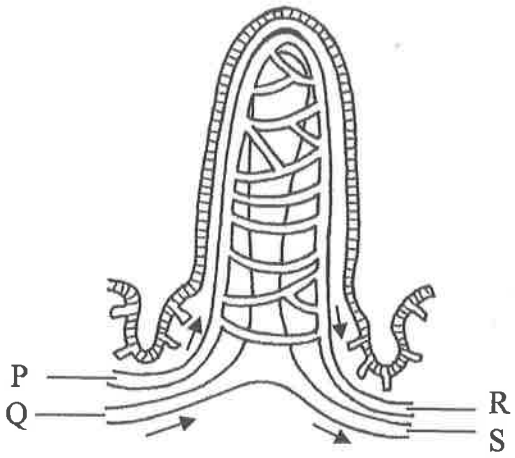


Diagram 10
Rajah 10

After drinking a glass of milk, which vessels would transport the largest amounts of glucose, amino acids and lipid droplets?

Selepas minum segelas susu, salur yang manakah akan mengangkut glukosa, asid amino dan titisan lipid dalam kuantiti yang besar?

	Amino acids *Asid amino*	Glucose *Glukosa*	Lipid droplets *Titisan Lipid*
A	P	P	Q
B	S	S	R
C	R	P	S
D	R	R	S

18. Diagram 11 shows the apparatus set up used in an experiment to measure the number of gas bubbles produce during photosynthesis. This experiment was repeated 3 times and the average number of gas bubbles collected was calculated.

Rajah 11 *menunjukkan susun atur alat radas yang digunakan untuk mengira bilangan gelembung gas yang terhasil semasa fotosintesis. Ekperimen ini diulang sebanyak* 3 *kali dan purata bilangan gelembung gas yang dihasilkan dikira.*

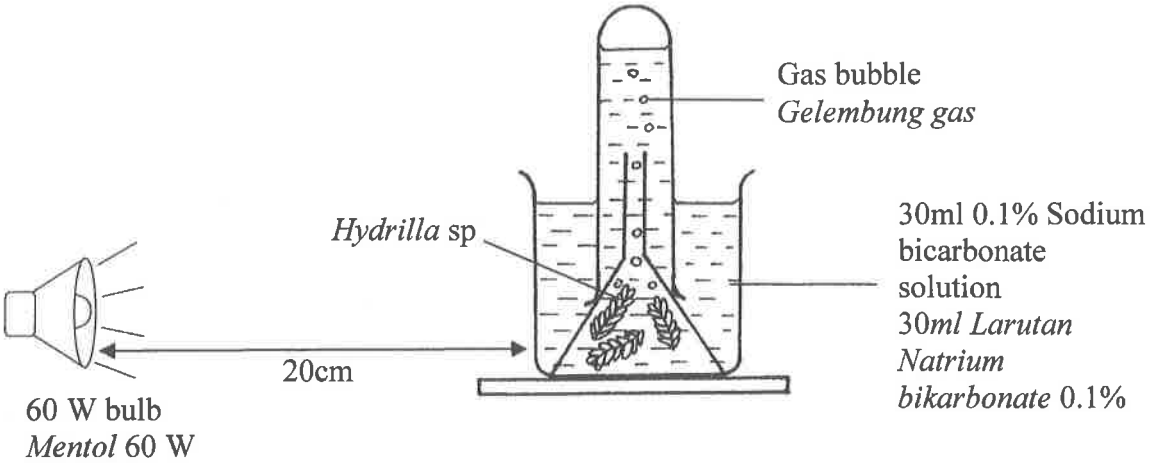


Diagram 11
Rajah 11

Which factors will increase the rate of photosynthesis?

Faktor manakah yang akan meningkatkan kadar fotosintesis?

A Increase the temperature at 45°C

Meningkatkan suhu pada 45°C

B Increase the concentration of sodium bicarbonate solution to 1.0%

Meningkatkan kepekatan larutan natrium bikarbonat kepada 1.0%

C Increase the volume of sodium bicarbonate solution to 60ml

Meningkatkan isipadu larutan natrium bikarbonat kepada 60ml

D Increase the distance of the bulb to 40cm

Meningkatkan jarak mentol kepada 40cm

19. Diagram 12 shows the structure of an organelle in a plant cell.

Rajah 12 *menunjukkan struktur satu organel di dalam sel tumbuhan.*

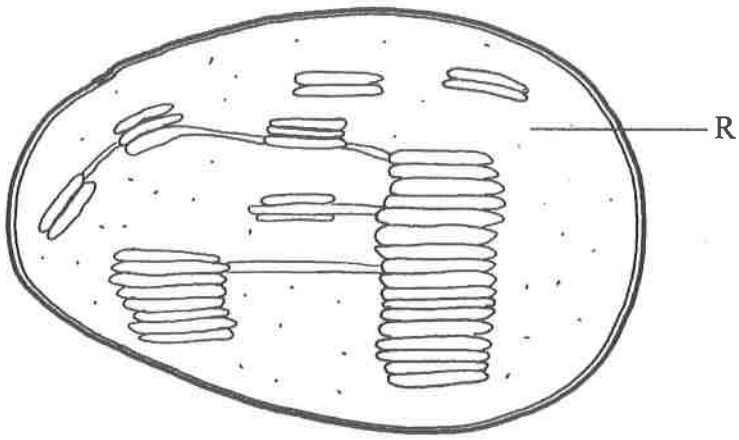


Diagram 12
Rajah 12

What is the reaction occur in R?

Apakah tindak balas yang berlaku di dalam R?

A Hydrogen ion + electron ⟶ Hydrogen atom

Ion hidrogen + elektron ⟶ Atom hidrogen

B Hydroxyll group + Hydroxyll group ⟶ Oxygen + Water

Kumpulan hidroksil + Kumpulan hidroksil ⟶ Oksigen + Air

C Glucose + Oxygen ⟶ Carbon Dioxide + Energy + Water

Glukosa + Oksigen ⟶ Karbon dioksida + Tenaga + Air

D Carbon dioxide + Hydrogen atom ⟶ Glucose + Water

Karbon dioksida + Atom hidrogen ⟶ Glukosa + Air

20. What is the main substrate needed in the energy production process?

Apakah substrat utama yang diperlukan dalam proses penghasilan tenaga?

A Fructose

Fruktosa

B Glucose

Glukosa

C Galactose

Galaktosa

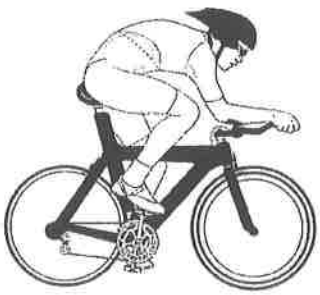
D Sucrose

Sukrosa

21. Which of the following activities cause the accumulation of lactic acid in muscles?

Antara berikut, aktiviti yang manakah menyebabkan pengumpulan asid laktik dalam otot?

A



B

C

D

22. Diagram 13 is a graph showing the rate of plant respiration within a day.
Rajah 13 *adalah graf yang menunjukkan kadar respirasi tumbuhan dalam sehari.*

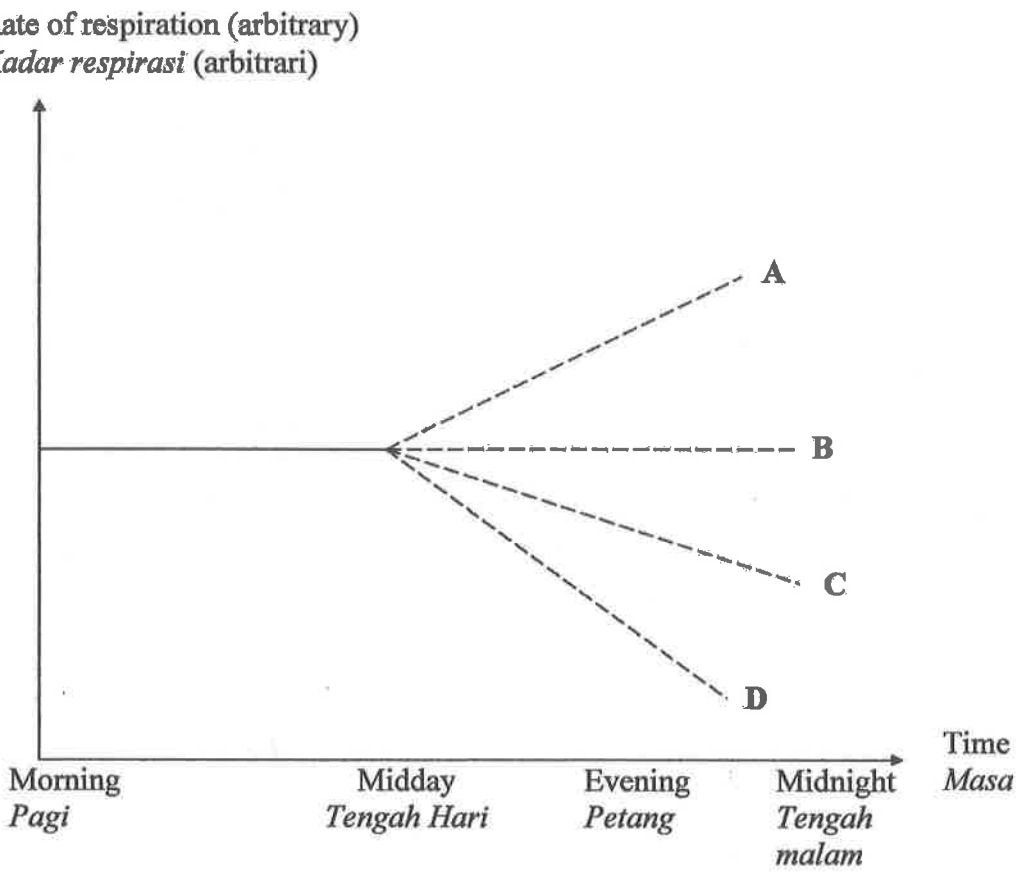


Diagram 13
Rajah 13

Which of the curves **A**, **B**, **C**, or **D** shows an effect of increasing light intensity after midday?

Lengkung manakah antara **A**, **B**, **C**, *atau* **D** *menunjukkan kesan peningkatan keamatan cahaya selepas tengah hari?*

23. Diagram 14 shows the structure of the gill in a fish.

Diagram 14 *menunjukkan struktur insang seekor ikan.*

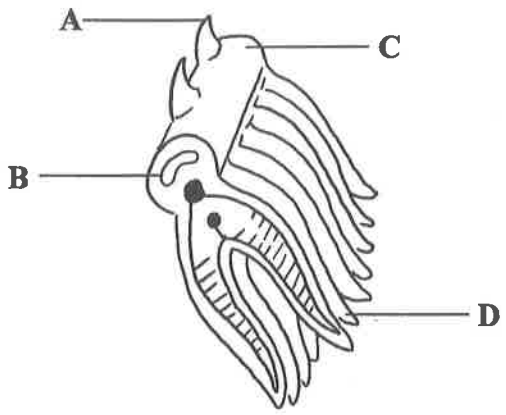


Diagram 14
Rajah 14

Which part **A, B, C** or **D** is involved in gaseous exchange?

Bahagian **A, B, C** *atau* **D** *yang manakah terlibat dalam pertukaran gas*?

24. Diagram 15 shows the hierarchy in the classification of humans.

Rajah 15 *menunjukkan hierarki pengelasan manusia.*

Diagram 15
Rajah 15

The word '*Hominidae*' refers to

Perkataan 'Hominidae' merujuk kepada

A Order
Order

B Family
Famili

C Genus
Genus

D Species
Spesis

25. Diagram 16 shows the distribution of *Typha latifolia* and *Typha domingensis* in wetland habitat.

Rajah 16 *menunjukkan taburan Typha latifolia dan Typha domingensis di habitat tanah lembap.*

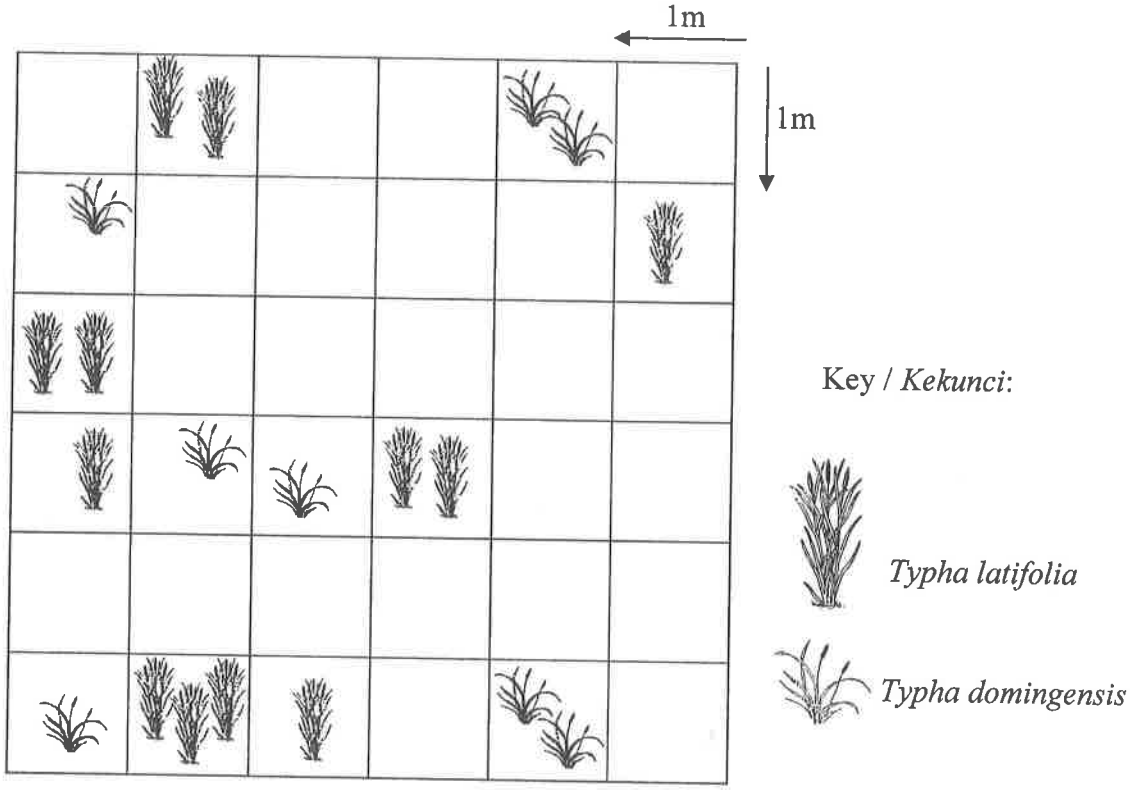


Diagram 16
Rajah 16

What are the frequency of both species?

Apakah frekuensi bagi kedua-dua spesis itu?

	Typha latifolia	*Typha domingensis*
A	8%	6%
B	33%	25%
C	19%	19%
D	52%	25%

26. Which of the following organisms synthesize their own food using light energy?

Antara berikut, organisma yang manakah boleh membina makanannya sendiri dengan menggunakan tenaga cahaya?

A *Rafflesia* sp.

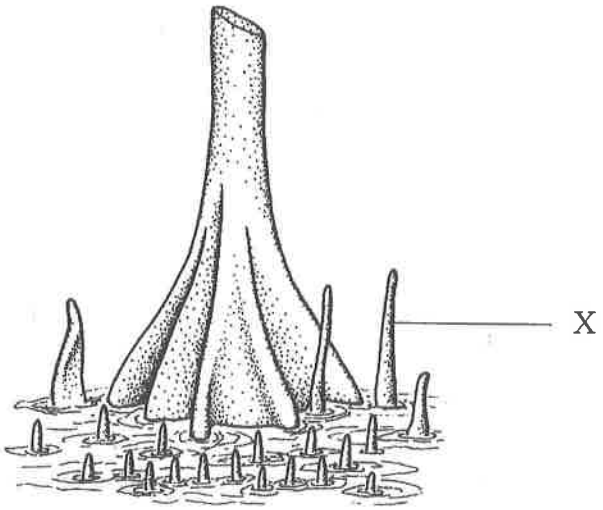
B *Paramecium* sp.

C *Chlamydomonas* sp.

D *Amoeba* sp.

27. Diagram 17 shows a type of root of a species in mangrove swamp.

Rajah 17 *menunjukkan sejenis akar pada satu spesis tumbuhan di paya bakau.*



Dagram 17
Rajah 17

What is X?

Apakah X?

A Prop root
Akar jangkang

B Cable root
Akar kabel

C Buttress root
Akar banir

D Pneumatophore
Pneumatofor

28. The following equation shows a process in nitrogen cycle.

Persamaan berikut menunjukkan satu proses dalam kitar nitrogen.

$$\text{Ammonium } (NH_4^+) \xrightarrow[\textit{Bakteria S}]{\text{Bacteria S}} \text{Nitrites } (NO_2^-)$$
$$\textit{Amonium } (NH_4^+) \qquad\qquad \textit{Nitrit } (NO_2^-)$$

What is bacteria S?

Apakah bakteria S?

A *Nostoc* sp.

B *Rhizobium* sp.

C *Nitrobacter* sp.

D *Nitrosomonas* sp.

29. Diagram 18.1 shows a green house and Diagram 18.2 shows the phenomenon of greenhouse effect.

Rajah 18.1 *menunjukkan sebuah rumah hijau dan Rajah* 18.2 *menunjukkan fenomena Kesan Rumah Hijau.*

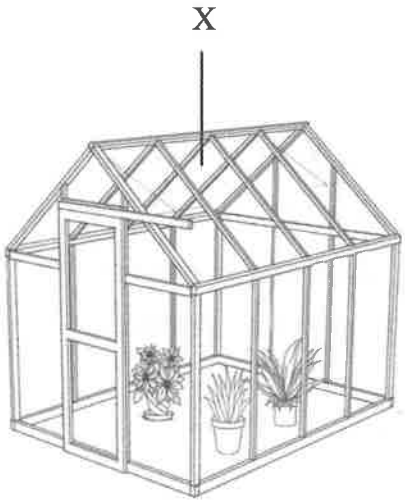


Diagram 18.1
Rajah 18.1

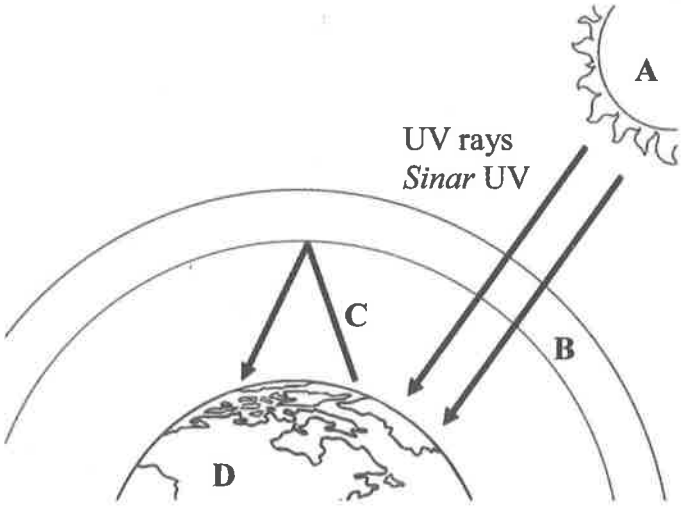


Diagram 18.2
Rajah 18.2

Which part labelled **A**, **B**, **C**, or **D** in the green house effect resemble X in the greenhouse?

Bahagian berlabel manakah **A**, **B**, **C**, *atau* **D** *dalam Kesan Rumah Hijau menyerupai* X *dalam rumah hijau*?

30. Diagram 19 shows a lake located near an agricultural area.

Rajah 19 *menunjukkan satu tasik yang berdekatan dengan kawasan pertanian.*

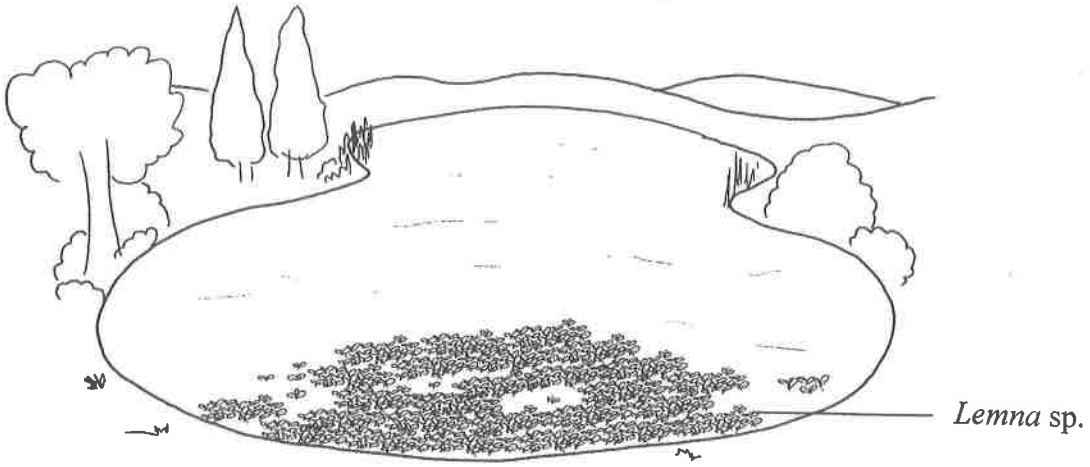


Diagram 19
Rajah 19

Which of the following statement is correct?

Antara pernyataan berikut yang manakah benar?

A Biochemical oxygen demand (BOD) is low

Keperluan oksigen biokimia rendah

B Concentration of dissolved oxygen is low

Kepekatan oksigen terlarut adalah rendah

C The decomposition activity by microorganism is low

Aktiviti penguraian oleh mikroorganisma adalah rendah

D Concentration of carbon dioxide is too low for photosynthesis to occur

Kepekatan karbon dioksida terlalu rendah untuk fotosintesis berlaku

31. Which of the following can reduce pollution?

Antara berikut, yang manakah dapat mengurangkan pencemaran?

A Car pooling

Berkongsi kereta

B Use plastic bag

Menggunakan beg plastik

C Build more glass building

Membina lebih banyak bangunan berkaca

D Release waste from factory direct to the river

Melepaskan bahan buangan dari kilang terus ke sungai

32. The following information refers to the stages of the blood clotting mechanism in human.

Maklumat berikut merujuk kepada peringkat-peringkat dalam mekanisma pembekuan darah dalam manusia.

P – Fibrinogen changes into fibrin
Fibrinogen bertukar kepada fibrin

Q – Clumped platelets
Gumpalan platelet

R – Meshwork of threads are formed over the wound
Jaringan benang terbentuk menutup luka

S – Release of thrombokinase
Pembebasan trombokinase

T – Prothrombin changes into thrombin
Protrombin bertukar kepada trombin

Which of the following sequence is correct?

Antara berikut, urutan manakah yang betul?

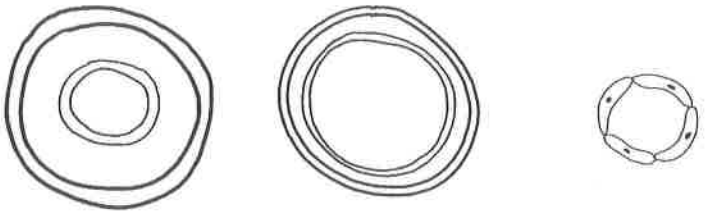
A S → T → Q → P → R

B P → Q → R → S → T

C Q → S → T → P → R

D Q → P → S → T → R

33. Diagram 20 shows three types of cross section of blood vessel.
Rajah 20 *menunjukkan tiga jenis keratan rentas salur darah.*



Blood vessel **X** *Salur darah* **X**

Blood vessel **Y** *Salur darah* **Y**

Blood vessel **Z** *Salur darah* **Z**

Diagram 20
Rajah 20

What is blood vessel **X**, **Y** and **Z**?
Apakah salur darah **X**, **Y** *dan* **Z**?

	Blood vessel X ***Salur darah* X**	**Blood vessel Y** ***Salur darah* Y**	**Blood vessel Z** ***Salur darah* Z**
A	Vein *Vena*	Artery *Arteri*	Capillary *Kapilari*
B	Artery *Arteri*	Vein *Vena*	Capillary *Kapilari*
C	Capillary *Kapilari*	Vein *Vena*	Artery *Arteri*
D	Artery *Arteri*	Capillary *Kapilari*	Vein *Vena*

34. Diagram 21 shows a graph of concentration of antibodies in an individual.
Rajah 21 *menunjukkan graf kepekatan antibodi pada seorang individu.*

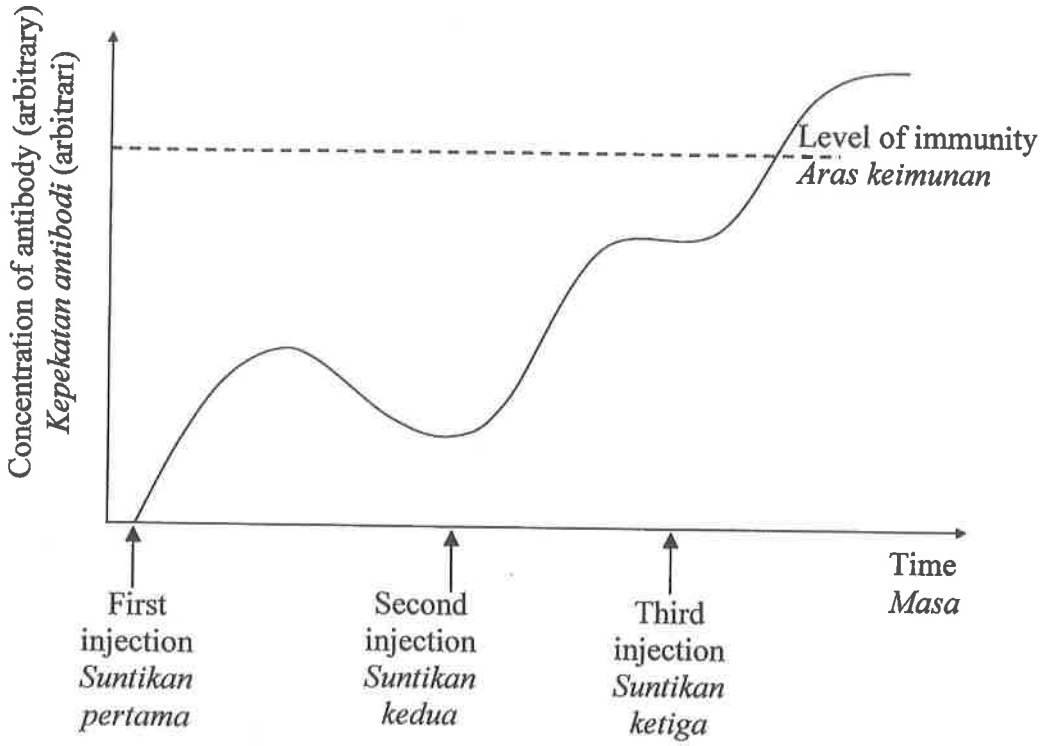


Diagram 21
Rajah 21

Which of the following diseases is related to the graph?
Antara berikut, penyakit manakah berkaitan dengan graf tersebut?

A Influenza
Selsema

B Rabies
Penyakit anjing gila

C Scorpion sting
Sengatan kala jengking

D Hepatitis B
Hepatitis B

35. Diagram 22 shows a vascular tissue in tree trunk.

Rajah 22 *menunjukkan tisu vaskular dalam batang tumbuhan.*

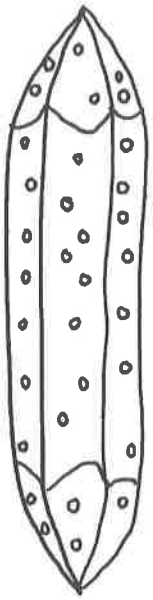


Diagram 22
Rajah 22

What is the tissue?

Apakah tisu itu?

A Tracheid

Trakeid

B Xylem vessel

Salur xilem

C Sieve tube

Tiub tapis

D Companion cell

Sel rakan

36. Diagram 23 shows a fish with torn fin.

Rajah 23 *menunjukkan seekor ikan dengan sirip yang koyak.*

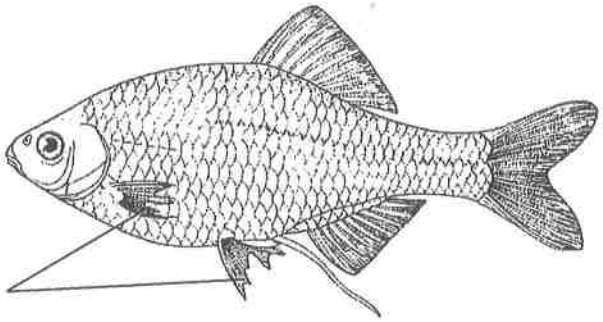
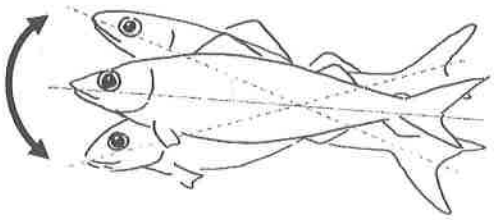


Diagram 23
Rajah 23

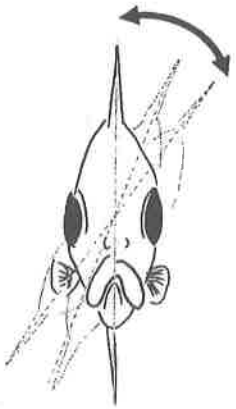
Which diagram shows the movement of the fish?

Rajah manakah yang menunjukkan pergerakan ikan itu?

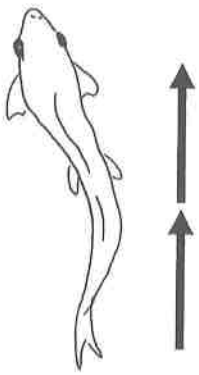
A



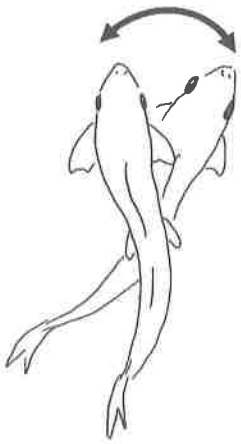
C



B



D



37. Diagram 24 shows the organisation of human nervous system.

Rajah 24 *menunjukkan organisasi sistem saraf manusia.*

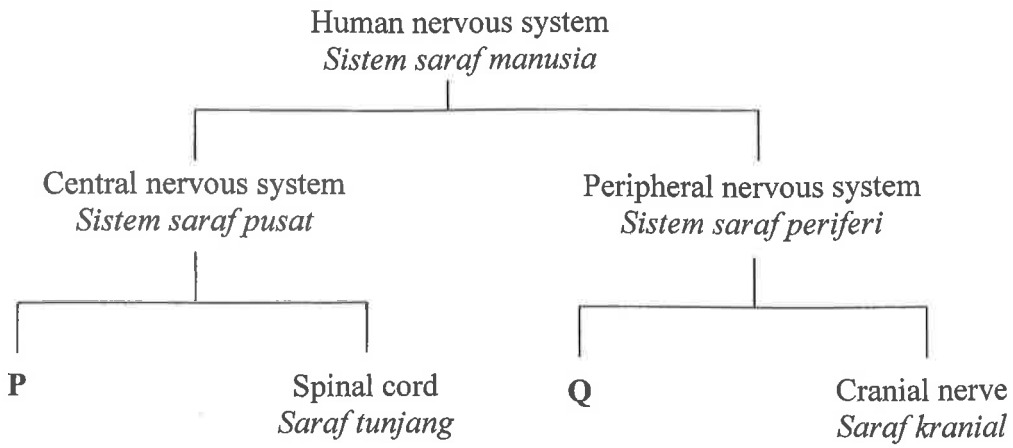


Diagram 24
Rajah 24

What are represented by **P** and **Q**?

Apakah yang diwakili oleh **P** *dan* **Q**?

	P	Q
A	Brain *Otak*	Hypothalamus *Hipotalamus*
B	Spinal nerve *Saraf spina*	Brain *Otak*
C	Brain *Otak*	Spinal nerve *Saraf spina*
D	Hypothalamus *Hipotalamus*	Spinal nerve *Saraf spina*

38. Diagram 25 shows the end of two neurones.

Rajah 25 menunjukkan hujung dua neuron.

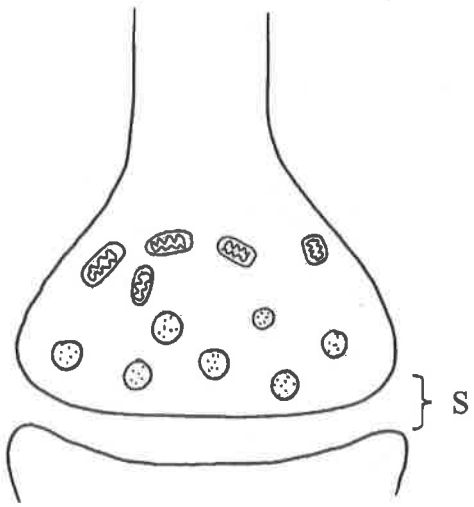


Diagram 25
Rajah 25

What is S?

Apakah S?

A Synaptic knob
Tombol sinaps

B Synaptic cleft
Celah sinaps

C Synaptic vesicle
Vesikel sinaps

D Synaptic terminal
Terminal sinaps

39. Diagram 26 shows organ X in human digestive system.
Rajah 26 menunjukkan organ X dalam sistem pencernaan manusia.

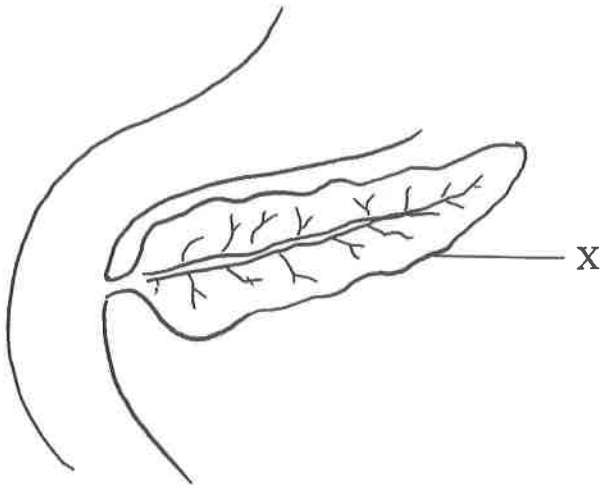


Diagram 26
Rajah 26

Which of the following hormones are secreted by the organ X?
Antara berikut, hormon manakah yang dirembeskan oleh organ X?

I Adrenaline
Adrenalin

II Prolactin
Prolaktin

III Insulin
Insulin

IV Glucagon
Glukagon

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*

40. Cat's Whiskers or *Orthosiphon stamineus* is a traditional herb that has diuretic properties which affect the production of urine. It has been widely used by hypertension patient.

How does this herb help in treating hypertension patient?

Misai kucing atau Orthosiphon stamineus merupakan herba tradisional yang mempunyai sifat diuretik yang memberi kesan terhadap penghasilan air kencing. Ianya telah digunakan secara meluas untuk merawat pesakit hipertensi.

Bagaimanakah herba ini membantu merawat pesakit hipertensi?

I Enhancing the kidney's ability to secrete potassium ions
Meningkatkan kebolehan ginjal untuk merembes ion kalium

II Inhibiting the kidney's ability to secrete potassium ions
Merencat kebolehan ginjal untuk merembes ion kalium

III Increase the permeability of tubule for water reabsorption
Meningkatkan ketelapan tubul untuk penyerapan semula air

IV Decrease the permeability of tubule for water reabsorption
Mengurangkan ketelapan tubul untuk penyerapan semula air

A I and III only
I *dan* III *sahaja*

B II and IV only
II *dan* IV *sahaja*

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

D I, II, III and IV only
I, II, III *dan* IV *sahaja*

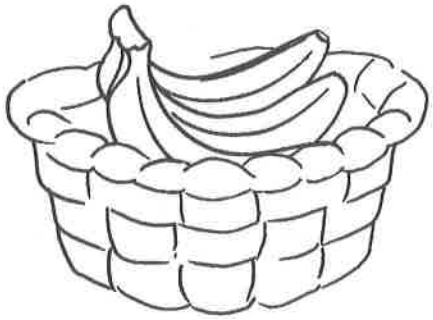
41. A lady bought a bunch of unripe banana.

Which of the following method used to prevent the bananas from getting ripe too soon?

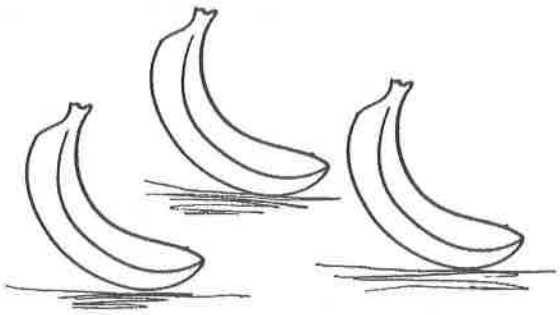
Seorang wanita telah membeli sesisir pisang.

Antara berikut, kaedah manakah yang boleh digunakan untuk mengelakkan pisang daripada masak terlalu cepat?

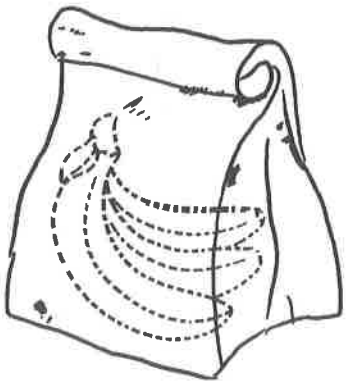
A



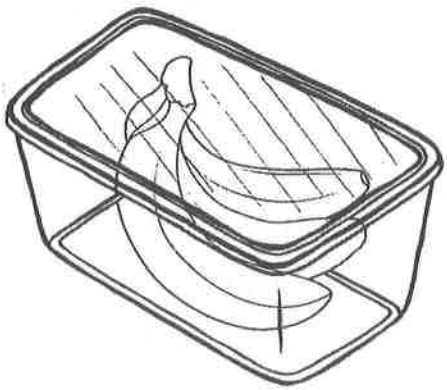
C



B



D



42. Diagram 27 shows the calendar of August 2017. A normal woman starts her menstruation on the 5th of August 2017.

Rajah 27 menunjukkan kalendar bulan Ogos 2017. Seorang wanita normal mula mengalami haid bermula pada 5 Ogos 2017.

August 2017 ***Ogos* 2017**						
Sun ***Ahad***	**Mon** ***Isnin***	**Tue** ***Selasa***	**Wed** ***Rabu***	**Thu** ***Khamis***	**Fri** ***Jumaat***	**Sat** ***Sabtu***
-	-	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	-	-

Diagram 27
Rajah 27

When does ovulation occur?

Bilakah berlakunya pengovulan?

A 17th August 2017

17 *Ogos* 2017

B 18th August 2017

18 *Ogos* 2017

C 19th August 2017

19 *Ogos* 2017

D 30th August 2017

30 *Ogos* 2017

43. Diagram 28 shows a method of contraception.

Rajah 28 menunjukkan satu kaedah perancang kehamilan.

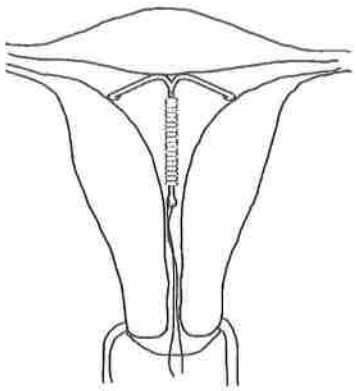


Diagram 28
Rajah 28

Which processes can still occur?

Apakah proses yang masih boleh berlaku?

I Menstruation
Haid

II Pregnancy
Kehamilan

III Ovulation
Ovulasi

IV Implantation
Penempelan

A I and II only
I *dan* II *sahaja*

B I and III only
I *dan* III *sahaja*

C II and III only
II *dan* III *sahaja*

D III and IV only
III dan IV sahaja

44. Table 2 shows the increasing of seed mass during early stage of germination.

Jadual 2 menunjukkan penambahan jisim biji benih semasa peringkat awal percambahan.

Stage ***Peringkat***	1	2	3
Mass (g) ***Jisim* (g)**	0.3	3.6	6.1

Table 2
Jadual 2

Which of the following proceses cause the increasing of seed mass between Stage 1 and Stage 2?

Antara berikut, proses manakah yang menyebabkan peningkatan jisim antara peringkat 1 dan peringkat 2?

A Respiration

Respirasi

B Photosynthesis

Fotosintesis

C Absorption of water

Penyerapan air

D Enzyme action on starch

Tindakan enzim ke atas kanji

45. Diagram 29 shows the growth curve for human.

Rajah 29 menunjukkan lengkung pertumbuhan bagi manusia.

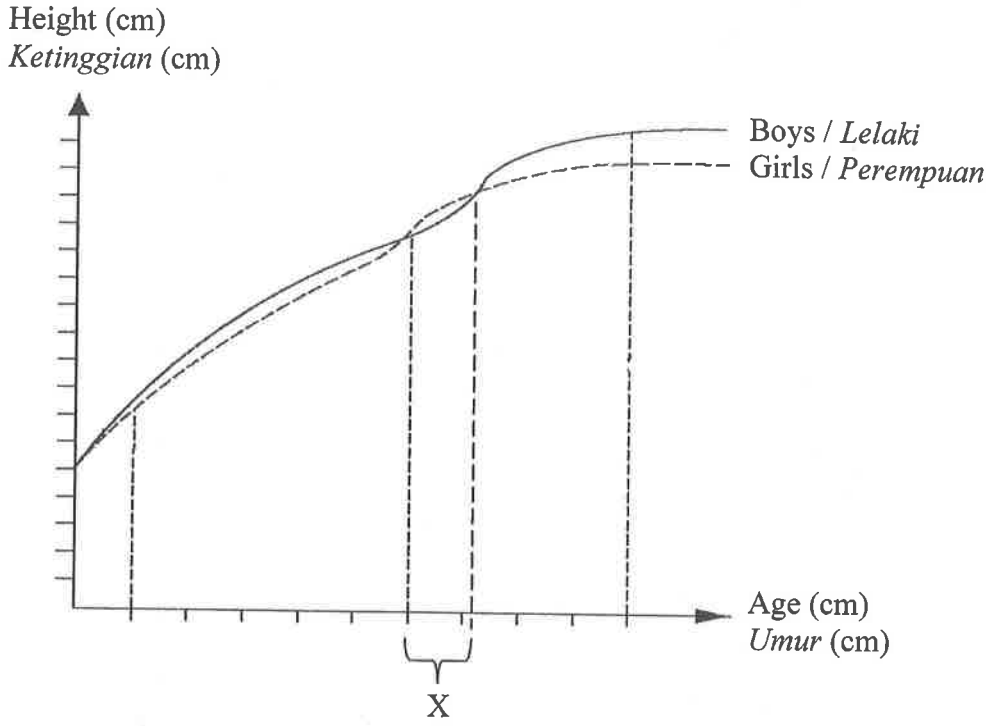


Diagram 29
Rajah 29

Which of the following statements is correct about stage X?

Pernyataan manakah benar mengenai peringkat X?

A Female reach puberty earlier than male

Perempuan mencapai akil baligh lebih awal daripada lelaki

B Male reach puberty earlier than female

Lelaki mencapai akil baligh lebih awal daripada perempuan

C The growth rate of body part is different at different time

Kadar pertumbuhan bahagian badan berbeza pada waktu berbeza

D The growth rate of body part is equal at different time

Kadar pertumbuhan bahagian badan adalah sama pada waktu berbeza

46. Diagram 30 shows a cross section of dicotyledonous stem after secondary growth.

Rajah 30 *menunjukkan keratan rentas batang dikotiledon selepas pertumbuhan sekunder.*

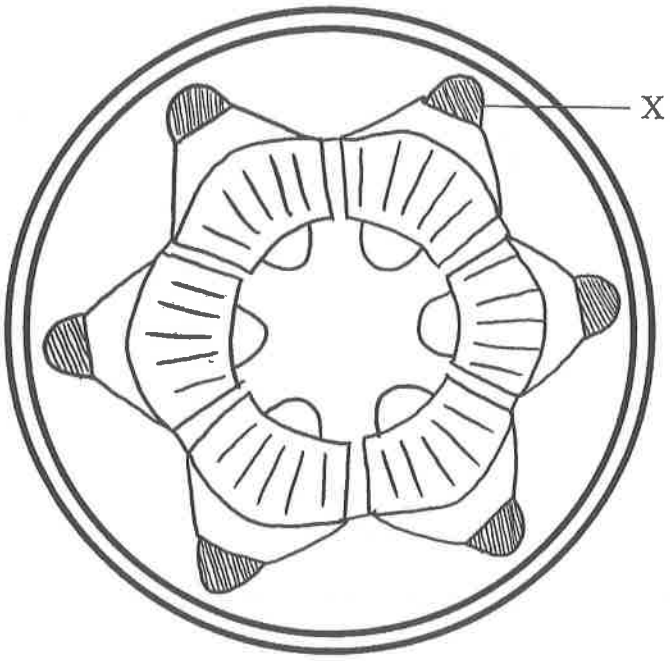


Diagram 30
Rajah 30

What is X?

Apakah X?

A Primary xylem
Xilem primer

B Secondary xylem
Xilem sekunder

C Primary phloem
Floem primer

D Secondary phloem
Floem sekunder

47. Table 3 shows a Punnet square to illustrate the gametes involved and possibility of genotype of offspring produced from the dihybrid cross.

Jadual 3 menunjukkan Segiempat Punnet untuk menggambarkan gamet yang terlibat dan kebarangkalian genotip anak yang terhasil daripada kacukan dihibrid.

Male gametes *Gamet jantan* / Female gametes *Gamet betina*	AR	Ar	aR	ar
AR	1	2	3	4
Ar	5	6	7	8
aR	9	10	11	12
ar	13	14	15	16

Table 3
Jadual 3

Which of the following numbers have the same genotype with their parents?

Antara yang berikut, anak yang bernombor manakah mempunyai genotip yang sama dengan genotip induknya?

A 1, 6, 11, and 16
1, 6, 11, *dan* 16

B 2, 3, 5, and 9
2, 3, 5, *dan* 9

C 4, 7, 10 and 13
4, 7, 10 *dan* 13

D 5, 6, 8 and 12
5, 6, 8 *dan* 12

48. Diagram 31 shows human pedigree for blood group.

Rajah 31 *menunjukkan pedigri manusia bagi kumpulan darah.*

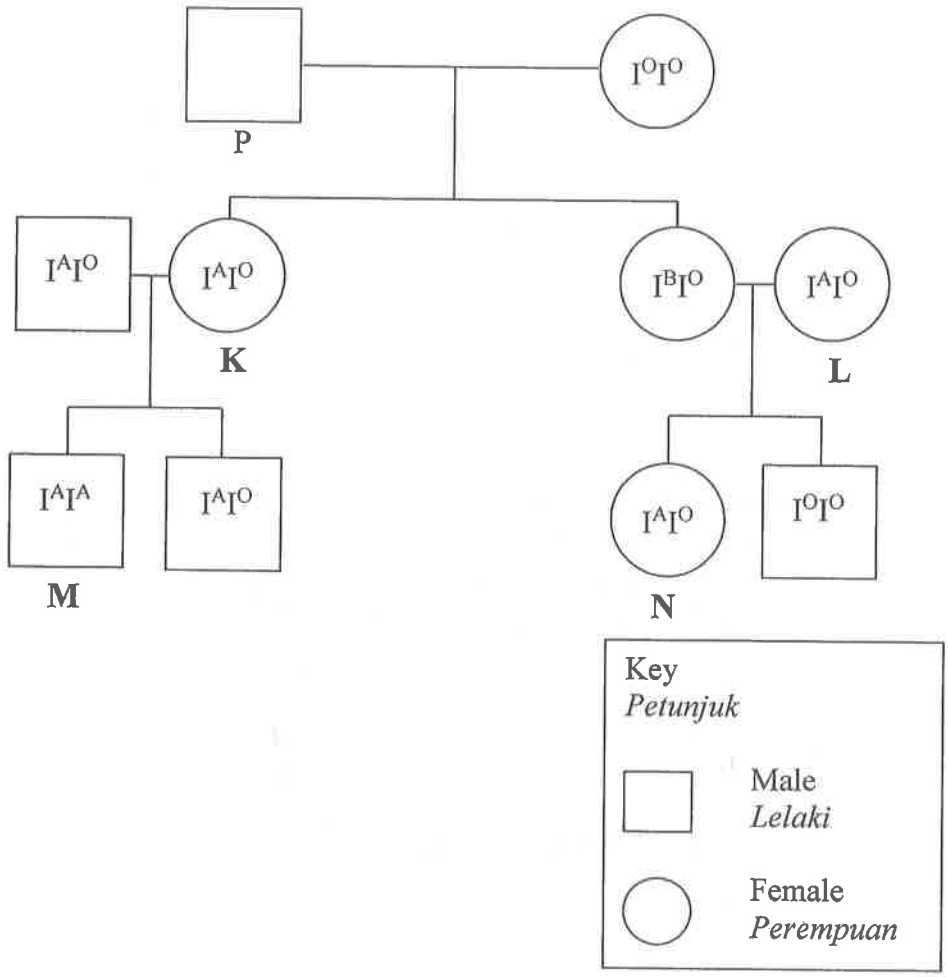


Diagram 31
Rajah 31

Which individual **K**, **L**, **M**, and **N** can be the blood donors to individual P?

Antara individu **K**, **L**, **M**, *and* **N**, *yang manakah boleh menderma darah kepada individu* P?

A **K** and **N**
K *dan* **N**

B **L** and **M**
L *dan* **M**

C **L**, **M** and **N**
L, **M** *dan* **N**

D **K**, **L**, **M** and **N**
K, **L**, **M** *dan* **N**

49. Which of the following is an example of continuous variation in cats?

Antara berikut, yang manakah contoh variasi selanjar pada kucing?

A Length of finger

Panjang jari

B Eye colour

Warna mata

C Colour of fur

Warna bulu

D Blood group

Kumpulan darah

50. Diagram 32 shows a karyotype of an individual with chromosomal mutation.

Rajah 32 menunjukkan satu kariotip bagi seorang manusia dengan mutasi kromosom.

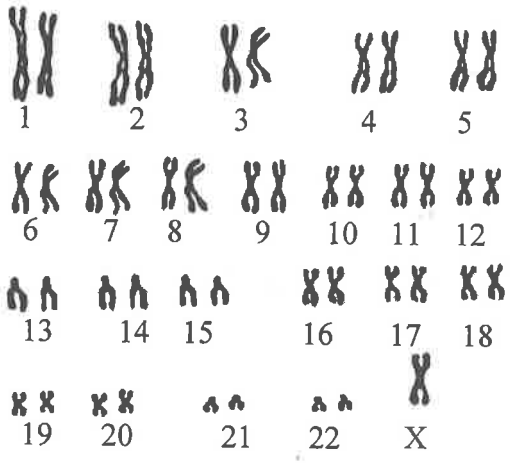


Diagram 32
Rajah 32

What is the genetic disease of the individual?

Apakah penyakit genetik individu tersebut?

A Hemophilia

Hemofilia

B Turner's syndrome

Sindrom Turner

C Klinefelter syndrome

Sindrom Klinefelter

D Colour blindness

Buta warna

