1 Diagram 1 shows a cell found in one of the systems in human body.
Rajah 1 menunjukkan sel yang didapati dalam satu daripada sistem dalam badan manusia.

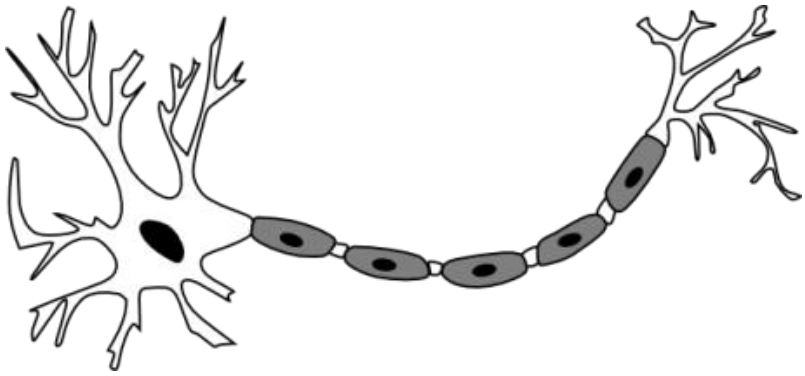


Diagram 1 / *Rajah 1*

What is the system?
Apakah sistem itu?

A Blood circulatory system
Sistem peredaran darah
B Integumentary system
Sistem integumen
C Digestive system
Sistem pencernaan
D Nervous system
Sistem saraf

2 Diagram 2 is a bar chart that shows the density of organelle **X** in cell P and cell Q.
*Rajah 2 ialah carta bar yang menunjukkan kepadatan organel **X** dalam sel P dan sel Q.*

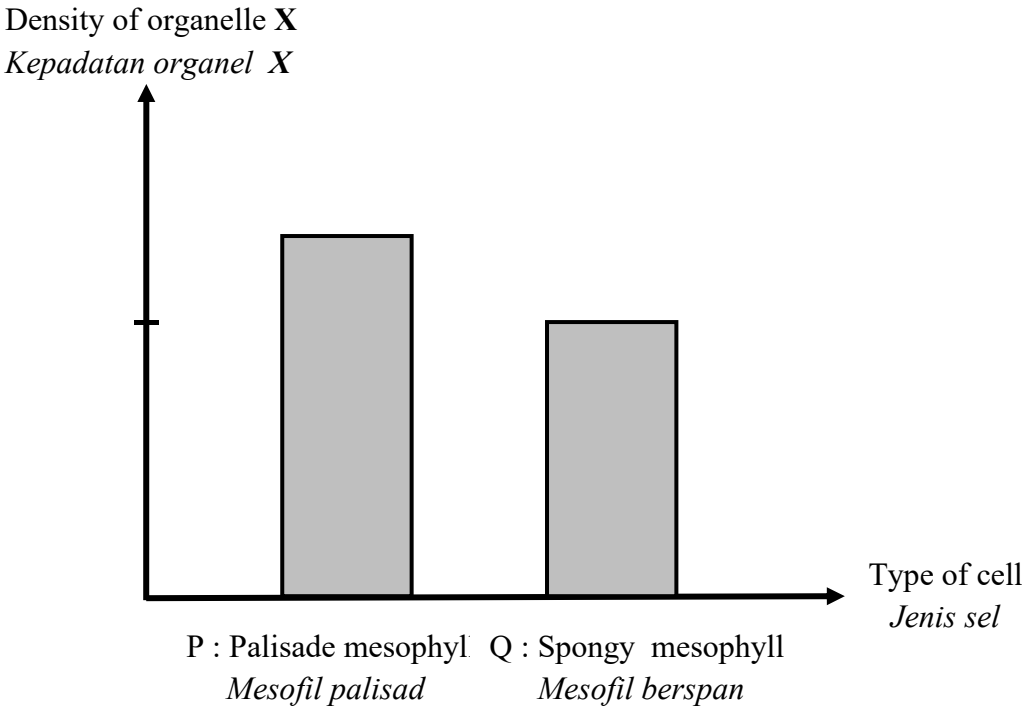


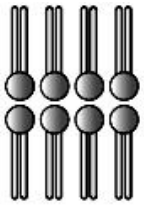
Diagram 2 / *Rajah 2*

What is the function of organelle **X**?
*Apakah fungsi organel **X**?*

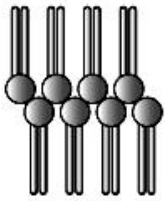
A Converts light energy to chemical energy
Menukarkan tenaga cahaya ke tenaga kimia
B Produces energy in the form of ATP
Menghasilkan tenaga dalam bentuk ATP
C Transport synthesised proteins
Mengangkut protein yang telah disintesis
D Control the activities of the cell
Mengawal aktiviti–aktiviti sel

3 Phospholipids are the basic units of the plasma membrane.
Which of the following is the arrangement of phospholipids in the plasma membrane?
Fosfolipid ialah unit asas bagi membran plasma.
Yang manakah di antara berikut susunan fosfolipid dalam suatu membran plasma?

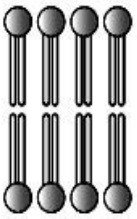
A



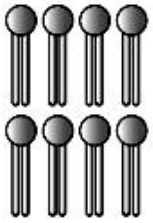
C



B



D



4 Diagram 3 shows the movement of oxygen from the alveolus into the blood capillary.
Rajah 3 menunjukkan pergerakan oksigen dari alveolus ke dalam kapilari darah.

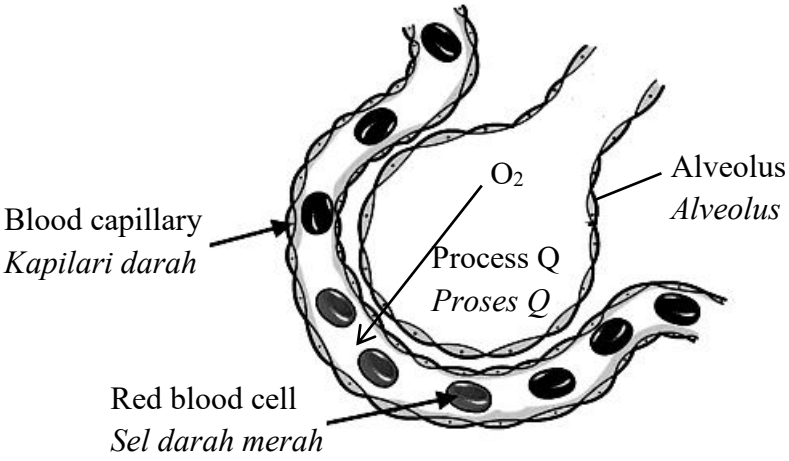


Diagram 3 / *Rajah 3*

What is process Q?
Apakah proses Q?

A Osmosis
Osmosis

B Simple diffusion
Resapan ringkas

C Active transport
Pengangkutan aktif

D Facilitated diffusion
Resapan berbantu

5 Diagram 4 shows three potato strips X, Y and Z, each is 50 mm long. The potato strips are soaked in three solutions of different concentration.
Rajah 4 menunjukkan tiga jalur kentang X, Y dan Z yang berukuran 50 mm panjang. Jalur kentang ini direndam di dalam tiga larutan yang berbeza kepekatan.

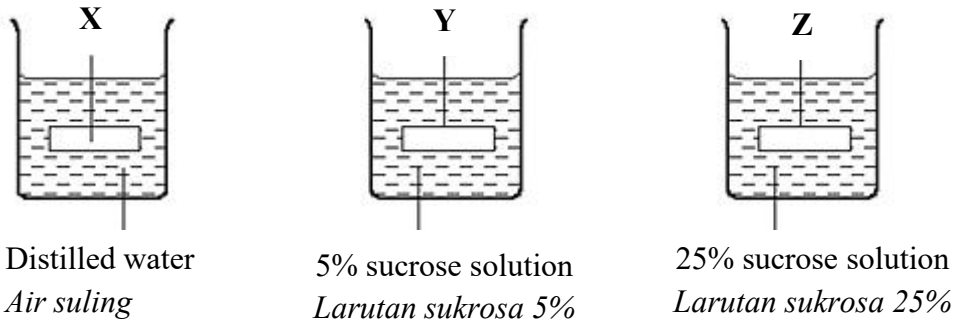
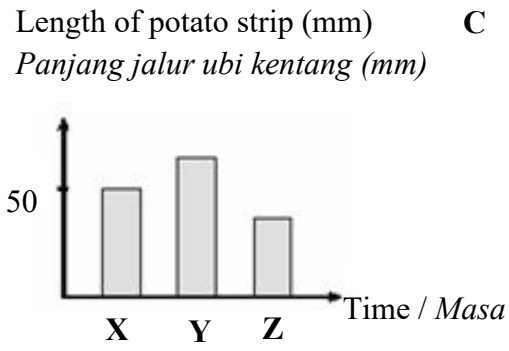


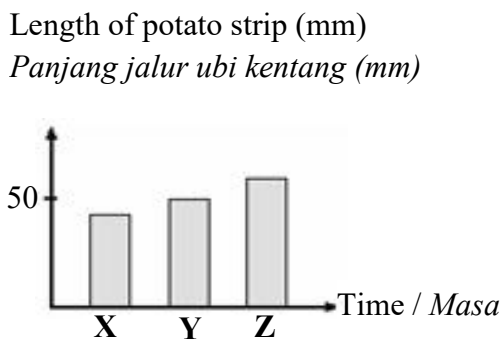
Diagram 4 / *Rajah 4*

The length of the potato strips are measured after 30 minutes.
Which graph shows the correct results?
Panjang jalur kentang diukur selepas 30 minit.
Graf manakah menunjukkan keputusan yang betul?

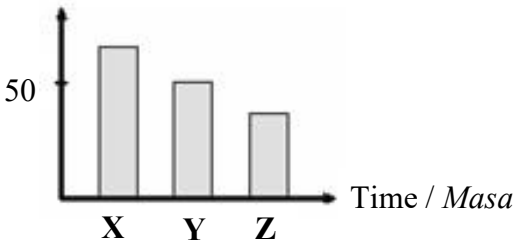
A



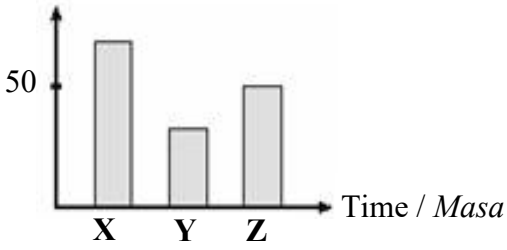
C



B



D



6 The following statement shows the function of organelle P.
Pernyataan berikut menunjukkan fungsi organel P.

> P controls all the activities in the cell. Without P, the cell will die.
> *P mengawal semua aktiviti sel. Tanpa P, sel akan mati.*

What is the organic compound found in P?
Apakah sebatian organik yang dijumpai dalam P?

A Water
Air

B Lipids
Lipid

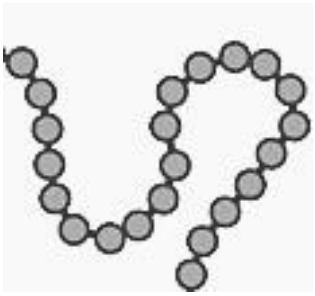
C Amino acids
Asid amino

D Nucleic acids
Asid nukleik

7 Which of the following protein structures represent an enzyme??
Antara struktur protein berikut, yang manakah mewakili enzim?

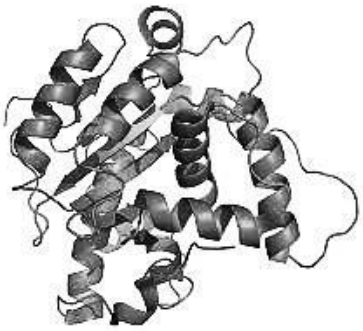
A

C



B

D



8 Diagram 5 shows an experiment to study the reaction of pepsin on albumen.
Rajah 5 menunjukkan satu eksperimen untuk mengkaji tindakan pepsin ke atas albumen.

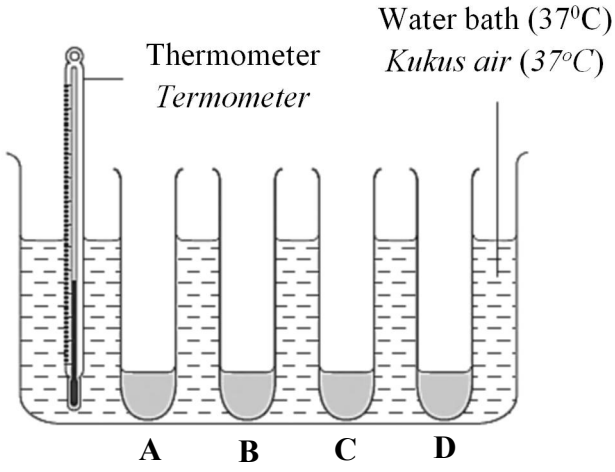


Diagram 5 / *Rajah 5*

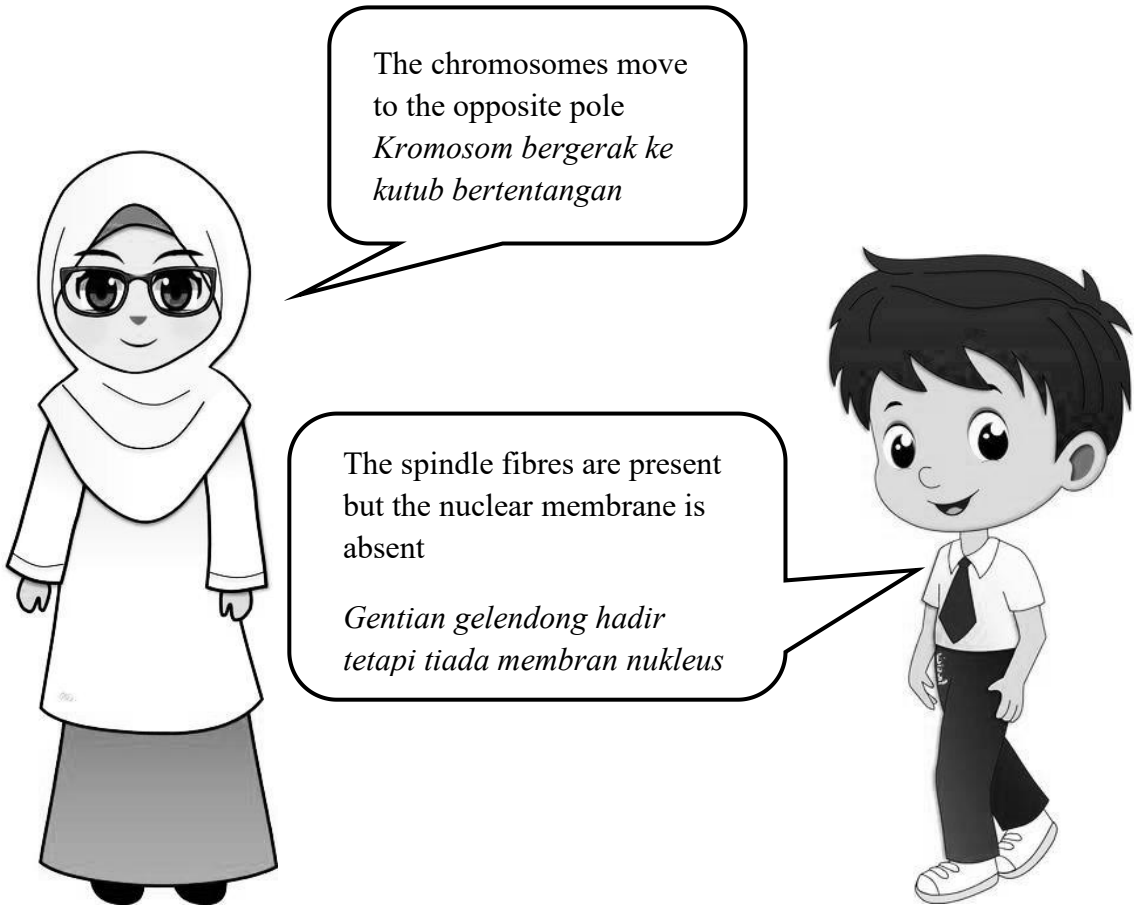
Table 1 shows the contents of the test tubes.
Jadual 1 menunjukkan kandungan tabung uji.

Test Tube *Tabung uji*	Contents *Kandungan*
A	2 ml of albumen suspension + 5 drops of 0.1 mol dm^{-3} hydrochloric acid + 1 ml of 1% pepsin solution *2 ml ampaian albumen + 5 titis asid hidroklorik 0.1 mol dm^{-3} + 1 ml larutan pepsin 1%*
B	2 ml of albumen suspension + 5 drops of 0.1 mol dm^{-3} hydrochloric acid + 1 ml of distilled water *2 ml ampaian albumen + 5 titis asid hidroklorik 0.1 mol dm^{-3} + 1 ml air suling*
C	2 ml of albumen suspension + 5 drops of distilled water + 1 ml of 1% pepsin solution *2 ml ampaian albumen + 5 titis air suling + 1 ml larutan pepsin 1%*
D	2 ml of albumen suspension + 5 drops of 0.1 mol dm^{-3} sodium hydroxide solution + 1 ml of 1% pepsin solution *2 ml ampaian albumen + 5 titis larutan natrium hidroksida 0.1 mol dm^{-3} + 1 ml larutan pepsin 1%*

Table 1 / *Jadual 1*

Which test tubes **A, B, C** or **D**, turns clear in the shortest time?
Tabung uji yang manakah **A, B, C** *atau* **D** *menjadi jernih dalam masa yang paling singkat?*

9 The following are the explanations on one of the phases in mitosis.
Berikut adalah penerangan tentang satu fasa dalam mitosis.



What is the phase explained by the students?
Apakah fasa yang diterangkan oleh murid tersebut?

A Metaphase
Metafasa

B Prophase
Profasa

C Anaphase
Anafasa

D Telophase
Telofasa

10 Diagram 6 shows the processes involved in an animal cloning.
Rajah 6 menunjukkan proses-proses yang terlibat dalam pengklonan haiwan.

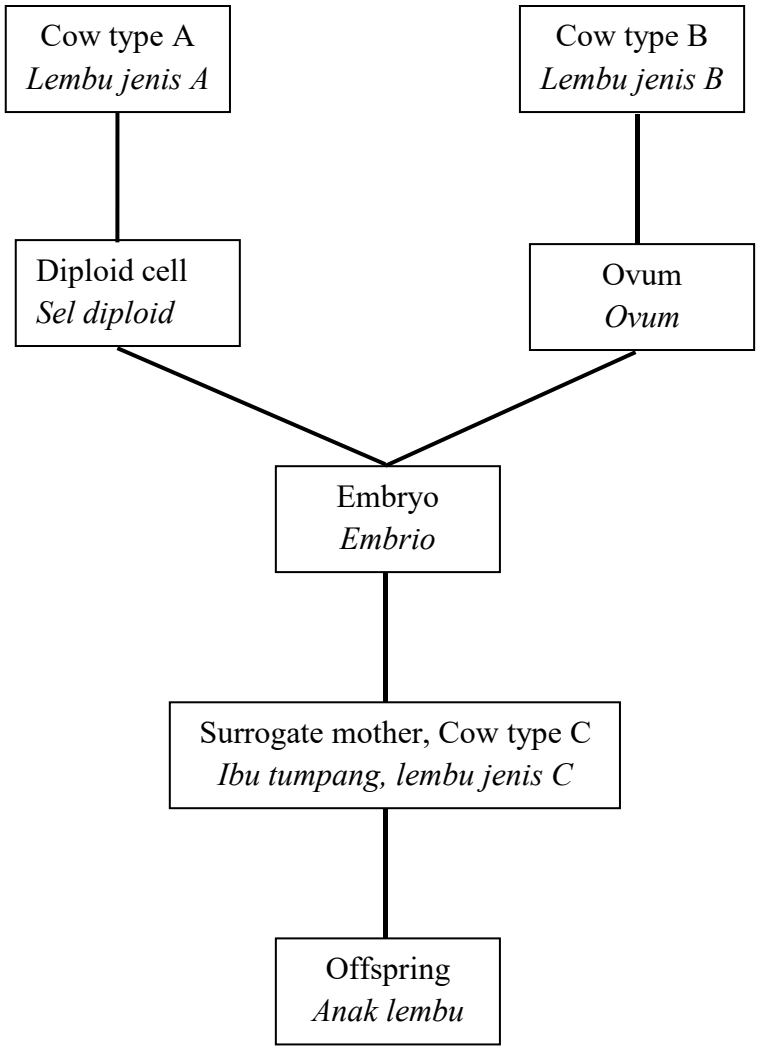


Diagram 6 / *Rajah 6*

What is the type of offspring produced?
Apakah jenis anak lembu yang terhasil?

A Cow type A
Lembu jenis A

B Cow type B
Lembu jenis B

C Cow type C
Lembu jenis C

D New type, Cow type D
Jenis baru, Lembu jenis D

11 Table 2 shows the number of chromosomes in the liver cells of several animals.
Jadual 2 menunjukkan bilangan kromosom dalam sel hati beberapa jenis haiwan.

Cat ***Kucing***	**Chicken** ***Ayam***	**Horse** ***Kuda***
38	78	64

Table 2 / *Jadual 2*

What are the chromosomal number in the sperm of each animal?
Apakah bilangan kromosom dalam sperma setiap haiwan?

	Cat ***Kucing***	**Chicken** ***Ayam***	**Horse** ***Kuda***
A	9	13	8
B	10	26	12
C	19	39	32
D	38	78	64

12 Diagram 7 shows metaphase I of meiosis in an animal cell.
Rajah 7 menunjukkan metafasa I bagi meiosis dalam suatu sel haiwan.

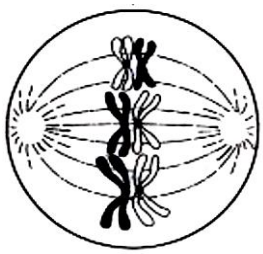


Diagram 7 / *Rajah 7*

What is the importance of this stage?
Apakah kepentingan peringkat ini?

A Maintains the chromosomal number
Mengekalkan bilangan kromosom
B Produces genetic variation in offspring
Menghasilkan variasi genetik dalam anak
C Maintains the characteristics of the species
Mengekalkan ciri-ciri spesies
D Exchanged of genetic materials between chromosomes
Pertukaran bahan genetik di antara kromosom

13 Diagram 8 shows *Mucor* sp.
Rajah 8 menunjukkan Mucor sp.

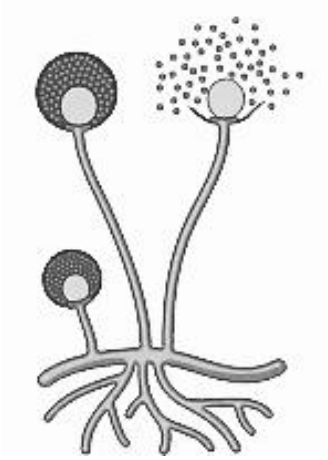


Diagram 8 / *Rajah 8*

What is the type of nutrition used by *Mucor* sp. to obtain food?
Apakah jenis nutrisi yang digunakan oleh Mucor sp. untuk mendapatkan makanan?

A Autotrophic nutrition
Nutrisi autotrof

B Saprophytism
Saprofitisme

C Holozoic
Holozoik

D Parasitism
Parasitisme

14 Four different types of food samples with the mass of 0.5 g are burnt. The initial and final temperature of water in the boiling tube is recorded. The volume of water used is 20 ml. Which food samples, K, L, M and N contains the highest amount of fats?
Empat sampel makanan yang berbeza dengan jisim 0.5 g dibakar. Suhu awal dan suhu akhir dalam tabung didih direkodkan. Isipadu air yang digunakan adalah 20 ml. Makanan yang manakah, K, L, M dan N, mengandungi jumlah lemak yang paling tinggi?

	Food sample ***Sampel makanan***	**Initial temperature of water** ***Suhu awal air (°C)***	**Final temperature of water** ***Suhu akhir air (°C)***
A	K	17	86
B	L	17	94
C	M	18	37
D	N	18	74

15 Diagram 9 shows the stomach of a cow.
Rajah 9 menunjukkan perut seekor lembu.

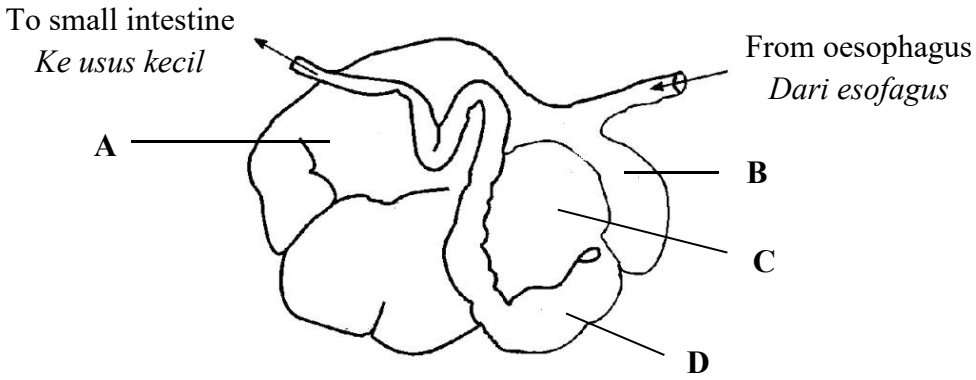


Diagram 9 / *Rajah 9*

Which part of the stomach labelled **A**, **B**, **C** or **D**, secretes pepsin and hydrochloric acid to digest protein?
*Antara bahagian perut berlabel **A**, **B**, **C** dan **D**, yang manakah merembeskan pepsin dan asid hidroklorik untuk mencernakan protein?*

16 Diagram 10 shows glands P which are involved in the digestion process in the mouth.
Rajah 10 menunjukkan kelenjar P yang terlibat dalam proses pencernaan di dalam mulut.

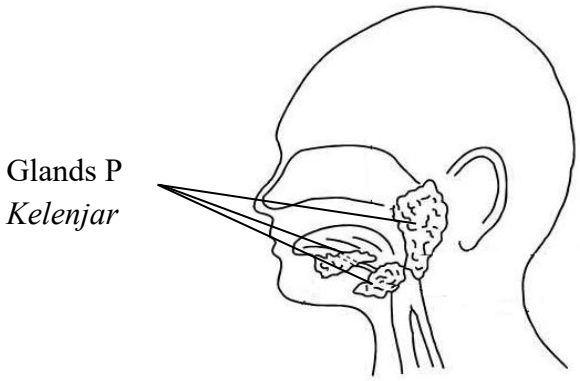


Diagram 10 / *Rajah 10*

What will happen if glands P are not able to function due to a disease?
Apakah yang akan terjadi jika kelenjar P tidak dapat berfungsi disebabkan oleh suatu penyakit?

A Food cannot be chewed
Makanan tidak dapat dikunyah

B More saliva is produced
Lebih banyak air liur dihasilkan

C Starch cannot be hydrolysed
Kanji tidak boleh dihidrolisiskan

D Digestion of protein is incomplete
Pencernaan protein tidak lengkap

17 Diagram 11 shows the structure of a villus.
Rajah 11 menunjukkan struktur vilus.

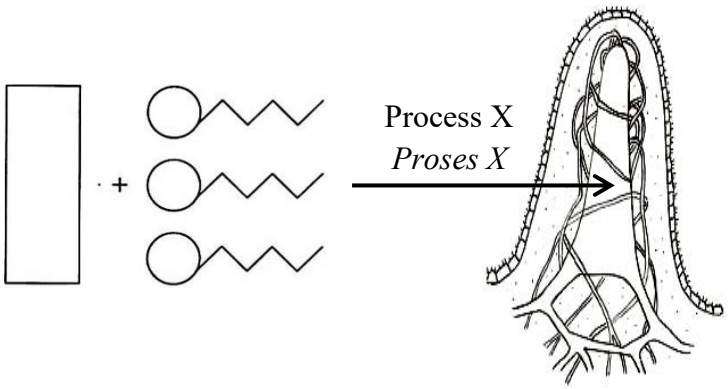


Diagram 11 / *Rajah 11*

What is process X?
Apakah proses X?

A Assimilation
Asimilasi
B Defaecation
Penyahtinjaan
C Absorption
Penyerapan
D Digestion
Pencernaan

18 The following equation shows a process that occurs during photosynthesis.
Persamaan berikut menunjukkan suatu proses yang berlaku semasa fotosintesis.

$$CO_2 + 4(H) \longrightarrow (CH_2O) + H_2O$$

Diagram 12 shows the structure of a chloroplast.
Rajah 12 menunjukkan struktur kloroplas.

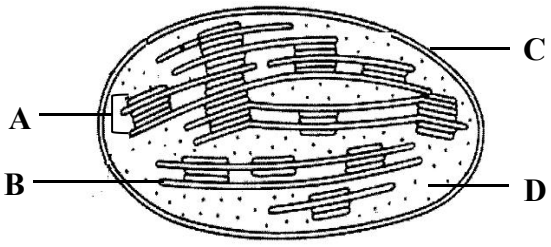


Diagram 12 / *Rajah 12*

Which part of the chloroplast labelled **A, B, C** or **D**, is involved in the process shown by the equation?
*Antara bahagian kloroplas berlabel **A, B, C** dan **D**, yang manakah terlibat dalam proses yang ditunjukkan oleh persamaan tersebut?*

19 Fermentation of glucose by yeast can be shown by the equation below.
Penapaian glukosa oleh yis boleh ditunjukkan oleh persamaan berikut.

Glucose	$\longrightarrow$	P	+	Q	+	Energy
Glukosa	$\longrightarrow$	*P*	+	*Q*	+	*Tenaga*

What are substances P and Q?
Apakah bahan P dan Q?

A Zymase + ethanol
Zimase + etanol
B Ethanol + lactic acid
Etanol + asid laktik
C Lactic acid + carbon dioxide
Asid laktik + karbon dioksida
D Ethanol + carbon dioxide
Etanol + karbon dioksida

20 In the respiratory system of an insect, where does gaseous exchange occur?
Dalam sistem respirasi serangga, di manakah pertukaran gas berlaku?

A Ostium
Ostium
B Trachea
Trakea
C Tracheole
Trakeol
D Spiracle
Spirakel

21 The following statements show a person's responses in a certain situation.
Pernyataan berikut menunjukkan gerak balas seseorang dalam suatu situasi tertentu.

- Adrenaline produced increases
  Penghasilan adrenalina meningkat
- Heartbeat rate increases
  Kadar denyutan jantung meningkat
- Breathing rate increases
  Kadar pernafasan meningkat

Which of the following situation is related to the responses?
Antara situasi berikut, yang manakah berkaitan dengan gerak balas tersebut?

A Reading
Membaca buku
B Gardening
Menanam pokok
C Walking
Berjalan kaki
D Bungee jumping
Terjun lelabah

22 Diagram 13 shows a relationship between two processes.
Rajah 13 menunjukkan hubungan antara dua proses.

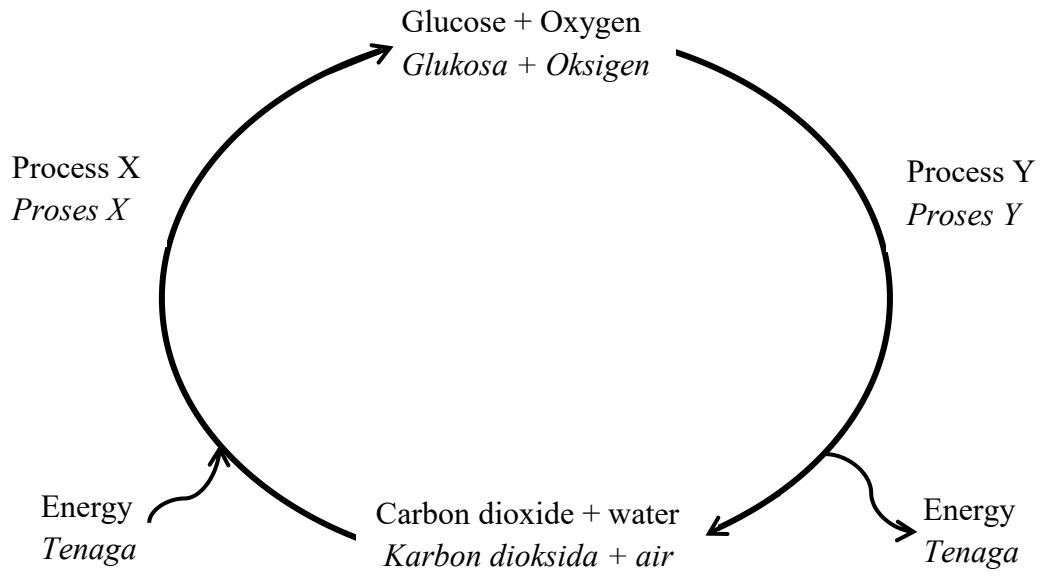


Diagram 13 / *Rajah 13*

What are process X and process Y?
Apakah proses X dan proses Y?

	Process X ***Proses X***	**Process Y** ***Proses Y***
A	Condensation *Kondensasi*	Hydrolysis Hidrolisis
B	Condensation *Kondensasi*	Photosynthesis *Fotosintesis*
C	Photosynthesis *Fotosintesis*	Respiration *Respirasi*
D	Respiration *Respirasi*	Condensation *Kondensasi*

23 The following information shows the results of an experiment to determine the oxygen content in exhaled air using J-tube.
Maklumat berikut menunjukkan keputusan satu ekperimen untuk menentukan kandungan oksigen dalam udara hembusan dengan menggunakan tiub J.

Length of air column (exhalation) *Panjang turus udara (hembusan)*	= 10.0 cm
Length of exhale air column after treatment with potassium hydroxide *Panjang turus udara hembusan selepas dirawat dengan kalium hidroksida*	= 9.2 cm
Length of exhale air column after treatment with potassium pyrogallate *Panjang turus udara hembusan selepas dirawat dengan kalium pirogalol*	= 8.3 cm

What is the percentage of oxygen content in exhaled air?
Apakah peratus kandungan oksigen dalam udara hembusan?

A 8 %
B 9 %
C 11 %
D 17 %

24 Which of the following is the correct biotic and abiotic factors in an ecosystem?
Antara yang berikut, yang manakah faktor biotik dan abiotik di dalam suatu ekosistem?

	Biotic factor ***Faktor biotik***	**Abiotic factor** ***Faktor abiotik***
A	*Hydrilla* *Hydrilla*	Light intensity *Keamatan cahaya*
B	Humidity *Kelembapan*	Light intensity *Keamatan cahaya*
C	Bird *Burung*	*Hydrilla* *Hydrilla*
D	Humidity *Kelembapan*	*Hydrilla* *Hydrilla*

25 Diagram 14 shows an interaction between an owl and a rat.
Rajah 14 menunjukkan satu interaksi di antara burung hantu dan seekor tikus.

Diagram 14 / *Rajah 14*

What is the type of interaction shown?
Apakah jenis interaksi yang ditunjukkan?

A Parasitism
Parasitisme

B Saprophytism
Saprofitisme

C Commensalism
Komensalisme

D Prey-predator
Mangsa-pemangsa

26 Which of the following shows a situation of a dynamic equilibrium in an ecosystem?
Antara berikut, yang manakah menunjukkan situasi keseimbangan dinamik di dalam suatu ekosistem?

A The population of fish in a lake decreases due to pollution
Populasi ikan di dalam kolam berkurang akibat pencemaran

B The population of tiger in the forest decreases due to deforestation
Populasi harimau dalam hutan berkurang akibat penyahutanan

C The population of algae increases because of the excessive use of fertilisers
Populasi alga bertambah kerana penggunaan baja yang berlebihan

D The population of snake decreases because the population of frogs decreases
Populasi ular berkurangan kerana populasi katak berkurangan

27 Diagram 15 shows a label on the packaging of fresh milk.
Rajah 15 menunjukkan label pada kotak susu segar.

Diagram 15 / *Rajah 15*

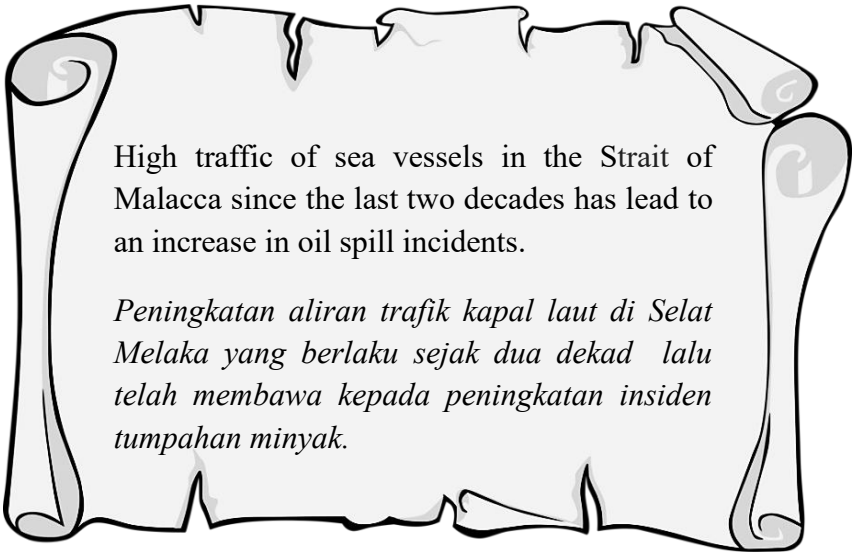
Why the milk must be kept refrigerated after opening?
Mengapakah susu perlu disimpan dalam peti sejuk selepas dibuka?

A No bacteria in the refrigerator
Tiada bakteria di dalam peti sejuk
B The low temperature kills the bacteria
Suhu rendah membunuh bakteria
C The low temperature prevents bacterial growth
Suhu rendah mencegah pertumbuhan bakteria
D The enzymes in the milk are active at low temperature
Enzim dalam susu adalah aktif pada suhu rendah

28 Which of the following is **not** an alternative source of energy?
*Antara yang berikut, yang manakah **bukan** sumber tenaga alternatif?*

A Biomass
Biojisim
B Fossil fuel
Bahan api fosil
C Wind energy
Tenaga angin
D Solar energy
Tenaga solar

29 The following statement refers to a cause of water pollution.
Pernyataan berikut merujuk kepada suatu punca pencemaran air.



Which of the following are the effects of oil spill on the marine ecosystem?
Antara berikut, yang manakah kesan tumpahan minyak terhadap ekosistem marin?

I Increases the biochemical oxygen demand
Peningkatan keperluan oksigen biokimia
II Disrupts the food chain of aquatic organisms
Mengganggu rantai makanan organisma akuatik
III Maintains the photosynthesis of marine plants
Mengekalkan fotosintesis tumbuhan laut
IV Sea birds will die when their feathers are stuck together by the oil
Burung laut akan mati apabila bulu pelepah mereka terlekat dengan minyak

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

30 Diagram 16 shows a lake located near an argicultural land.
Rajah 16 menunjukkan satu tasik yang terletak berhampiran dengan kawasan pertanian.

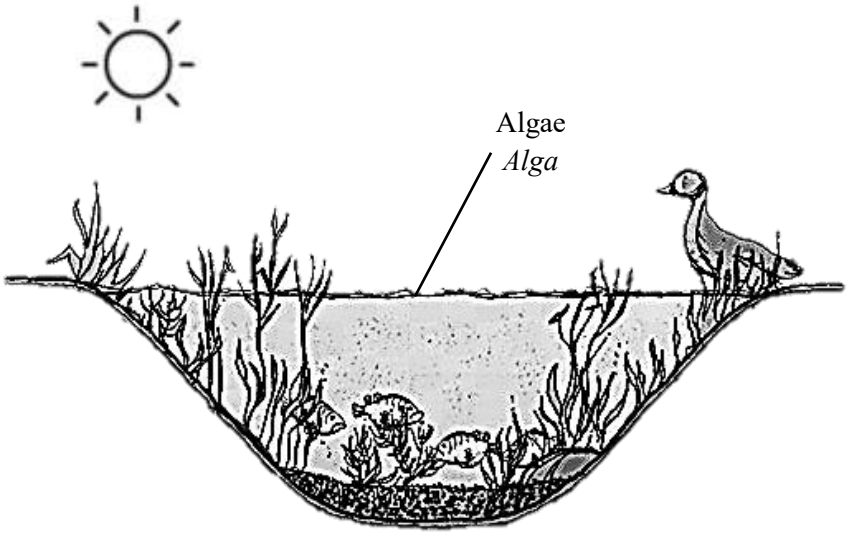


Diagram 16 / *Rajah 16*

Which of the following is the effect of rapid growth of algae?
Yang manakah antara berikut ialah kesan pertumbuhan alga yang pesat?

A Provides food for fish
Menyediakan makanan kepada ikan
B Provides habitat for other organisms
Menyediakan habitat untuk organisma lain
C Decreases biochemical oxygen demand
Mengurangkan keperluan oksigen biokimia
D Restricts the penetration of light into the lake
Menghalang penembusan cahaya ke dalam tasik

31 Table 3 shows the characteristics of blood in blood vessel X of human.
Jadual 3 menunjukkan ciri-ciri darah dalam salur darah X pada manusia.

Pressure ***Tekanan***	**Oxygen concentration** ***Kepekatan Oksigen***	**Carbon dioxide concentration** ***Kepekatan karbon dioksida***
High *Tinggi*	Low *Rendah*	High *Tinggi*

Table 3 / *Jadual 3*

What is blood vessel X?
Apakah salur darah X?

A Aorta
Aorta

B Vena cava
Vena cava

C Pulmonary vein
Vena pulmonari

D Pulmonary artery
Arteri pulmonary

32 Diagram 17 shows the open circulatory system of an insect.
Rajah 17 menunjukkan sistem peredaran terbuka bagi seekor serangga.

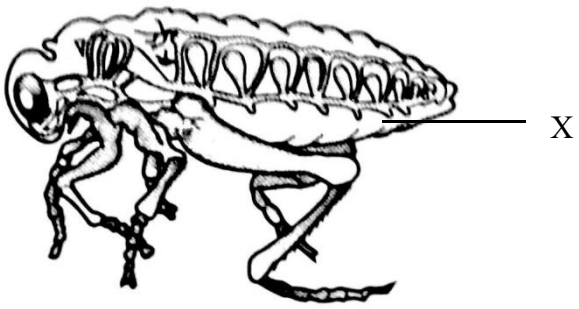


Diagram 17 / *Rajah 17*

What is the colourless fluid found in X?
Apakah cecair tidak bewarna yang terdapat dalam X?

A Lymph
Limfa

B Plasma
Plasma

C Hemolymph
Hemolimfa

D Intertitial fluid
Bendalir interstis

33 Diagram 18 shows the blood circulatory system of organism X.
Rajah 18 menunjukkan sistem peredaran darah organisma X.

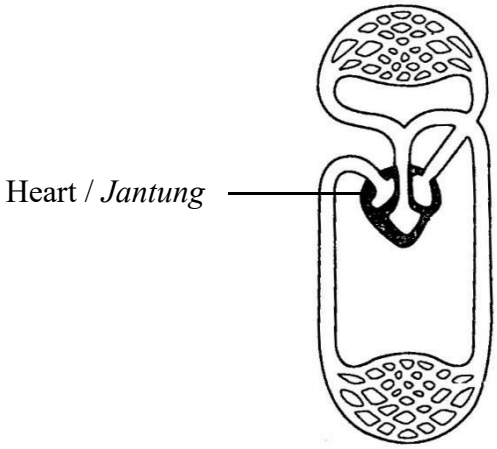


Diagram 18 / *Rajah 18*

What is organism X?
Apakah organism X?

A Salmon
Ikan Salmon

B Salamander
Salamander

C Eagle
Helang

D Lipas
Cockroach

34 Diagram 19 shows the cross section of a dicotyledonous root.
Rajah 19 menunjukkan keratan rentas akar tumbuhan dikotiledon.

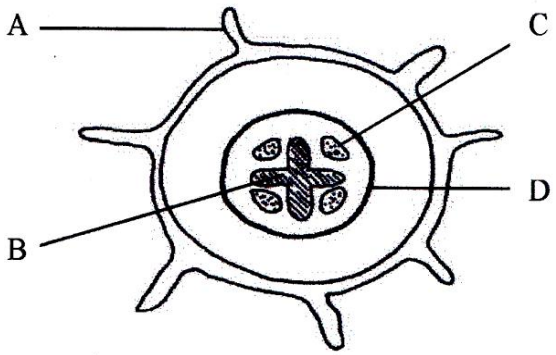


Diagram 19 / *Rajah 19*

Which structure **A**, **B**, **C** or **D** transports sucrose?
*Bahagian manakah, **A**, **B**, **C** atau **D** mengangkut sukrosa?*

35 Diagram 20 shows the structure of a knee joint.
Rajah 20 menunjukkan struktur sendi lutut.

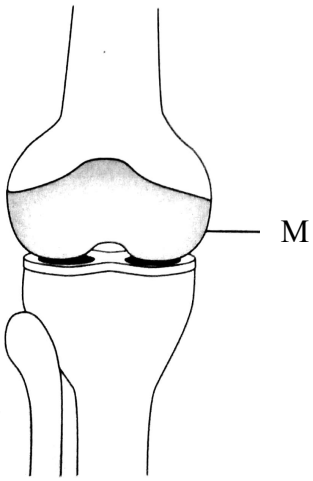


Diagram 20 / *Rajah 20*

What is the function of M?
Apakah fungsi M?

A To give support
Untuk memberi sokongan
B To joint two bones together
Untuk menghubungkan dua tulang
C To connect muscle to bone
Untuk menghubungkan otot dan tulang
D To reduce friction between two bones
Untuk mengurangkan geseran antara dua tulang

36 Which of the following cells provides mechanical strength to woody plants?
Antara sel-sel berikut, yang manakah memberi sokongan mekanikal kepada tumbuhan berkayu?

A Parenchyma
Parenkima
B Collenchyma
Kolenkima
C Sclerenchyma
Sklerenkima
D Aerenchyma
Arenkima

37 Diagram 21 shows the forelimb and hindlimb of a rabbit.
Rajah 21 menunjukkan anggota hadapan dan anggota belakang arnab.

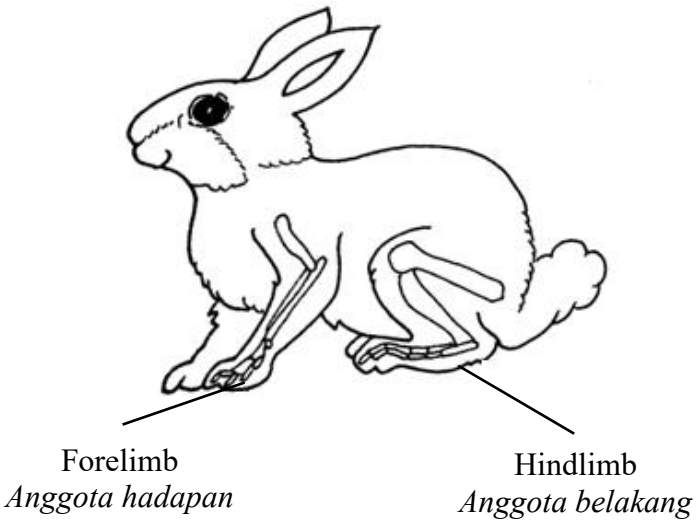


Diagram 21/ *Rajah 21*

Which of the following explain why the rabbit can do a great distance leap?
Antara berikut, yang manakah menerangkan mengapa arnab boleh melakukan lompatan yang jauh?

I Has strong muscle
Mempunyai otot yang kuat
II Has short hindlimbd
Mempunyai anggota belakang yang pendek
III Flexor muscle contract while straightening the hindlimb
Otot fleksor mengecut semasa meluruskan anggota belakang
IV Extensor muscle contract while straightening the hindlimb
Otot ekstendor mengecut semasa meluruskan anggota belakang

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

38 Diagram 22 shows the transmission of the nerve impulse through a synapse.
Rajah 22 menunjukkan penghantaran impuls melalui sinaps.

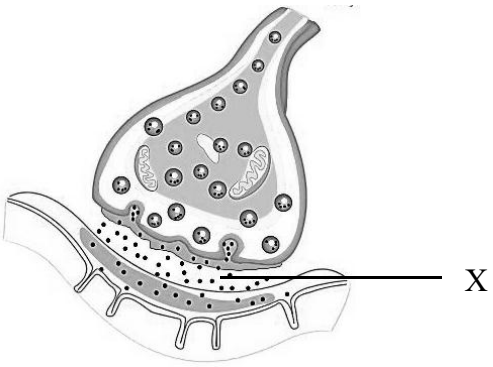


Diagram 22 / *Rajah 22*

Which of the following is **not** substance X?
*Antara berikut, yang manakah adalah **bukan** bahan X?*

A Melanin
Melanin

B Dopamine
Dopamin

C Acetylcholine
Asetilkolin

D Serotonin
Serotonin

39 The following statement shows the effects of hormonal imbalance
Pernyataan berikut menunjukkan kesan-kesan ketidakseimbangan hormon.

- In adults, it causes acromegaly
  Pada orang dewasa ia mengakibatkan akromegali
- Bones, hand, feet, cheeks and jaws thicken
  Tulang, tangan, kaki, pipi dan rahang membesar.

Which glands secretes the hormone?
Kelenjar yang manakah merembeskan hormon tersebut?

A Thyroid gland
Kelenjar tiroid

B Pituitary gland
Kelenjar pituitari

C Adrenal gland
Kelenjar adrenal

D Pancreas gland
Kelenjar pankreas

40 Diagram 23 shows the use of auxin hormone in agriculture.
Rajah 23 menunjukkan kegunaan hormon auksin dalam bidang pertanian.

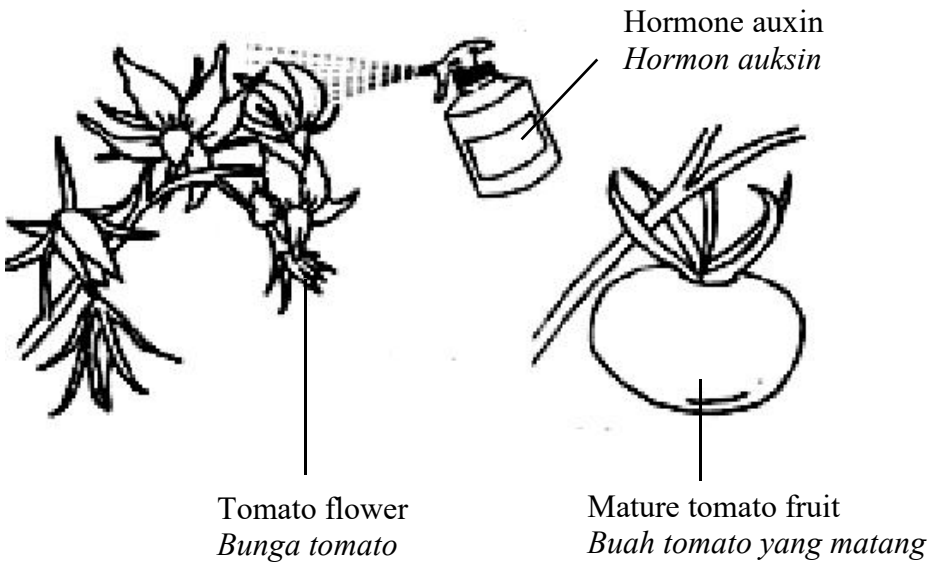


Diagram 23 / *Rajah 23*

Which of the following shows the effect of auxin hormone on fruits?
Antara berikut yang manakah menunjukkan kesan hormon auksin terhadap buah?

A Stimulates fruit development without fertilisation.
Merangsang pertumbuhan buah tanpa persenyawaan
B Prevents the fruit from being infected by pest.
Menghalang buah daripada diserang perosak.
C Stimulates the ripening of the fruit.
Meransang pemasakan buah.
D Helps delay the fruit aging.
Membantu melambatkan penuaan buah

41 Diagram 24 shows a longitudinal section of a flower.
Rajah 24 *menunjukkan keratan membujur sekuntum bunga.*

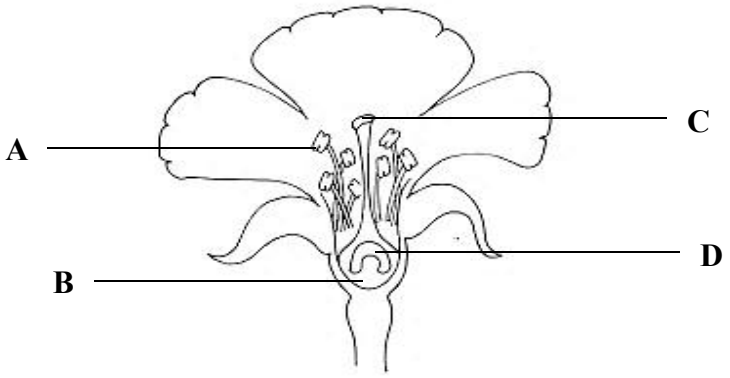


Diagram 24 / *Rajah 24*

Which part labelled, **A**, **B**, **C** or **D**, does the developments of pollen grains take place?
Antara bahagian berlabel, **A**, **B**, **C** *dan* **D**, *di manakah perkembangan debunga berlaku?*

42 Diagram 25 shows a longitudinal section of testis.
Rajah 25 menunjukkan keratan membujur testis.

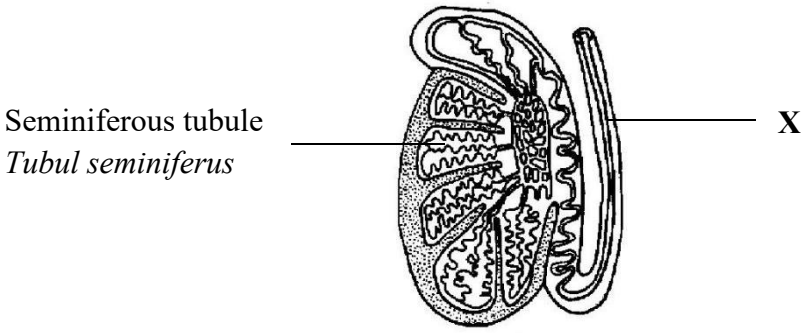
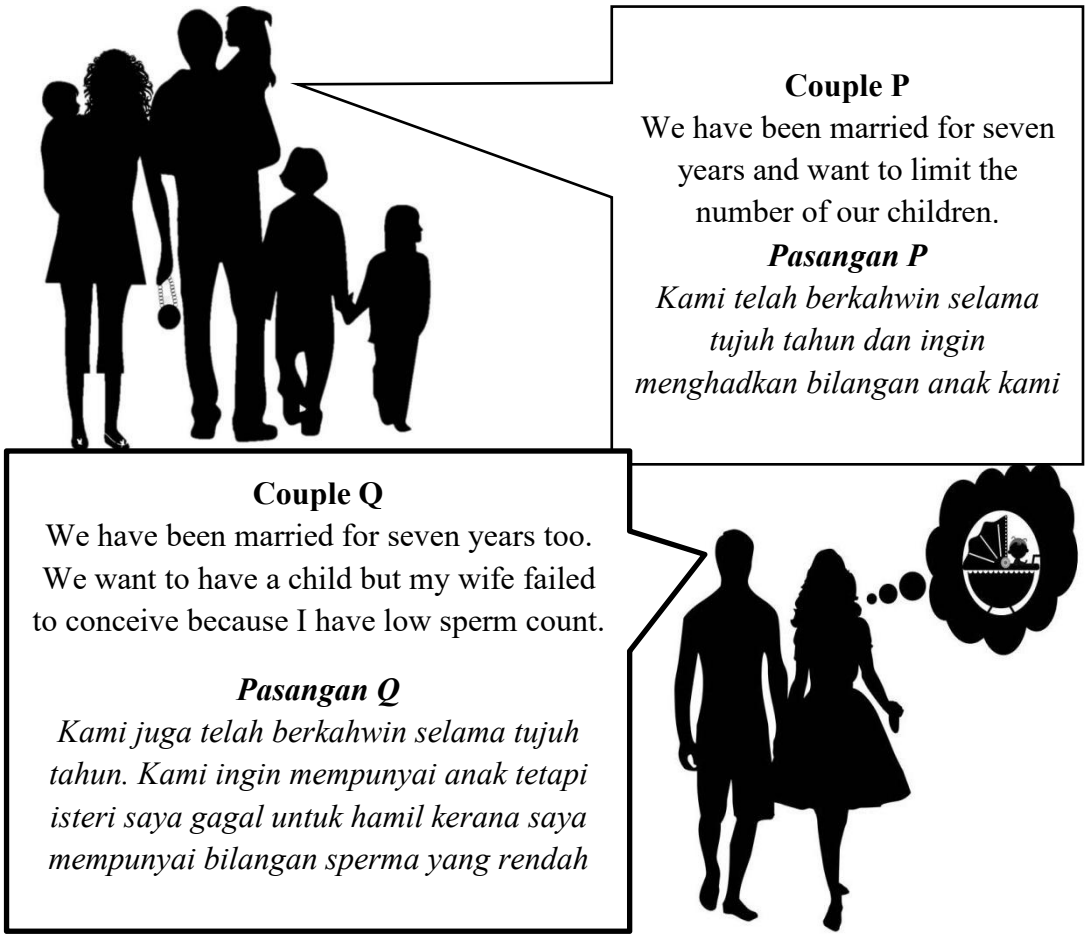


Diagram 25 / *Rajah 25*

What will happen if structure X is cut and ligated?
Apakah akan berlaku jika struktur X *dipotong dan diligasi?*

A Spermatogenesis is inhibited
Spermatogenesis direncat
B No testosterone is produced
Tiada testosterone dihasilkan
C Sperm is not released
Sperma tidak dibebaskan
D The secondary sexual characteristics in a male changes
Ciri-ciri seks sekunder seorang lelaki berubah

43 The following are dialogues between two married couples about family planning issues.
Berikut adalah dialog antara dua pasangan berkahwin mengenai masalah perancangan keluarga.



Which of the following techniques can be used to solve the problems for both couples?
Antara berikut, manakah teknik yang boleh digunakan oleh kedua-dua pasangan untuk mengatasi masalah mereka?

	Couple P ***Pasangan P***	**Couple Q** ***Pasangan Q***
A	In vitro fertilisation *Persenyawaan in vitro*	Tubal ligation *Ligasi*
B	Vasectomy *Vasektomi*	Artificial insemination *Permanian beradas*
C	Surrogate mother *Ibu tumpang*	Intra uterine artificial insemination device *Alat kontraseptif dalam rahim*
D	Embryo transfer *Pemindahan embrio*	Hysterectomy *Histerektomi*

44 What is the genotype of a carrier for colour blindness?
Apakah genotip seorang pembawa penyakit buta warna?

A X^bX^b
B X^BX^b
C X^bY
D X^BX^B

45 A woman needs blood transfusion during a caesarean surgery. She has antibody of anti A and anti-B in her blood plasma. Which blood group is suitable for her?
*Seorang wanita memerlukan pemindahan darah semasa pembedahan caesarean. Dia mempunyai antibodi anti-*A *dan antibodi anti-*B *di dalam plasma darahnya. Kumpulan darah manakah yang sesuai untuk dirinya?*

A Blood group O
Kumpulan darah O
B Blood group AB
Kumpulan darah AB
C Blood group A
Kumpulan darah A
D Blood group B
Kumpulan darah B

46 Diagram 26 shows a molecular structure.
Rajah 26 *menunjukkan satu struktur molekul.*

Diagram 26 / *Rajah 26*

What is the structure?
Apakah struktur itu?

A DNA
DNA
B Gene
Gen
C Nucleotide
Nukleotida
D Chromosome
Kromosom

47 A man who is heterozygous for Rhesus positive married to a woman with Rhesus negative. What is the probability to get a Rhesus positive child?
Seorang lelaki heterozigus Rhesus positif berkahwin dengan seorang wanita Rhesus negatif. Apakah kebarangkalian untuk mendapat anak Rhesus positif?

A 0.25
B 0.50
C 0.75
D 1.00

48 Diagram 27 shows a shape variation among watermelon fruit.
Rajah 27 menunjukkan variasi bentuk dalam kalangan buah tembikai.

Diagram 27 / *Rajah 27*

What is the factor that can cause this variation?
Apakah faktor yang menyebabkan variasi ini?

A Environmental
Persekitaran
B Nutrition
Nutrisi
C Mutation
Mutasi
D Genetic
Genetik

49 What is number of chromosomes in the liver cells of a Down's syndrome patient?
Berapakah bilangan kromosom dalam sel hati pesakit sindrom Down?

A 23
B 24
C 46
D 47

50 Diagram 28 shows a process that causes genetic variation.
Rajah 28 *menunjukkan suatu proses yang menyebabkan variasi genetik.*

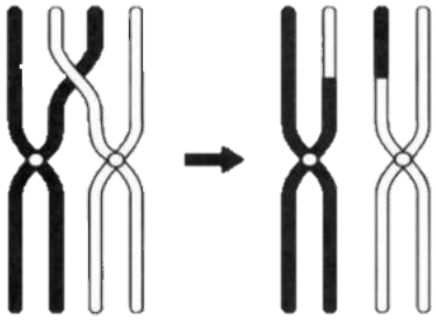


Diagram 28 / *Rajah 28*

What are process X and the genetic variation that corresponds with it?
Apakah proses X dan variasi genetik yang sepadan dengannya?

	Processes ***Proses***	**Genetic variation** ***Variasi genetik***
A	Independent assortment of chromosomes *Penyusunan rawak kromosom*	Sickle cell anemia *Anemia sel sabit*
B	Meiosis *Meiosis*	Skin colour *Warna kulit*
C	Fertilization *Persenyawaan*	Albinism *Albinisme*
D	Crossing over *Pindah silang*	Colour of iris *Warna anak mata*

END OF QUESTION PAPER
KERTAS PEPERIKSAAN TAMAT

INFORMATION FOR CANDIDATES

MAKLUMAT UNTUK CALON

1. This question paper consists of **50** questions.
*Kertas soalan ini mengandungi **50** soalan.*

2. Answer **all** questions.
*Jawab **semua** soalan.*

3. Each question is followed by four alternative answers A, B, C or D. For each question, choose one answer only. Blacken your answer on the objective answer sheet provided.
Tiap-tiap soalan diikuti oleh empat pilihan jawapan **A, B, C** *dan* **D**. *bagi setiap soalan, pilih satu jawapan sahaja. Hitamkan jawapan anda pada kertas jawapan objektif yang disediakan.*

4. The diagrams in the questions are not drawn to scale unless stated.
Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.

5. If you wish to change your answer, cross out the answer that you have done. Then write down the new answer.
Jika anda hendak menukar jawapan, batalkan jawapan yang telah dibuat. Kemudian tulis jawapan yang baharu.

6. You may use scientific calculator.
Anda dibenarkan menggunakan kalkulator saintifik.

