

Nama : .....

Kelas : .....

**SULIT**

**4551/1**

**Biologi**

**Kertas 1**

**Ogos/September**

**2015**

**1¼ jam**

**4551/1**



**MAKTAB RENDAH SAINS MARA**

**PEPERIKSAAN SIJIL PENDIDIKAN MRSMA 2015**

**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 38 halaman bercetak dan 2 halaman tidak bercetak

**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. Answer each question by blackening the correct space on the objective answer sheet.  
*Jawab dengan menghitamkan ruang yang betul pada kertas jawapan objektif.*
4. Blacken only **one** space for each question.  
*Hitamkan satu ruang sahaja bagi setiap soalan.*
5. If you wish to change your answer, erase the blackened mark that you have made.  
Then blacken the space for the new answer.  
*Sekiranya anda hendak menukar jawapan, padamkan tanda yang telah dibuat.  
Kemudian hitamkan jawapan yang baru.*
6. The diagrams in the questions provided are not drawn to scale unless stated.  
*Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
7. You may use a non-programmable scientific calculator.  
*Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogram*

1. Diagram 1 shows an animal cell.  
*Rajah 1 menunjukkan satu sel haiwan.*

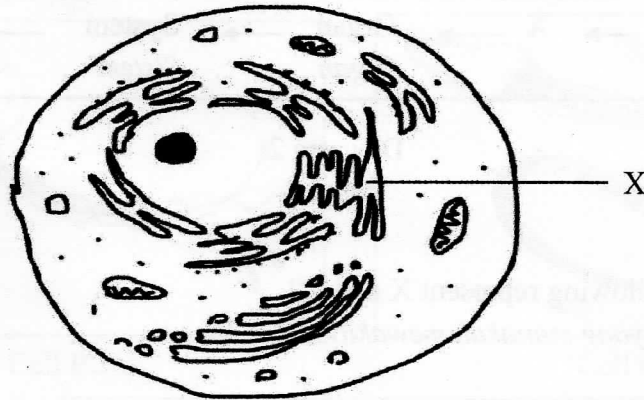


Diagram 1  
*Rajah 1*

What is organelle X?  
*Apakah organel X?*

- A Mitochondria  
*Mitokondria*
- B Golgi apparatus  
*Jasad Golgi*
- C Smooth endoplasmic reticulum  
*Retikulum endoplasma licin*
- D Rough endoplasmic reticulum  
*Retikulum endoplasma kasar*

2. Diagram 2 shows the cell organisation in a multicellular organism.  
*Rajah 2 menunjukkan organisasi sel dalam organisma multisel.*

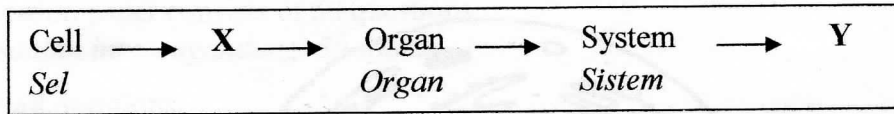
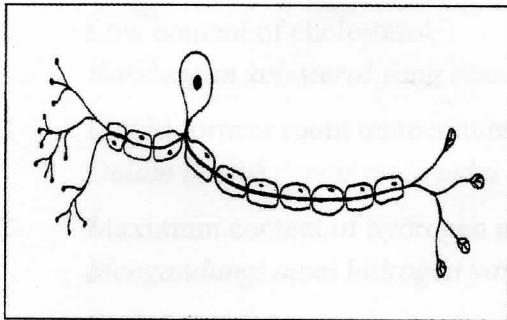


Diagram 2  
*Rajah 2*

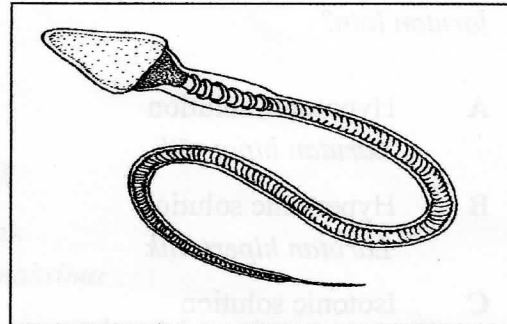
Which of the following represent X and Y?  
*Antara berikut, yang manakah mewakili X dan Y?*

	X	Y
<b>A</b>	Tissue <i>Tisu</i>	System <i>Sistem</i>
<b>B</b>	Tissue <i>Tisu</i>	Organism <i>Organisma</i>
<b>C</b>	System <i>Sistem</i>	Tissue <i>Tisu</i>
<b>D</b>	System <i>Sistem</i>	Organism <i>Organisma</i>

3. Diagram 3 shows two types of cell in human body.  
*Rajah 3 menunjukkan dua jenis sel dalam badan manusia.*



Cell P  
*Sel P*



Cell Q  
*Sel Q*

Diagram 3  
*Rajah 3*

Match the cells with its correct system.

*Padankan sel-sel tersebut dengan sistem yang betul.*

	Cell P <i>Sel P</i>	Cell Q <i>Sel Q</i>
A	Reproductive system <i>Sistem pembiakan</i>	Nervous system <i>Sistem saraf</i>
B	Nervous system <i>Sistem saraf</i>	Circulatory system <i>Sistem peredaran</i>
C	Circulatory system <i>Sistem peredaran</i>	Reproductive system <i>Sistem pembiakan</i>
D	Nervous system <i>Sistem saraf</i>	Reproductive system <i>Sistem pembiakan</i>

4. What is the condition of the solution that has higher concentration of water compared to other solution?

*Apakah keadaan larutan yang mempunyai kepekatan air yang lebih tinggi berbanding larutan lain?*

- A Hypotonic solution  
*Larutan hipotonik*
- B Hypertonic solution  
*Larutan hipertonik*
- C Isotonic solution  
*Larutan isotonik*
- D Concentrated solution  
*Larutan pekat*
5. Diagram 4 shows the movement of molecule X across the plasma membrane through process Y.

*Rajah 4 menunjukkan pergerakan molekul X merentasi membran plasma melalui proses Y.*

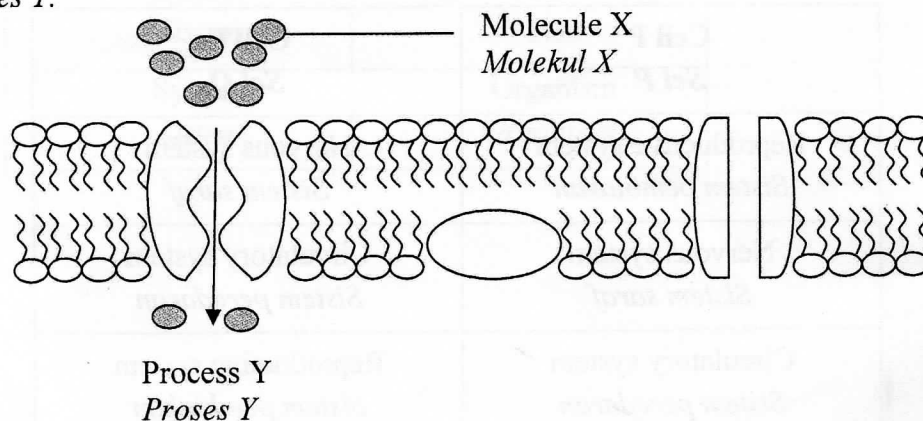


Diagram 4  
*Rajah 4*

What is process Y?

*Apakah proses Y?*

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

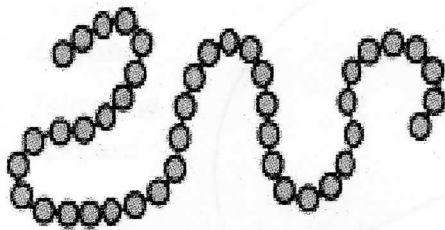
6. Which of the following is true about saturated fats?  
*Penyataan yang manakah betul tentang lemak tepu?*

- A Low content of cholesterol  
*Kandungan kolesterol yang rendah*
- B Liquid form at room temperature  
*Dalam bentuk cecair pada suhu bilik*
- C Maximum content of hydrogen atoms  
*Mengandungi atom hidrogen yang maksima*
- D Contains at least one double bond between the carbon atoms  
*Mengandungi sekurang-kurangnya satu ikatan ganda dua antara atom karbon*

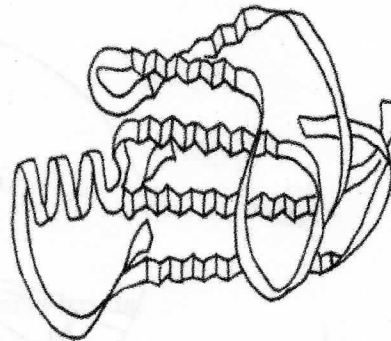
7. Haemoglobin is an example of a protein.  
Which of the following structure refers to haemoglobin?

*Hemoglobin adalah contoh sejenis protein.*  
*Manakah antara berikut merujuk kepada struktur hemoglobin?*

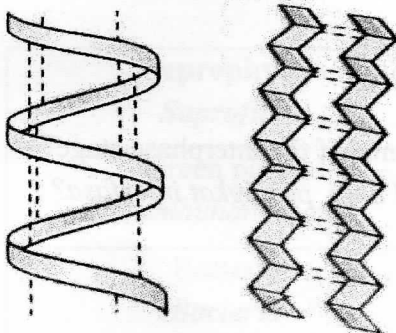
A



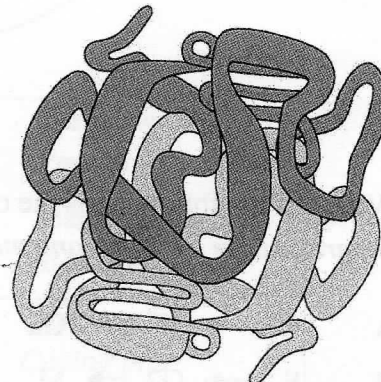
C



B



D



8. Diagram 5 shows the molecule of an enzyme and a substrate.  
*Rajah 5 menunjukkan satu molekul enzim dan substrat.*

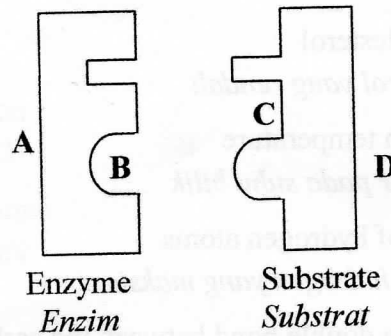


Diagram 5  
*Rajah 5*

Which part labelled **A**, **B**, **C** or **D** is the active site?  
*Antara bahagian berlabel **A**, **B**, **C** atau **D** yang manakah merupakan tapak aktif?*

9. Diagram 6 shows the phases of a cell cycle in an organism.  
*Rajah 6 menunjukkan fasa-fasa kitar sel dalam satu organisma.*

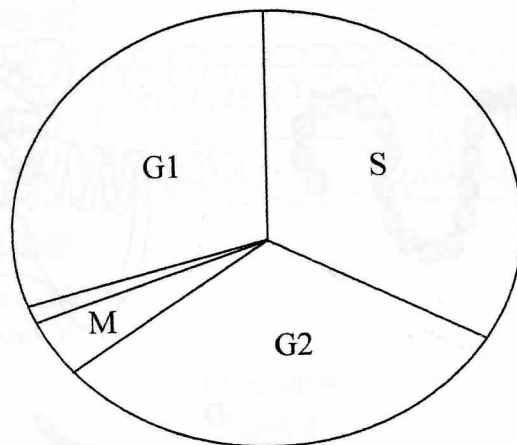


Diagram 6  
*Rajah 6*

Which of the following is the correct sequence of the interphase stage?  
*Antara urutan berikut, yang manakah betul bagi peringkat interfasa?*

- A G1 → S → G2  
 B S → G2 → M  
 C G2 → M → G1  
 D M → G1 → S



10. Diagram 7 shows a phase of mitosis in an animal cell.  
*Rajah 7 menunjukkan satu fasa mitosis dalam sel haiwan.*

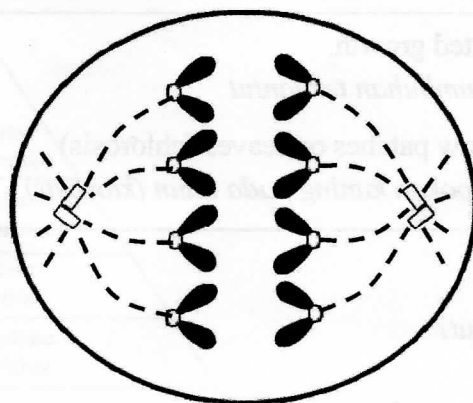


Diagram 7  
*Rajah 7*

What is the phase?  
*Apakah fasa itu?*

- A Prophase  
*Profasa*
- B Metaphase  
*Metafasa*
- C Anaphase  
*Anafasa*
- D Telophase  
*Telofasa*
11. Living organism can be classified based on nutritional habits.  
 Which of the following are correct?  
*Organisma hidup boleh dikelas berdasarkan jenis nutrisi.*  
*Antara berikut yang manakah betul?*

	<b>Saprophytic</b> <i>Saprofitik</i>	<b>Parasitic</b> <i>Parasitik</i>
A	Green plants <i>Tumbuhan hijau</i>	Bacteria <i>Bakteria</i>
B	Bacteria <i>Bakteria</i>	Tape worm <i>Cacing pita</i>
C	Tape worm <i>Cacing pita</i>	Lice <i>Kutu</i>
D	Bacteria <i>Bakteria</i>	Green plants <i>Tumbuhan hijau</i>

12. The following statements are the effects of mineral deficiency in a plant.  
*Penyataan berikut adalah kesan-kesan kekurangan mineral pada tumbuhan.*

- |  |
|--|
| <ul style="list-style-type: none"> <li>• Stunted growth.<br/><i>Pertumbuhan terbantut</i></li> <li>• Yellow patches on leaves (chlorosis)<br/><i>Tompokan kuning pada daun (klorosis)</i></li> </ul> |
|--|

What is the mineral?  
*Apakah mineral tersebut?*

- |                             |                                 |
|-----------------------------|---------------------------------|
| A Calcium<br><i>Kalsium</i> | C Phosphorus<br><i>Fosforus</i> |
| B Zinc<br><i>Zink</i>       | D Nitrogen<br><i>Nitrogen</i>   |

13. Table 1 shows the data of an experiment to determine the content of vitamin C in pineapple juice.  
*Jadual 1 menunjukkan data daripada satu eksperimen untuk menentukan kandungan vitamin C dalam jus buah nenas.*

Sample <i>Sampel</i>	Volume of sample needed to decolourise 1ml DCPIP solution (ml) <i>Isipadu sampel yang diperlukan untuk melunturkan warna 1 ml larutan DCPIP (ml)</i>		
	1	2	3
0.1% ascorbic acid <i>Asid askorbik 0.1%</i>	1.0	1.0	1.0
Pineapple juice <i>Jus nenas</i>	2.5	2.7	2.6

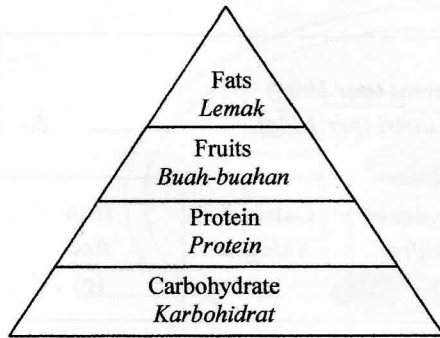
Table 1  
*Jadual 1*

Calculate the concentration of vitamin C in the pineapple juice?  
*Kirakan kepekatan vitamin C dalam jus nenas?*

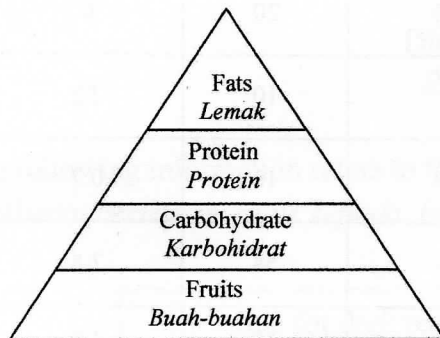
- |                |                |
|----------------|----------------|
| A 0.26 mg / ml | C 0.38 mg / ml |
| B 2.60 mg / ml | D 3.80 mg / ml |

14. Which of the following food pyramid fulfil the need of an athlete?  
 Antara piramid makanan berikut, yang manakah memenuhi keperluan seorang atlit?

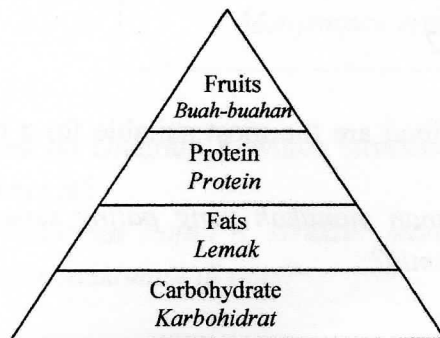
A



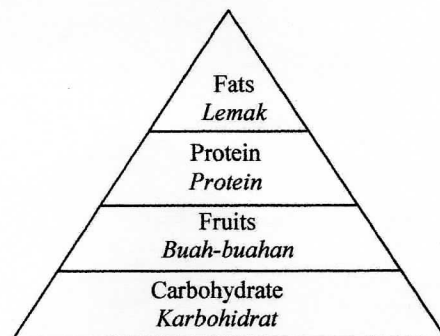
B



C



D



15. Table 2 shows the nutrient content for every 100g in different types of food.  
*Jadual 2 menunjukkan kandungan nutrisi bagi setiap 100g jenis makanan yang berbeza.*

Types of food <i>Jenis makanan</i>	Nutrient content (per 100g) <i>Kandungan nutrisi (per 100g)</i>				
	Protein <i>Protein</i> (g)	Lipid <i>Lipid</i> (g)	Carbohydrate <i>Karbohidrat</i> (g)	Calcium <i>Kalsium</i> (g)	Iron <i>Besi</i> (g)
Soya bean <i>Kacang soya</i>	35	18	12	250	7
Maize <i>Jagung</i>	10	4.5	70	20	4
Liver <i>Hati</i>	18	5	0	10	12
Potato <i>Kentang</i>	2	0	19	11	0.7
Egg <i>Telur</i>	13	11	0	54	2.8
Yam <i>Keladi</i>	2	0	25	15	1.0

Table 2  
*Jadual 2*

Based on Table 2, which combination of food are the most suitable for a child who suffers from rickets and anaemia?

*Berdasarkan Jadual 2, kombinasi makanan manakah yang paling sesuai untuk kanak-kanak yang mengalami ricket dan anemia?*

- A Liver, potato and egg  
*Hati, ubi kentang dan telur*
- B Soya bean, liver and egg  
*Kacang soya, hati dan telur*
- C Maize, potato and yam  
*Jagung, ubi kentang dan keladi*
- D Maize, yam and soya bean  
*Jagung, keladi dan kacang soya*

16. Diagram 8 shows structure of a chloroplast.  
Rajah 8 menunjukkan struktur satu kloroplas.

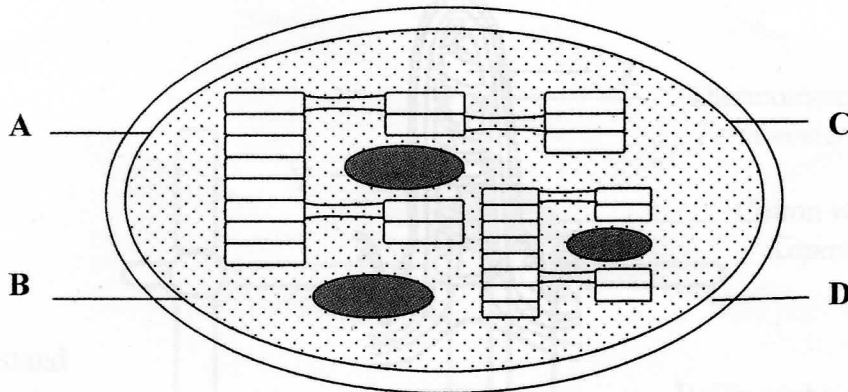


Diagram 8  
Rajah 8

The following information refers to the function of a structure in the chloroplast.  
Maklumat berikut merujuk kepada fungsi satu struktur di dalam kloroplas.

- Site for dark reaction  
*Tapak berlakunya tindakbalas gelap*
- Stores photosynthetic enzymes  
*Menyimpan enzim fotosintetik*

Based on Diagram 8, which structures labelled **A**, **B**, **C**, or **D** is related to the above statement?

Berdasarkan Rajah 8, struktur manakah yang berlabel **A**, **B**, **C**, atau **D** berkaitan dengan maklumat di atas?

17. Digram 9 shows structures X and Y in the villus.  
*Rajah 9 menunjukkan struktur X dan Y dalam vilus.*

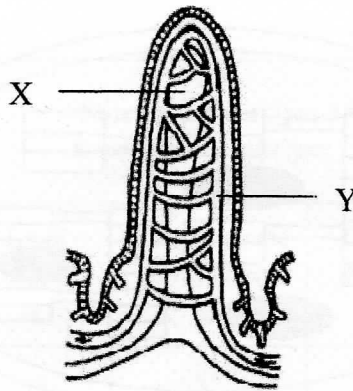
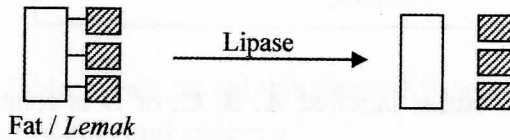
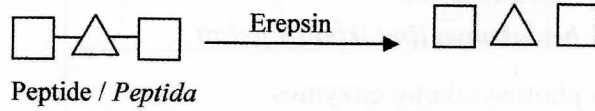
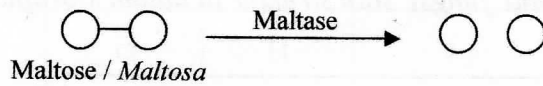


Diagram 9  
*Rajah 9*

Hydrolysis of the food classes are represented by the symbols below:  
*Hidrolisis contoh kelas-kelas makanan di wakili dengan simbol di bawah:*



Which of the following products will be absorbed into structure X and Y?  
*Antara hasil berikut, yang manakah akan diserap ke dalam struktur X dan Y?*

	Structure / <i>Struktur</i> X	Structure / <i>Struktur</i> Y
A		
B		
C		
D		

18. Diagram 10 shows the apparatus set up to determine the energy value in a peanut.  
*Rajah 10 menunjukkan susunan radas untuk menentukan nilai tenaga dalam sebiji kacang tanah.*

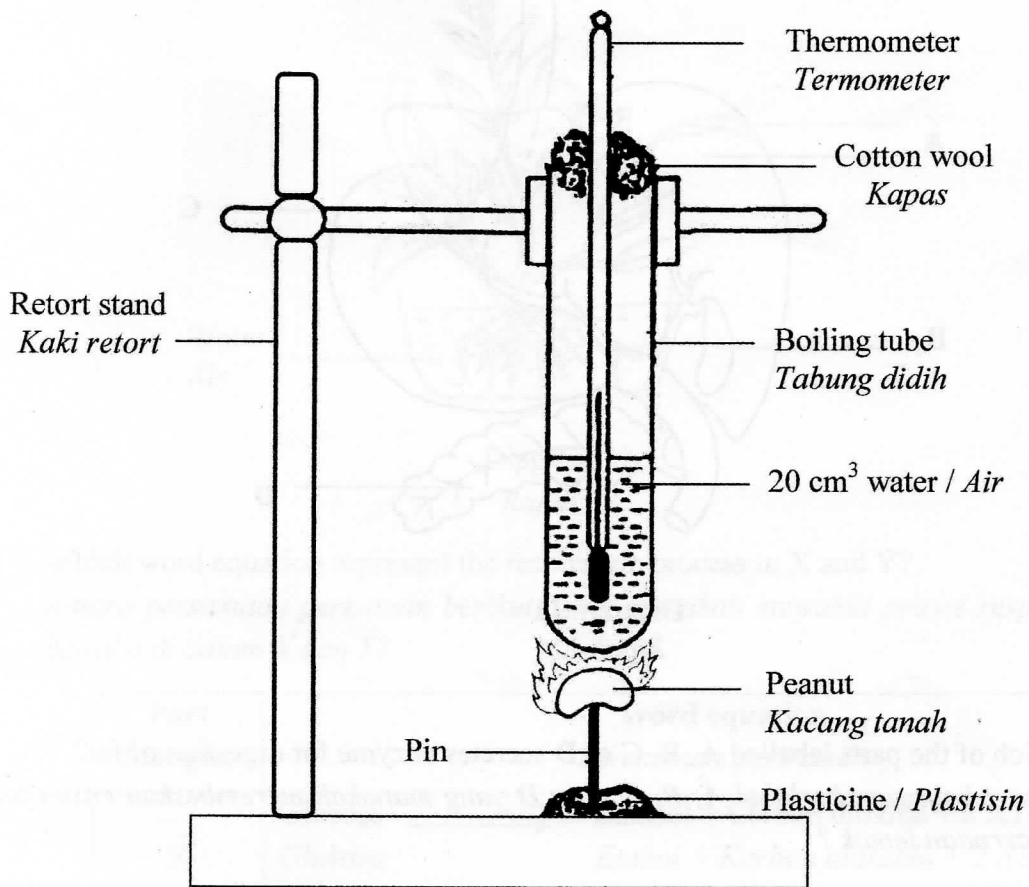


Diagram 10  
*Rajah 10*

What is the purpose of using thermometer in this experiment?  
*Apakah tujuan menggunakan termometer dalam eksperimen ini?*

- A To stabilize water temperature  
*Untuk menstabilkan suhu air*
- B To measure the change of water temperature  
*Untuk mengukur perubahan suhu air*
- C To measure the temperature of peanut  
*Untuk mengukur suhu kacang tanah*
- D To measure the temperature of the boiling tube  
*Untuk mengukur suhu tabung didih*

19. Diagram 11 shows a section of human digestive system.  
*Rajah 11 menunjukkan sebahagian daripada sistem pencernaan manusia.*

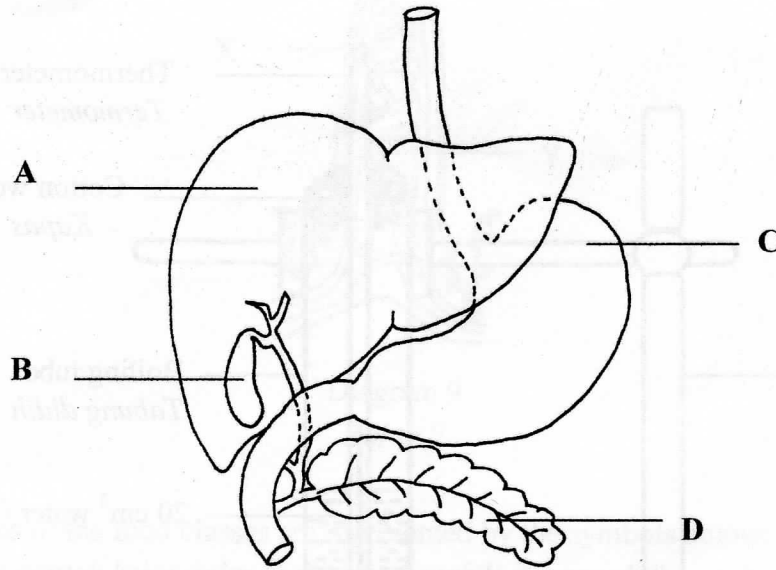


Diagram 11  
*Rajah 11*

Which of the parts labelled **A**, **B**, **C** or **D** secretes enzyme for digestion of fat?  
*Antara bahagian berlabel **A**, **B**, **C** atau **D** yang manakah merembeskan enzim untuk pencernaan lemak ?*



20. Diagram 12 shows a plant that grows in a pot filled with water.  
*Rajah 12 menunjukkan satu tumbuhan yang hidup di dalam sebuah pasu yang berisi air.*

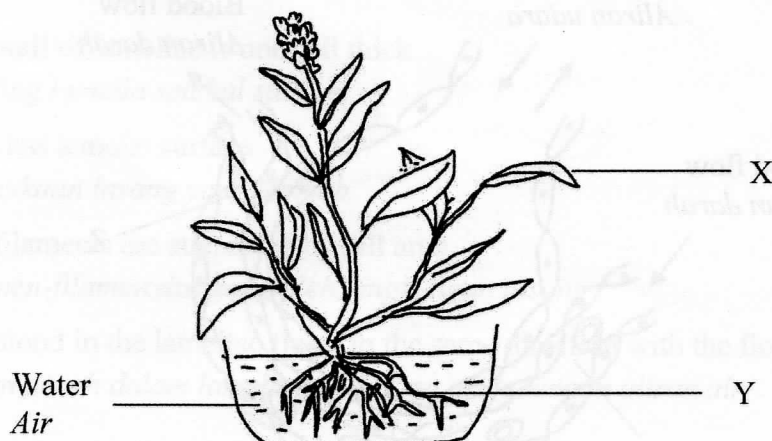


Diagram 12  
*Rajah 12*

Which word equation represent the respiration process in X and Y?  
*Antara persamaan perkataan berikut, yang manakah mewakili proses respirasi yang berlaku di dalam X dan Y?*

Part <i>Bahagian</i>	Word equation <i>Persamaan perkataan</i>
A	X Glucose → Ethanol + Carbon dioxide + 2 ATP <i>Glukosa → Etanol + Karbon dioksida + 2 ATP</i>
	Y Glucose + Oxygen → Carbon dioxide + water + 36 ATP <i>Glukosa + Oksigen → Karbon dioksida + Air + 36 ATP</i>
B	X Glucose → Lactic acid + 2 ATP <i>Glukosa → Asid laktik + 2 ATP</i>
	Y Glucose + Oxygen → Carbon dioxide + water + 36 ATP <i>Glukosa + Oksigen → Karbon dioksida + Air + 36 ATP</i>
C	X Glucose + Oxygen → Carbon dioxide + water + 36 ATP <i>Glukosa + Oksigen → Karbon dioksida + Air + 36 ATP</i>
	Y Glucose → Ethanol + Carbon dioxide + 2 ATP <i>Glukosa → Etanol + Karbon dioksida + 2 ATP</i>
D	X Glucose + Oxygen → Carbon dioxide + water + 36 ATP <i>Glukosa + Oksigen → Karbon dioksida + Air + 36 ATP</i>
	Y Glucose → Lactic acid + 2 ATP <i>Glukosa → Asid laktik + 2 ATP</i>

21. Diagram 13 shows a longitudinal section of an alveolus and a blood capillary.  
Rajah 13 menunjukkan keratan memanjang alveolus dan kapilari darah.

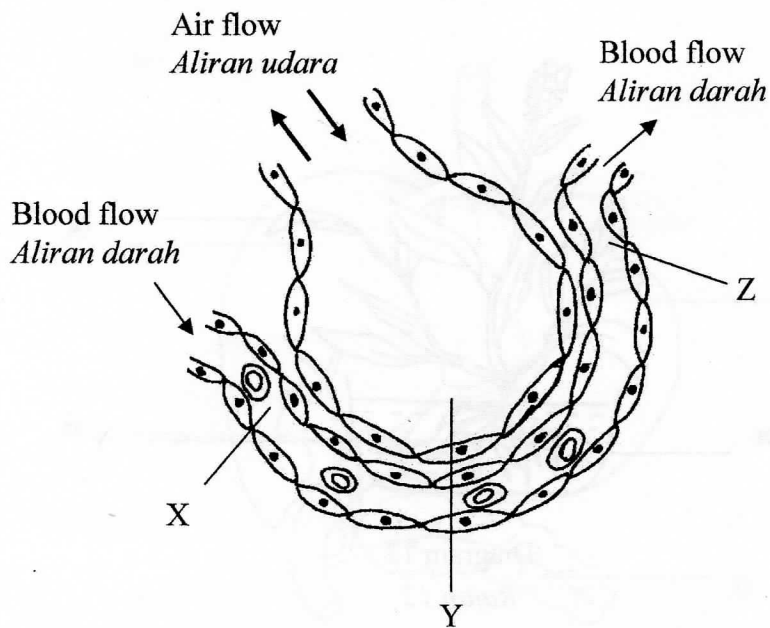


Diagram 13  
Rajah 13

What is the concentration of oxygen at X, Y and Z?  
Apakah kepekatan oksigen pada X, Y dan Z?

	X	Y	Z
A	Low <i>Rendah</i>	Low <i>Rendah</i>	High <i>Tinggi</i>
B	Low <i>Rendah</i>	High <i>Tinggi</i>	High <i>Tinggi</i>
C	Low <i>Rendah</i>	High <i>Tinggi</i>	Low <i>Rendah</i>
D	High <i>Tinggi</i>	Low <i>Rendah</i>	Low <i>Rendah</i>

22. Which of the following adaptation can increase the rate of gaseous exchange in gills?  
Antara penyesuaian berikut, yang manakah boleh meningkatkan kadar pertukaran gas di dalam insang?

- A The wall of lamellae is one cell thick  
*Dinding lamella setebal satu sel*
- B Gills has a moist surface  
*Permukaan insang yang lembab*
- C The filaments are supported by gill arch  
*Filamen-filamen disokong oleh lengkungan insang*
- D The blood in the lamellae flows in the same direction with the flow of water  
*Aliran darah dalam lamella yang sama arah dengan aliran air*

23. Which of the following substances in cigarettes smoke can corrodes the wall of alveolus?  
Antara bahan-bahan di dalam asap rokok berikut, yang manakah boleh mengkakis dinding alveolus?

- A Tar  
*Tar*
- B Benzene  
*Benzena*
- C Nitrogen dioxide  
*Nitrogen dioksida*
- D Carbon monoxide  
*Karbon monoksida*

24. A group of students carried out an investigation to estimate the population of woodlice in their school garden.

*Sekumpulan pelajar telah menjalankan satu penyiasatan untuk menganggar saiz populasi kutu kayu di taman sekolah mereka.*

Table 3 shows the data obtained from the investigation.

*Jadual 3 menunjukkan data yang diperolehi daripada penyiasatan tersebut.*

Capture <i>Tangkapan</i>	First capture <i>Tangkapan pertama</i>	Second capture <i>Tangkapan kedua</i>	
		Marked <i>Bertanda</i>	Unmarked <i>Tidak bertanda</i>
Number of wood lice <i>Bilangan kutu kayu</i>	296	98	202

Table 3

*Jadual 3*

Calculate the size population of the woodlice.

*Hitungkan saiz populasi bagi kutu kayu tersebut.*

- A 609  
B 906  
C 970  
D 980
25. Diagram 14 shows some organisms in an ecosystem.  
*Rajah 14 menunjukkan beberapa organisma dalam suatu ekosistem.*

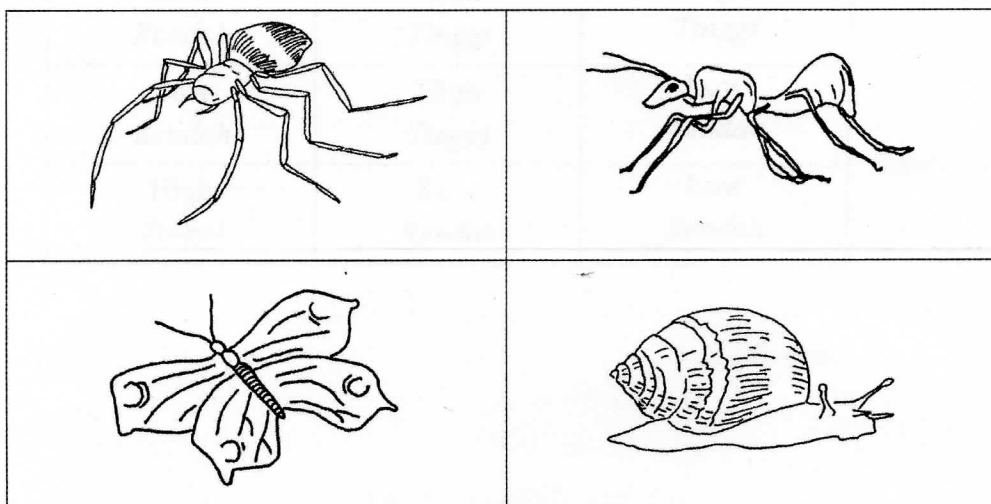


Diagram 14

*Rajah 14*

Which of these classifications refer to the organisms in Diagram 14?

Antara pengelasan berikut, yang manakah mewakili organisma dalam Rajah 14?

A	1	With wings / <i>Ada sayap</i> Without wings / <i>Tiada sayap</i>	refer to / <i>rujuk 2</i> refer to / <i>rujuk 3</i>
	2	With eyes / <i>Ada mata</i> Without eyes / <i>Tiada mata</i>	Butterfly / <i>Rama-rama</i> Spider / <i>Labah-labah</i>
	3	With a shell / <i>Ada cangkerang</i> Without a shell / <i>Tiada cangkerang</i>	Snail / <i>Siput</i> Ant / <i>Semut</i>

B	1	With eyes / <i>Ada mata</i> Without eyes / <i>Tiada mata</i>	refer to / <i>rujuk 2</i> refer to / <i>rujuk 3</i>
	2	With three pairs of legs / <i>Ada 3 pasang kaki</i> With more than three pairs of legs / <i>Ada lebih 3 pasang kaki</i>	Ant / <i>Semut</i> Spider / <i>Labah-labah</i>
	3	With a shell / <i>Ada cangkerang</i> Without a shell / <i>Tiada cangkerang</i>	Snail / <i>Siput</i> Butterfly / <i>Rama-rama</i>

C	1	With three body parts / <i>Ada 3 bahagian badan</i> Without three body parts / <i>Tiada 3 bahagian badan</i>	refer to / <i>rujuk 2</i> refer to / <i>rujuk 3</i>
	2	With wings / <i>Ada sayap</i> Without wings / <i>Tiada sayap</i>	Butterfly / <i>rama-rama</i> Ant / <i>Semut</i>
	3	With a shell / <i>Ada cangkerang</i> Without a a shell / <i>Tiada cangkerang</i>	Snail / <i>Siput</i> Spider / <i>Labah-labah</i>

D	1	With eyes / <i>Ada mata</i> Without eyes / <i>Tiada mata</i>	refer to / <i>rujuk 2</i> refer to / <i>rujuk 3</i>
	2	With three pairs of legs / <i>Ada 3 pasang kaki</i> With more than three pairs of legs / <i>Ada lebih 3 pasang kaki</i>	Ant / <i>Semut</i> Spider / <i>Labah-labah</i>
	3	With a shell / <i>Ada cangkerang</i> Without a shell / <i>Tiada cangkerang</i>	Snail / <i>Siput</i> Butterfly / <i>Rama-rama</i>

26. Diagram 15 shows a pyramid of numbers and trophic levels in a food chain.  
Rajah 15 menunjukkan piramid nombor dan aras trofik dalam satu rantaian makanan.

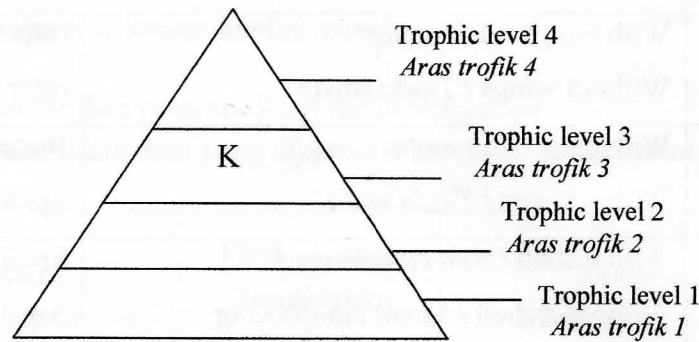


Diagram 15  
Rajah 15

What is K?  
Apakah K?

- A Producer  
*Pengeluar*
- B Tertiary consumer  
*Pengguna tertier*
- C Primary consumer  
*Pengguna primer*
- D Secondary consumer  
*Pengguna sekunder*
27. Diagram 16 shows an interaction between Remora fish and shark.  
Rajah 16 menunjukkan interaksi antara ikan Remora dengan ikan yu.

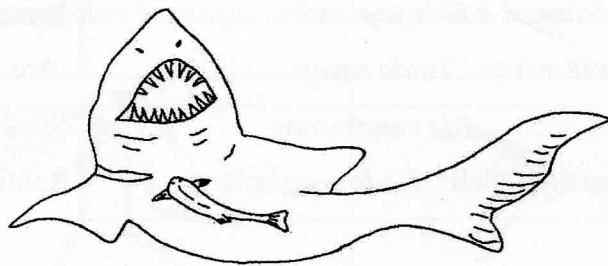


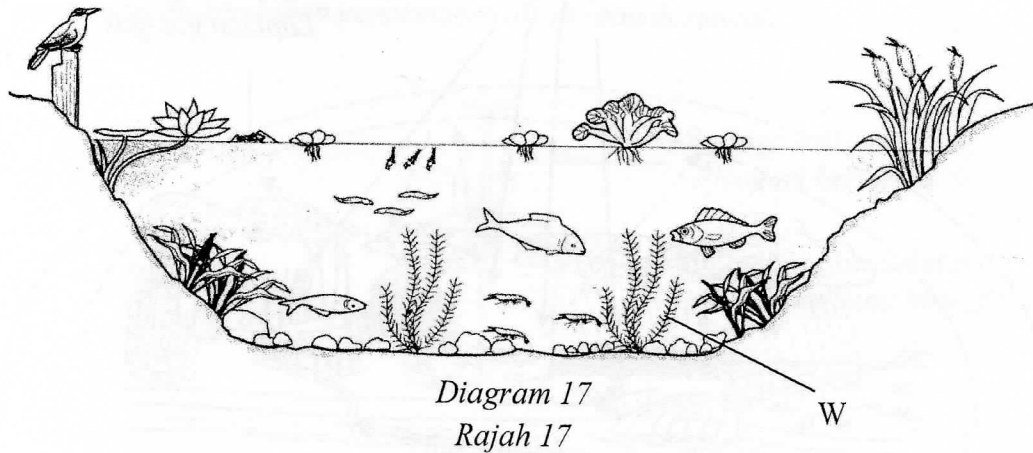
Diagram 16  
Rajah 16

What is the interaction?  
Apakah interaksi itu?

- A Parasitism  
*Parasitisma*
- B Commensalism  
*Komensalisma*
- C Mutualisme  
*Mutualisma*
- D Saprophytism  
*Saprofitisma*

28. Diagram 17 shows a pond ecosystem.

*Rajah 17 menunjukkan satu ekosistem kolam.*



Which of the following organism is W?

*Antara organisma berikut, yang manakah W?*

- A *Fimbristylis sp*
  - B *Eichornia sp*
  - C *Hydrilla sp*
  - D *Nymphaea sp*
29. The following statement is about the effects of consumption polluted water.

*Penyataan dibawah adalah berkenaan kesan pengambilan air yang tercemar.*

In August 1997, about 30 people in Kajang Selangor were treated with kidney disease, suspected to be caused by drinking water supplied by Sungai Langat.  
*Pada Ogos 1997, kira-kira 30 orang di Kajang Selangor telah menerima rawatan akibat penyakit buah pinggang disyaki berpunca daripada air minuman yang dibekalkan dari Sungai Langat.*

Which of the following is the cause of the disease?

*Antara berikut, yang manakah punca penyakit tersebut?*

- A Virus  
*Virus*
- B Bacteria  
*Bakteria*
- C Heavy metal  
*Logam berat*
- D Nitrogenous waste  
*Bahan buangan bernitrogen*

30. Diagram 18 shows an environmental phenomenon.  
*Rajah 18 menunjukkan satu fenomena alam sekitar.*

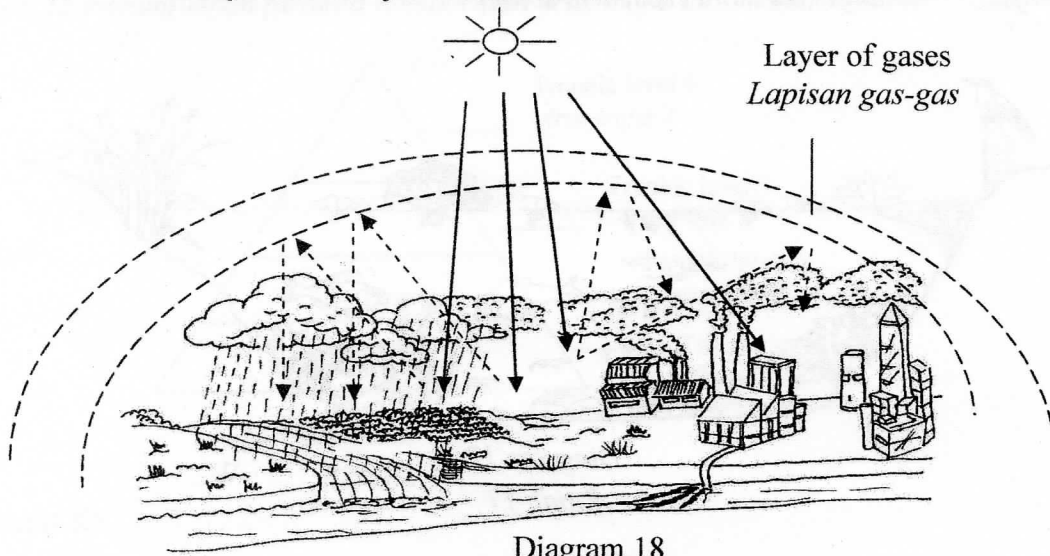
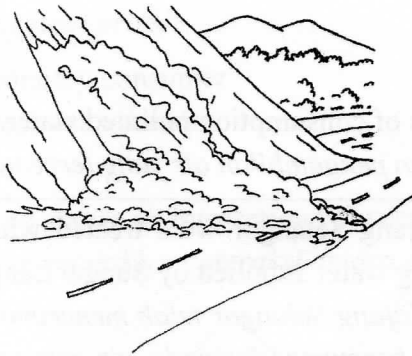


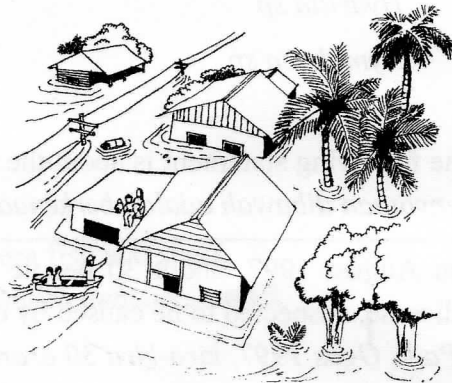
Diagram 18  
*Rajah 18*

Which of the following shows the effects of the phenomenon?  
*Antara berikut yang manakah menunjukkan kesan fenomena tersebut ?*

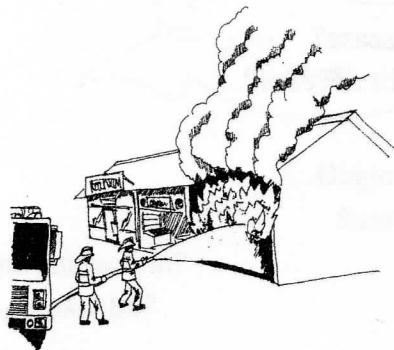
A



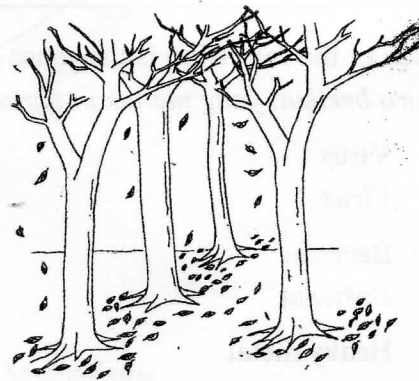
B



C



D





31. Diagram 19 shows the apparatus and materials set up in an experiment to determine the level of water pollution in a river.

*Rajah 19 menunjukkan susunan alat radas dan bahan-bahan dalam satu eksperimen untuk menentukan tahap pencemaran air di sebuah sungai.*

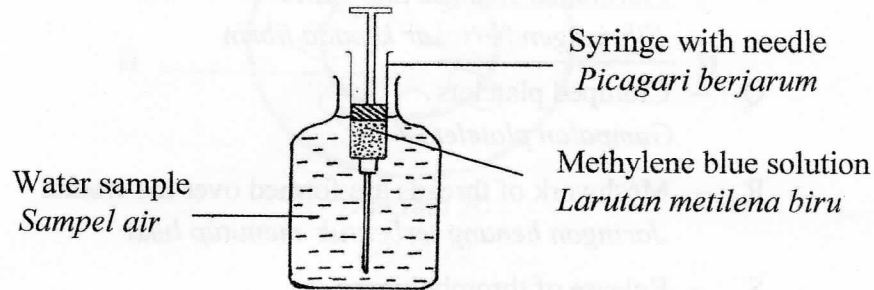


Diagram 19

*Rajah 19*

Why the tip of the needle should be at the base of the reagent bottle while adding methylene blue solution?

*Mengapakah hujung jarum perlu berada di dasar botol reagen semasa menambah larutan metilena biru?*

- A To avoid oxygen from dissolve into the water sample.  
*Mengelakkan oksigen daripada larut ke dalam sampel air.*
- B To make sure that methylene blue solution is equally distributed in the water sample.  
*Memastikan metilena biru tersebar dengan rata di dalam sampel air.*
- C To avoid photosynthesis by algae.  
*Mengelakkan fotosintesis oleh alga.*
- D To avoid carbon dioxide from dissolve into the water sample.  
*Mengelakkan karbon dioksida daripada larut di dalam sampel air.*

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

*Maklumat berikut merujuk kepada peringkat dalam mekanisma pembekuan darah pada manusia.*

- |   |  |
|---|--|
| P | - Fibrinogen changes into fibrin<br><i>Fibrinogen bertukar kepada fibrin</i>                     |
| Q | - Clumped platelets<br><i>Gumpalan platelet</i>  |
| R | - Meshwork of threads are formed over the wound<br><i>Jaringan benang terbentuk menutup luka</i> |
| S | - Release of thrombokinase<br><i>Pembebasan thrombokinase</i>                                    |
| T | - Prothrombin changes into thrombin<br><i>Prothrombin bertukar kepada thrombin</i>               |

Which sequence is correct?

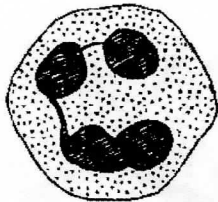
*Urutan manakah yang betul ?*

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

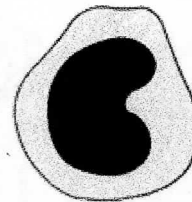
33. Which of the following blood cells represent monocytes?

*Antara sel-sel darah berikut, yang manakah mewakili monosit?*

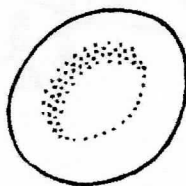
A



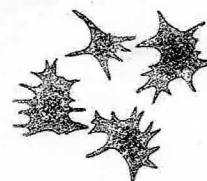
C



B



D



34. Diagram 20 shows a cross section of a dicotyledonous stem.  
*Rajah 20 menunjukkan keratan rentas bagi batang dikotiledon.*

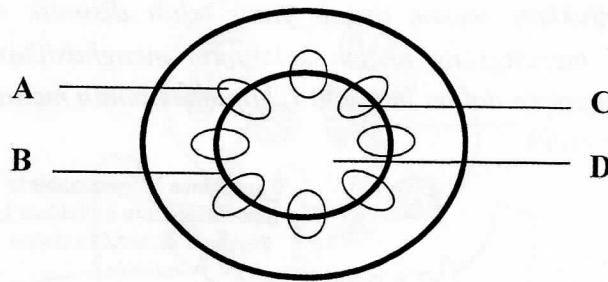


Diagram 20  
*Rajah 20*

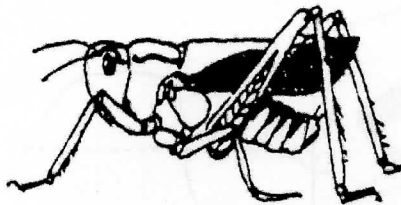
Which of the parts labelled, A, B, C or D is involved in the transport of water and mineral salt?

*Antara bahagian berlabel A, B, C atau D, yang manakah terlibat dalam pengangkutan air dan garam mineral?*

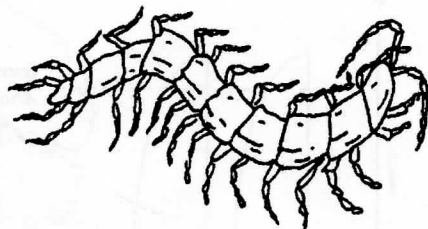
35. Which of the following organisms has a hydrostatic skeleton?

*Antara haiwan berikut yang manakah memiliki rangka hidrostatik?*

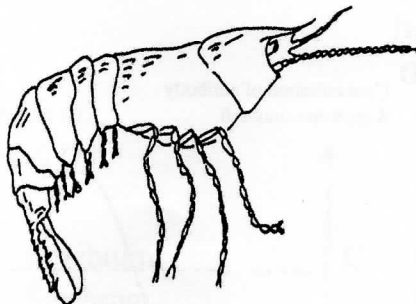
A



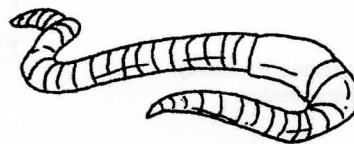
C



B

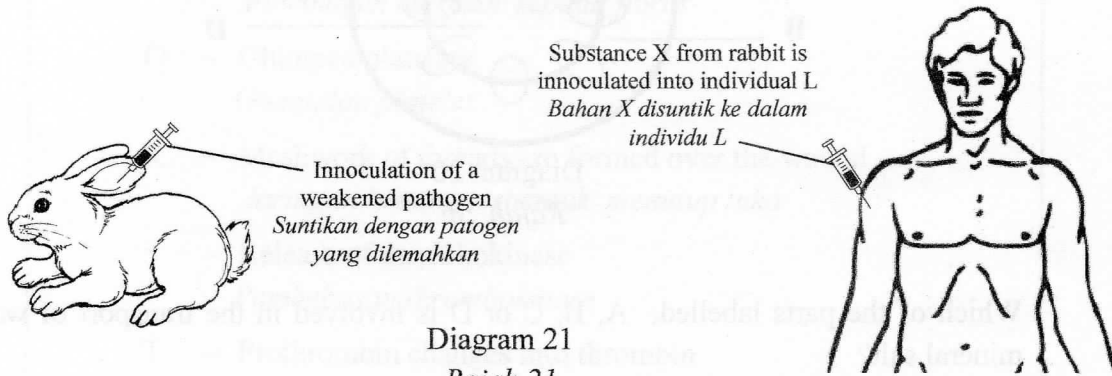


D



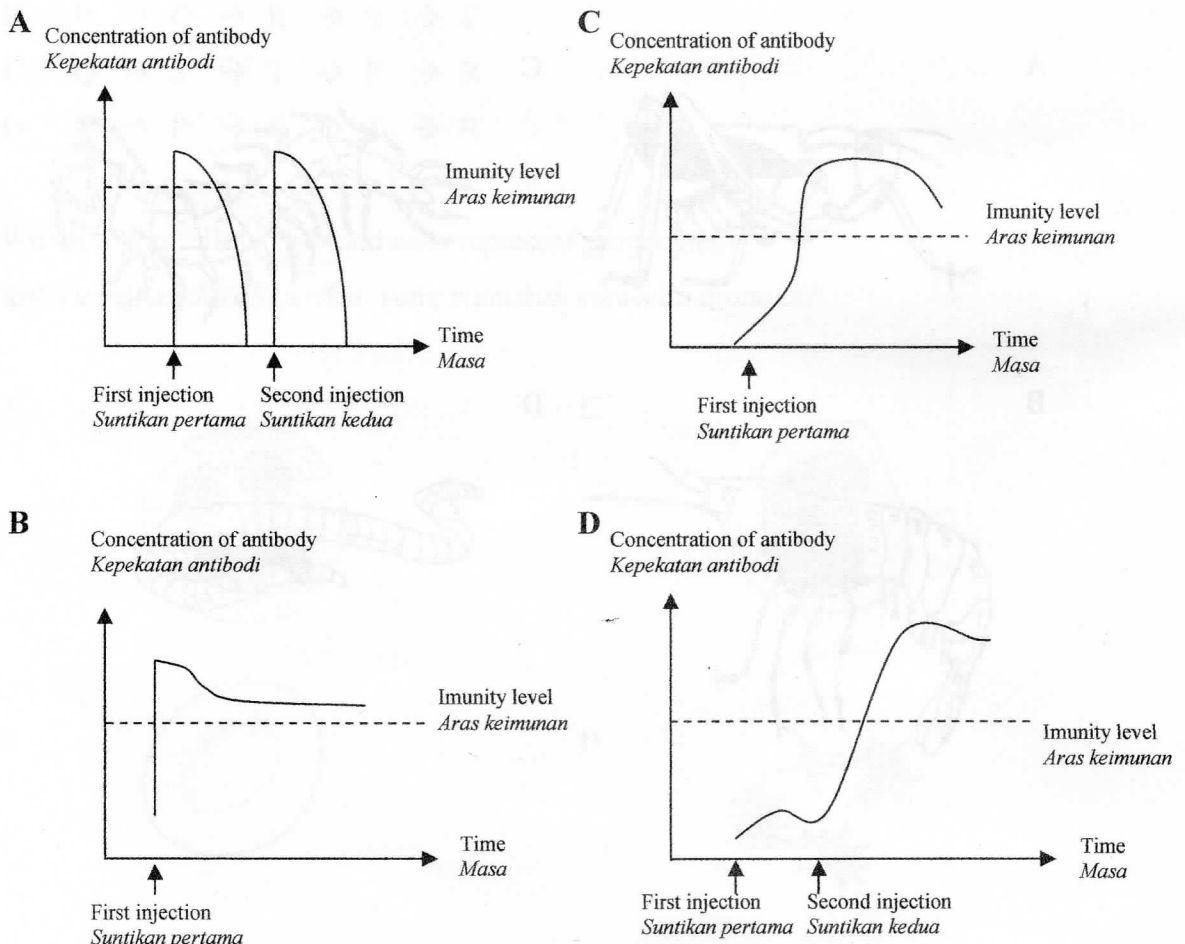
36. Diagram 21 shows a rabbit that had been inoculated with a weakened pathogen to induce the immune system to produce substance X. Substance X was then inoculated into individual L to help fight a disease.

Rajah 21 menunjukkan seekor arnab yang telah disuntik dengan patogen yang dilemahkan bagi merangsang sistem keimunan menghasilkan bahan X. Bahan X kemudiannya disuntik ke dalam individu L bagi membantu melawan penyakit.



Which of the following graphs represents the type of immunity acquired by individual L?

Antara graf berikut, yang manakah mewakili jenis keimunan yang diperolehi oleh individu L?



37. Diagram 22 shows a synapse.  
Rajah 22 menunjukkan satu sinaps.

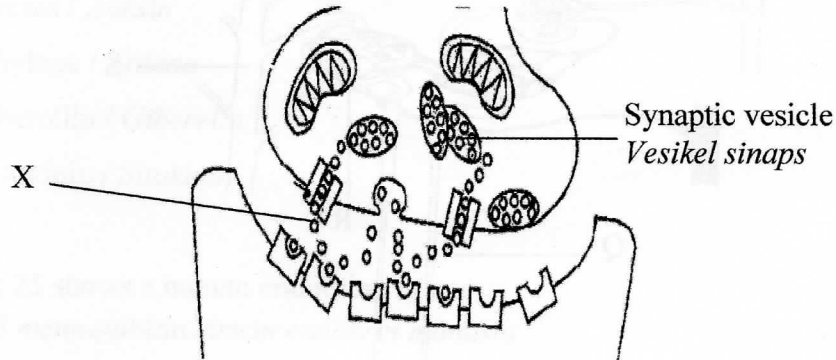


Diagram 22  
Rajah 22

What is substance X?  
Apakah bahan X?

- |                     |  |
|---------------------|--|
| A Enzyme<br>Enzim   | C Antibody<br>Antibodi                 |
| B Hormone<br>Hormon | D Neurotransmitter<br>Neurotransmitter |

38. Diagram 23 shows parts of human brain.  
Rajah 23 menunjukkan bahagian-bahagian otak manusia.

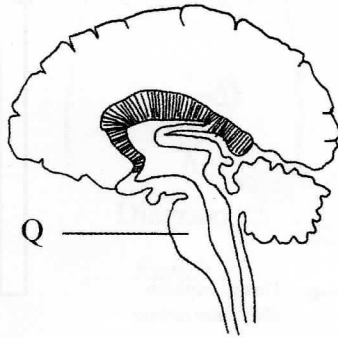


Diagram 23  
Rajah 23

What is Q?  
Apakah Q?

- |                           |   |
|---------------------------|---|
| A Cerebrum<br>Serebrum    | C Hypothalamus<br>Hipotalamus           |
| B Cerebellum<br>Serebelum | D Medulla oblongata<br>Medula oblongata |

39. Diagram 24 shows structures of a nephron in a healthy human kidney.  
 Rajah 24 menunjukkan struktur satu nefron dalam ginjal manusia yang sihat.

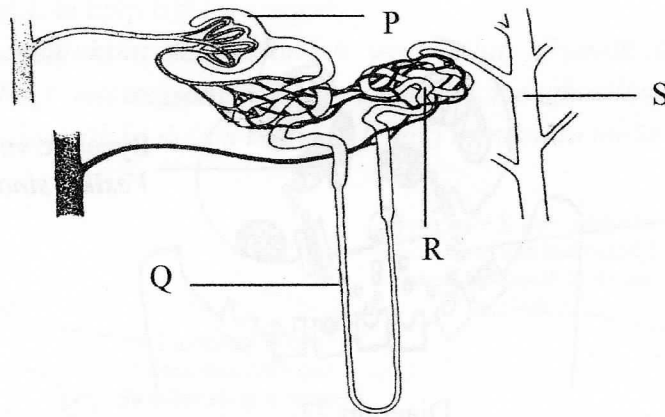
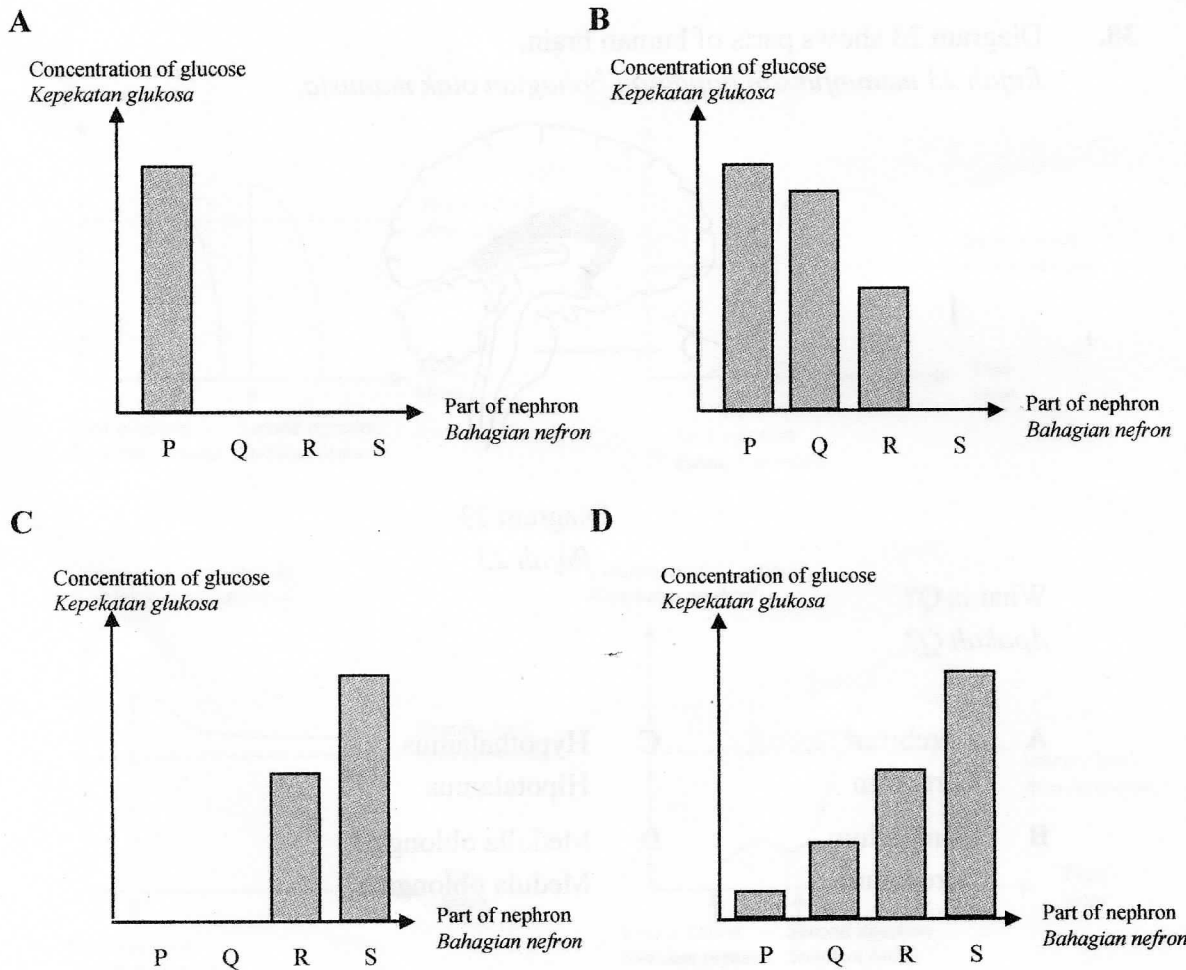


Diagram 24  
 Rajah 24

Which of the following bar chart represents the glucose concentration at the parts labelled P, Q, R and S?

Antara carta bar berikut, yang manakah mewakili kepekatan glukosa di bahagian berlabel P, Q, R atau S?



40. Which of the following hormones stimulates the ripening of mango?  
*Antara hormon berikut, yang manakah merangsang pemasakan buah mangga?*
- A Auxins / *Auksin*  
 B Ethylene / *Etilena*  
 C Gibberellin / *Giberelin*  
 D Cytokinin / *Sitokinin*
41. Diagram 25 shows a human endocrine system.  
*Rajah 25 menunjukkan sistem endokrin manusia*

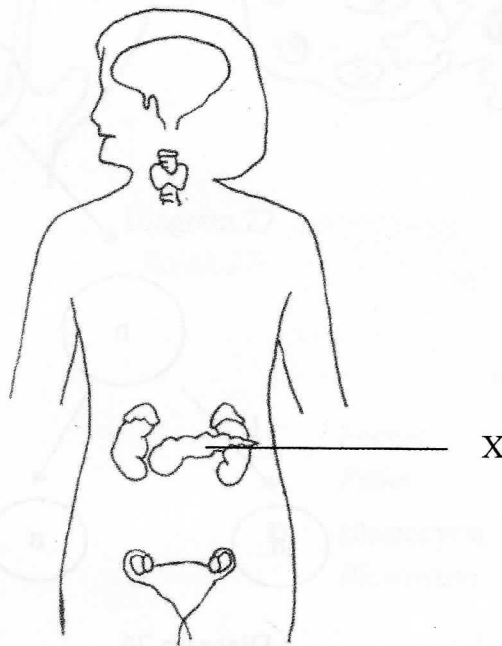


Diagram 25

*Rajah 25*

What will happen if organ X fails to function?  
*Apakah yang akan berlaku jika organ X gagal berfungsi?*

- A Rate of metabolism decreases.  
*Kadar metabolisme menurun.*
- B Body temperature increases.  
*Suhu badan meningkat.*
- C Volume of urine decreases.  
*Isipadu air kencing berkurang.*
- D Glycogen cannot be converted into glucose.  
*Glikogen tidak dapat ditukar kepada glukosa.*

42. Diagram 26 is a schematic diagram of gamete formation in human.  
*Rajah 26 ialah rajah skema yang menunjukkan pembentukan gamet pada manusia.*

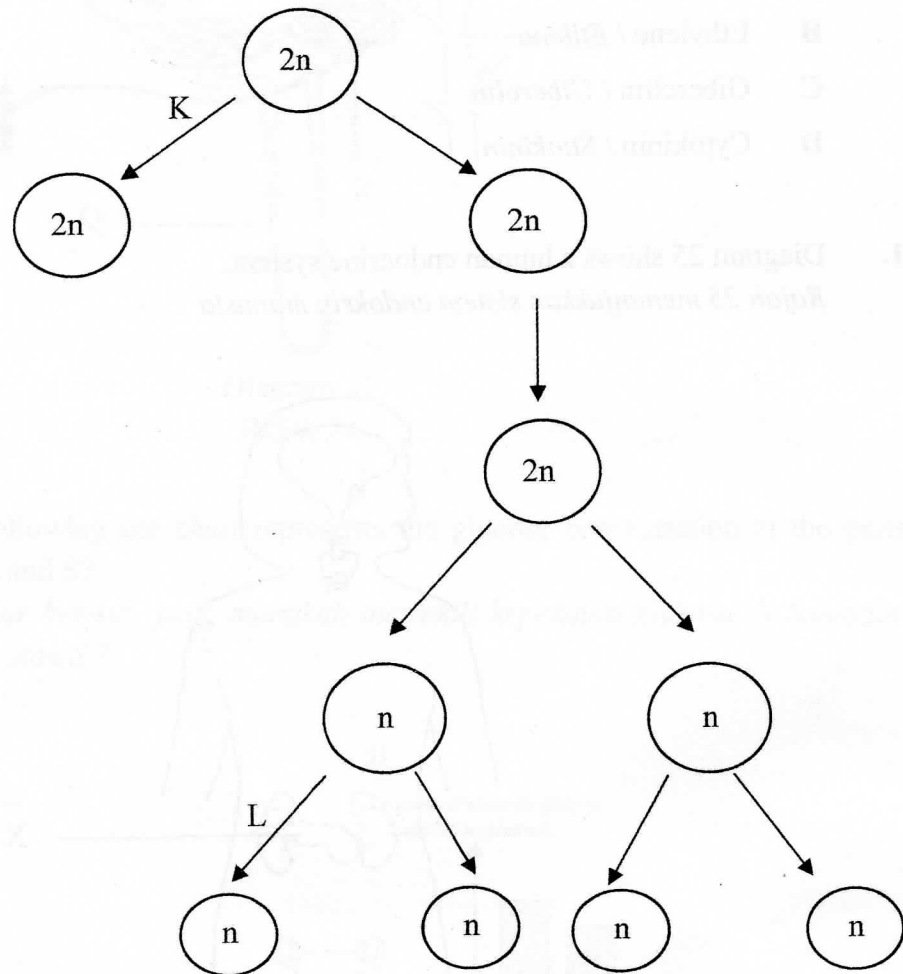


Diagram 26  
*Rajah 26*

What are process K and L?  
*Apakah proses K dan L?*

	<b>Process / Proses</b>	<b>Process / Proses</b>
	<b>K</b>	<b>L</b>
<b>A</b>	Mitosis	Meiosis I
<b>B</b>	Meiosis I	Mitosis
<b>C</b>	Mitosis	Meiosis II
<b>D</b>	Meiosis II	Mitosis



43. Diagram 27 shows the stages of development of embryo in female reproductive organs.

*Rajah 27 menunjukkan peringkat perkembangan embrio dalam organ pembiakan wanita.*

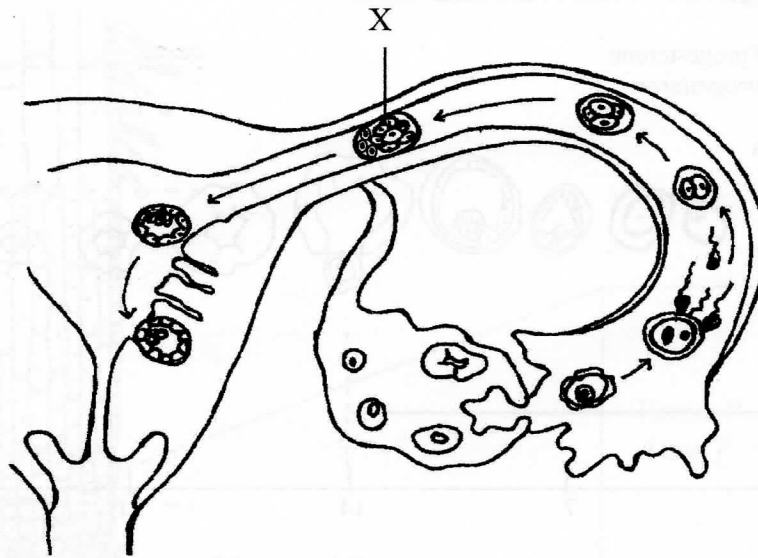


Diagram 27  
*Rajah 27*

What is structure X?

*Apakah struktur X?*

- |   |                         |   |                                  |
|---|-------------------------|---|----------------------------------|
| A | Zygote<br><i>Zigot</i>  | C | Foetus<br><i>Fetus</i>           |
| B | Morula<br><i>Morula</i> | D | Blastocyst<br><i>Blastosista</i> |

44. Diagram 28 shows development of follicles in the ovary and the level of progesterone in a menstrual cycle.  
*Rajah 28 menunjukkan perkembangan folikel di dalam ovari dan aras hormon progesteron dalam satu kitar haid.*

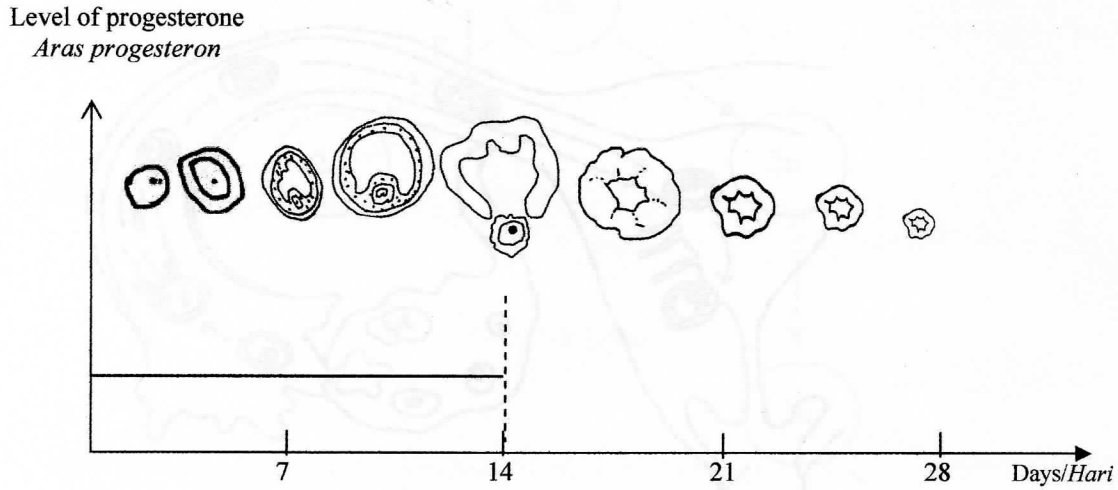
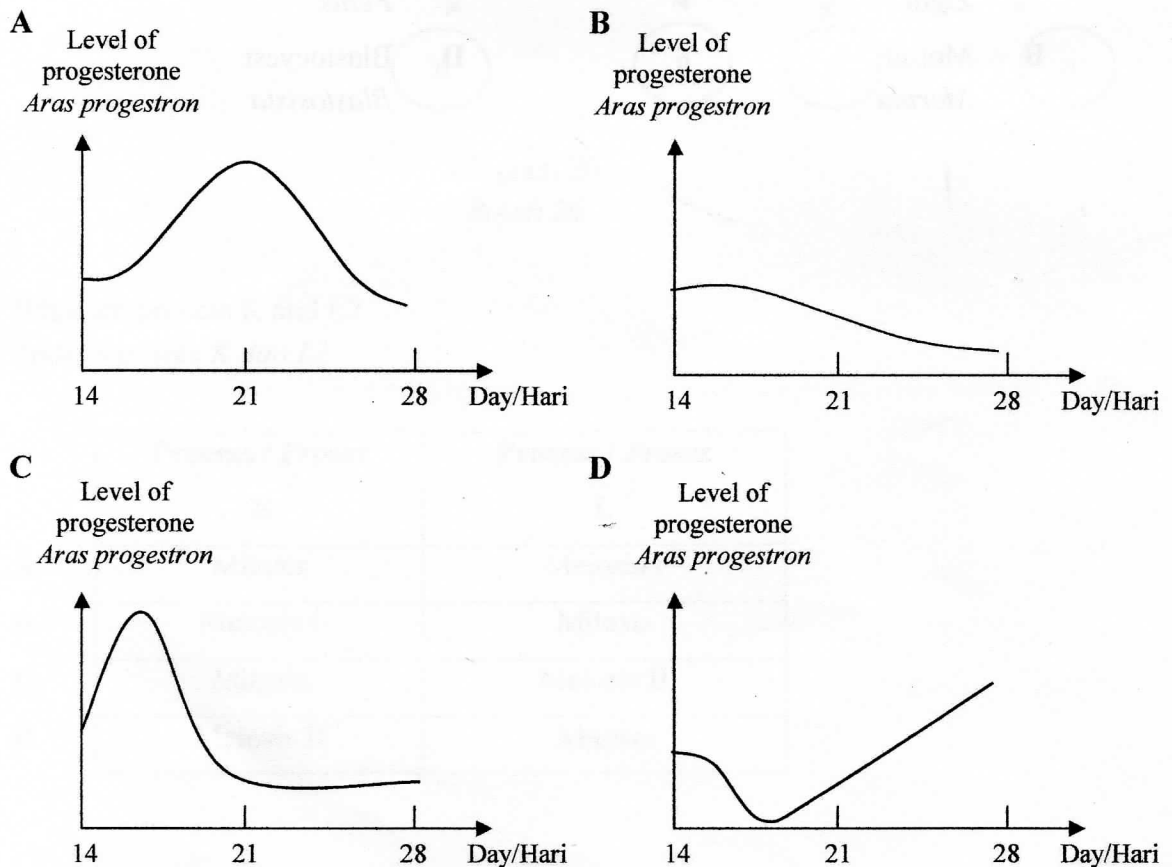


Diagram 28  
*Rajah 28*

Which of the following graph represents the level of progesterone after day 14th?  
*Antara graf berikut yang manakah mewakili aras progesteron selepas hari yang ke 14?*



45. Diagram 29 shows a longitudinal section of a plant root tip.  
*Rajah 29 menunjukkan keratan memanjang bahagian hujung akar tumbuhan.*

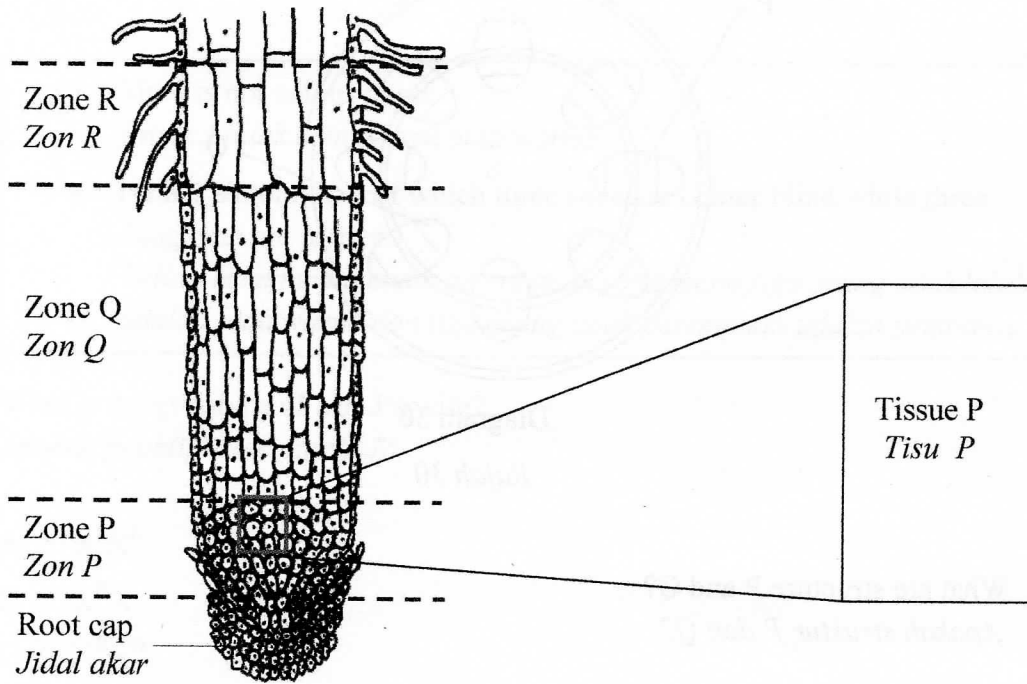
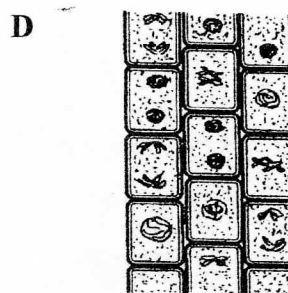
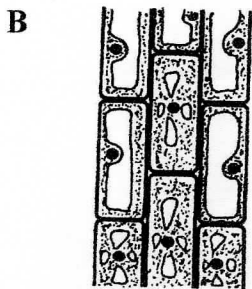
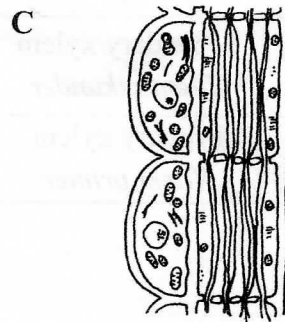
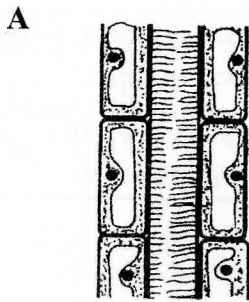


Diagram 29  
*Rajah 29*

Which of the following tissues represents P?  
*Antara tisu-tisu berikut, yang manakah mewakili P?*



46. Diagram 30 shows the cross section of a dicotyledonous stem after secondary growth.  
*Rajah 30 menunjukkan keratan rentas batang dikotiledon yang telah mengalami pertumbuhan sekunder.*

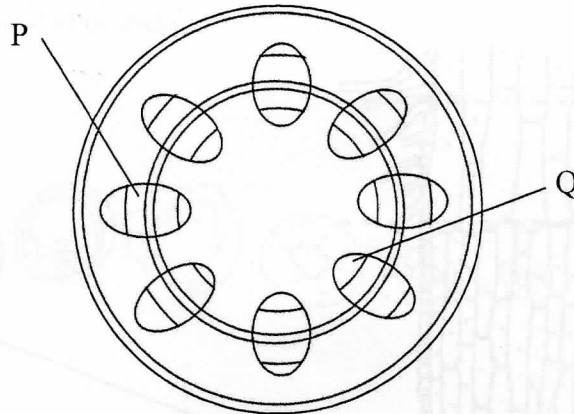


Diagram 30

*Rajah 30*

What are structure P and Q?  
*Apakah struktur P dan Q?*

	<b>Structure P</b> <i>Struktur P</i>	<b>Structure Q</b> <i>Struktur P</i>
<b>A</b>	Secondary phloem <i>Floem sekunder</i>	Primary xylem <i>Xilem primer</i>
<b>B</b>	Primary phloem <i>Floem primer</i>	Secondary xylem <i>Xilem sekunder</i>
<b>C</b>	Secondary xylem <i>Xilem sekunder</i>	Primary phloem <i>Floem primer</i>
<b>D</b>	Primary xylem <i>Xilem primer</i>	Secondary phloem <i>Floem sekunder</i>

47. The following information are about the inheritance of colour blindness in Mr. J's family.  
*Maklumat-maklumat berikut adalah berkenaan pewarisan buta warna dalam keluarga Encik J.*

- Mr. J is not colour blind.  
*Encik J tidak mengalami buta warna*
- He has six children of which three sons are colour blind while three daughters are carrier.  
*Beliau mempunyai enam orang anak yang mana tiga orang anak lelaki adalah buta warna dan tiga orang anak perempuan adalah pembawa.*

What is the genotype of Mr. J's wife?  
*Apakah genotip isteri Encik J?*

- A  $X^bX^b$
- B  $X^BX$
- C  $X^BX^B$
- D  $X^bX$

48. What is the number of chromosomes in an individual with Klinefelter's Syndrome??  
*Apakah bilangan kromosom bagi individu yang mengalami Sindrom Klinefelter?*

- A 48
- B 47
- C 46
- D 45

49. What is meant by mutation?  
*Apakah yang dimaksudkan dengan mutasi?*
- A A change in chromosome after fertilization  
*Perubahan kromosom selepas persenyawaan*
  - B A sudden change in chromosome due crossing over  
*Perubahan kromosom secara mendadak akibat pindah silang*
  - C A change in chromosome due to recombination  
*Perubahan kromosom akibat rekombinasi*
  - D A sudden change in chromosome due to a mutagen  
*Perubahan mendadak dalam kromosom akibat mutagen*
50. Which of the following factors cause continuous variation in human?  
*Antara faktor-faktor berikut, yang manakah menyebabkan variasi selanjur dalam manusia?*
- A Nutrition  
*Nutrisi*
  - B Gene mutation  
*Mutasi gen*
  - C Certain genotype traits  
*Genotip trait-trait tertentu*
  - D Chromosomal mutation  
*Mutasi kromosom*