1 Diagram 1 shows an organelle of a cell.

Rahaj 1 menunjukkan organel yang terdapat di dalam suatu sel.

![Diagram 1](image)

**Diagram 1**

*Rahaj 1*

Which of the following processes occurs in this organelle?

Antara proses berikut, yang manakah berlaku dalam sel ini?

A Photosynthesis
   *Fotosintesis*

B Synthesis of protein
   *Sintesis protein*

C Synthesis of enzyme
   *Sintesis enzim*

D Generation of energy
   *Penjanaan tenaga*

2 The following information refers to organelle L.

Maklumat berikut merujuk kepada organel L

- Found in large numbers in muscle cells
  *Terdapat dalam banyak di dalam sel otot*

- Functions as a site to generate energy
  *Berdagung sebagai tapak penjanaan tenaga*

What is organelle L?

*Apakah organel L?*

A Vacuole
   *Vakuol*

B Mitochondrion
   *Mitokondrion*

C Golgi apparatus
   *Jasad Golgi*

D Endoplasmic reticulum
   *Retikulum endoplasma*
3 Diagram 2 shows cell organisation in a multicellular organism.
*Rajah 2 menunjukkan organisasi sel pada organisma multisel.*

M is an example of
*Madalah contoh bagi*

A Cell
*Sel*

B Tissue
*Tisu*

C Organ
*Organ*

D System
*Sistem*

4 Diagram 3 shows the model of plasma membrane
*Rajah 3 menunjukkan model membran plasma*

What is the part labelled N?
*Apa bahagian yang berlabel N?*

A Carrier protein
*Protein pembawa*

B Pore protein
*Protein liang*

C Hydrophilic
*Hidrofilik*

D Phospholipid
*Fosfolipid*
5 Diagram 4 shows the movement of substances across a plasma membrane of a villus.
Rajah 4 menunjukkan pergerakan bahan merentasi membrane plasma pada villus.

Which of the following represented by $P$, $Q$ and $R$?
Manakah yang berikut mewakili $P$, $Q$ dan $R$?

<table>
<thead>
<tr>
<th></th>
<th>$P$</th>
<th>$Q$</th>
<th>$R$</th>
</tr>
</thead>
</table>
| A | Vitamin $D$
   | Water   | Potassium ions    |
   |       | $Air$   | $Ion$ $kalium$   |
| B | Water   | Potassium ions  | Vitamin $D$       |
   | $Air$  | $Ion$ $kalium$|                   |
| C | Potassium ions | Water | Vitamin $D$       |
   | $Ion$ $kalium$| $Air$  |                   |
| D | Potassium ions | Vitamin $D$ | Water |
   | $Ion$ $kalium$|         | $Air$ |

6 Diagram 5 shows the changes of an erythrocyte when placed in distilled water for 30 minutes.
Rajah 5 menunjukkan perubahan pada satu eritrosit apabila diletakkan di dalam air suiling selama 30 minit.

Beginning of experiment
Awal eksperimen

End of experiment
Akhir eksperimen

Diagram 5
Rajah 5
Which of the following processes explains the above changes?
*Antara proses berikut, yang manakah menerangkan perubahan di atas?*

A. Crenation  
*Krenasi*

B. Plasmolysis  
*Plasmolisis*

C. Deplasmolysis  
*Deplasmolisis*

D. Haemolysis  
*Haemolisis*

7. Diagram 6 is a graph showing the result of changes in mass of three potato strip which was left for 30 minutes in three sucrose solutions with different concentrations.  
*Graf dalam Rajah 6 menunjukkan perubahan jisim tiga jalur ubi keniang yang direndam dalam tiga larutan sukrosa yang berbeza kepekatan selama 30 minit.*

![Diagram 6](image)

*Diagram 6  
*Rajah 6*

Which of the following diagrams shows the condition of the cell at the point M?  
*Antara rajah berikut, yang manakah menunjukkan keadaan sel pada kedudukan M?*

A.  

B.  

C.  

D.
8. Diagram 7 shows a type of molecular structure of protein. 
*Rajah 7 menunjukkan satu jenis struktur molekul protein.*

What is the type of the structure? 
*Apaakah jenis struktur tersebut?*

<table>
<thead>
<tr>
<th>A</th>
<th>Primary structure</th>
<th>C</th>
<th>Tertiary structure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Struktur primer</td>
<td></td>
<td>Struktur tertier</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>Secondary structure</th>
<th>D</th>
<th>Quaternary structure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Struktur sekunder</td>
<td></td>
<td>Struktur kuariener</td>
</tr>
</tbody>
</table>

9. Diagram 8 shows the effect of pH on enzyme activity. 
*Rajah 8 menunjukkan kesan pH pada aktiviti enzim*

Which parts of the alimentary canal are enzyme R and S most active? 
*Bahagian salur alimentari manakah adalah enzim R dan S paling aktif?*

<table>
<thead>
<tr>
<th>Enzyme R</th>
<th>Enzyme S</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Colon</td>
<td>Stomach</td>
</tr>
<tr>
<td>kolon</td>
<td>perut</td>
</tr>
<tr>
<td>B Duodenum</td>
<td>Mouth</td>
</tr>
<tr>
<td>duodenum</td>
<td>Mulut</td>
</tr>
<tr>
<td>C Mouth</td>
<td>Colon</td>
</tr>
<tr>
<td>mulut</td>
<td>kolon</td>
</tr>
<tr>
<td>D Stomach</td>
<td>Duodenum</td>
</tr>
<tr>
<td>perut</td>
<td>duodenum</td>
</tr>
</tbody>
</table>
10. Which of the following is TRUE about the enzyme and its function? 
_Yang manakah BENAR tentang enzim dan fungsinya?_

<table>
<thead>
<tr>
<th>Enzyme</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trypsin</td>
<td>Coagulate milk</td>
</tr>
<tr>
<td>Trypsin</td>
<td>Mengental susu</td>
</tr>
<tr>
<td>Protease</td>
<td>Emulsifies milk</td>
</tr>
<tr>
<td>Protease</td>
<td>Mengemulsi susu</td>
</tr>
<tr>
<td>Lipase</td>
<td>Ripening cheese</td>
</tr>
<tr>
<td>Lipase</td>
<td>Memasakkan keju</td>
</tr>
<tr>
<td>Erepsin</td>
<td>Hydrolyses fat</td>
</tr>
<tr>
<td>Erepsin</td>
<td>Menghidrolisis lemak</td>
</tr>
</tbody>
</table>

11. Diagram 9 shows the cell cycle. 
_Rajah 9 menunjukkan kitar sel._

---

Which of the following is the correct sequence of the interphase stage? 
_Antara urutan berikut, manakah menunjukkan peringkat interfasa?_

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

12. Diagram 10 shows metaphase I in an animal cell. 
_Rajah 10 menunjukkan peringkat metafasa I dalam sel haiwan._
How many chromosomes are there in the daughter cell of this division?
*Berapakah bilangan kromosom dalam sel anak bagi pembahagian sel ini?*

A  2  
B  4  
C  8  
D  16

13. Which of the following diagrams is **TRUE** about a stage in mitosis?
*Rajah yang manakah berikut, **BENAR** tentang peringkat dalam mitosis?*

A  
B  
C  
D  

*Rajah 11 menunjukkan peringkat-peringkat yang berlainan dalam meiosis.*

Diagram 11
*Rajah 11*

Which of the following is the **CORRECT** sequence for the stages?
*Antara urutan berikut, yang manakah **BETUL** bagi peringkat itu?*

A  I, II, III, IV  
B  I, IV, II, III  
C  I, III, IV, II  
D  I, IV, III, II
15. The diploid chromosomal number of a earthworm is 26. If one of the homologous chromosome pairs does not separate during Anaphase I, how many chromosomes can be found in the gametes?
Nomor kromosom diploid bagi cacing tanah ialah 26. Jika satu daripada pasangan kromosom homolog tidak terpisah semasa Anafasa 1, berapakah bilangan kromosom yang mungkin didapat pada gamet?

A 26  C 13
B 14  D 52

16. Diagram 12 shows part of the human digestive system.
Rajah 12 menunjukkan sebahagian dalam sistem pencernaan manusia.

Diagram 12
Rajah 12

Which of the following enzymes is secreted by organ O?
Antara enzim berikut yang manakah dirembeskan oleh organ O?

A Erepsin
Erepsin
B Amylase
Amilase
C Pepsin
Pepsin
D Trypsin
Tripsin

17. Diagram 13 shows a longitudinal section of a villus.
Rajah 13 menunjukkan suatu keratan memanjang bagi vilus.

Diagram 13
Rajah 13
Which substance diffuses into the P?
*Bahan manakah yang meresap ke dalam P?*

A  Water  
B  Glucose  

C  Vitamin A  
D  Amino acid  

18. The following results are obtained in an experiment to determine vitamin C content in pineapple juice.
*Keputusan berikut telah diperolehi dalam satu eksperimen untuk menentukan kandungan vitamin C dalam air buah jambu.*

| Volume of 0.1% vitamin C solution needed to decolourise 0.1% DCPIP solution |
|---------------------------|-----------------|----------------- |
| *Isipadu vitamin C 0.1% yang diperlukan untuk menyahwarna 0.1% larutan DCPIP* |
| 1.0 ml |

| Volume of pineapple juice needed to decolourise 0.1% DCPIP solution |
|---------------------------|-----------------|----------------- |
| *Isipadu jus buah nenas yang diperlukan untuk menyahwarna 0.1% larutan DCPIP* |
| 2.5 ml |

Calculate the percentage of vitamin C in pineapple juice?
*Kirakan peratus vitamin C dalam jus buah nenas?*

A  4.0 %  
B  0.04 %  
C  0.4 %  
D  0.004 %

19. Diagram 14 shows a person with a swollen neck due to the enlargement of a gland. This is caused by deficiency of a certain mineral in the diet.
*Rajah 14 menunjukkan seseorang yang mengalami bengkak di leher akibat dari pembesaran kelenjar. Ini adalah akibat dari kekurangan mineral tertentu dalam gizinya.*

![Diagram 14](image)

Name the mineral.
*Namakan mineral berkenaan.*

A  Ferum  
B  Iodine  

C  Potassium  
D  Phosphorous  

*Besi*  
*Iodin*  
*Kalium*  
*Fosforus*
20. Diagram 15 shows stages involved in the photosynthesis process.

*Diagram 15 menunjukkan peringkat yang terlibat dalam proses fotosintesis.*

Which of the following represents R, S, T and U?

*Manakah di antara berikut menunjukkan R, S, T dan U?*

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>S</th>
<th>T</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Water</td>
<td>Oxygen</td>
<td>Carbon dioxide</td>
<td>Hydrogen</td>
</tr>
<tr>
<td></td>
<td><em>Air</em></td>
<td><em>Oksigen</em></td>
<td><em>Karbon dioksida</em></td>
<td><em>Hidrogen</em></td>
</tr>
<tr>
<td>B</td>
<td>Carbon dioxide</td>
<td>Oxygen</td>
<td>Water</td>
<td>Hydrogen</td>
</tr>
<tr>
<td></td>
<td><em>Karbon dioksida</em></td>
<td><em>Oksigen</em></td>
<td><em>Air</em></td>
<td><em>Hidrogen</em></td>
</tr>
<tr>
<td>C</td>
<td>Carbon dioxide</td>
<td>Hydrogen</td>
<td>Water</td>
<td>Oxygen</td>
</tr>
<tr>
<td></td>
<td><em>Karbon dioksida</em></td>
<td><em>Hidrogen</em></td>
<td><em>Air</em></td>
<td><em>Oksigen</em></td>
</tr>
<tr>
<td>D</td>
<td>Water</td>
<td>Oxygen</td>
<td>Hydrogen</td>
<td>Carbon dioxide</td>
</tr>
<tr>
<td></td>
<td><em>Air</em></td>
<td><em>Oksigen</em></td>
<td><em>Hidrogen</em></td>
<td><em>Karbon dioksida</em></td>
</tr>
</tbody>
</table>

21. Diagram 16 shows the structure for gaseous exchange.

*Rajah 16 menunjukkan satu struktur bagi pertukaran gas*
Which of the following are characteristics of Q?

Antara berikut yang manakah menunjukkan ciri-ciri permukaan struktur Q?

I  Always moist
   Sentiasa lembap

II One cell thick
   Setebal satu sel

III Has a large surface area
   Mempunyai jumlah luas permukaan yang besar

IV Complete with main blood vessel
   Lengkap dengan salur darah utama

A  I and III only
   C  I, II and III only

B  II and IV only
   D  III and IV only

22. Diagram 17 shows the respiratory system of an insect.
   Rajah 17 menunjukkan sistem resprasi bagi sejenis serangga.

Diagram 17
   Rajah 17

Which of the following is represented by M, N and O?
   Manakah yang berikut diwakili oleh M, N dan O?

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Trachea</td>
<td>Tracheole</td>
<td>Spiracle</td>
</tr>
<tr>
<td></td>
<td>Trakea</td>
<td>Trakeol</td>
<td>Spirakel</td>
</tr>
<tr>
<td>B</td>
<td>Tracheole</td>
<td>Trachea</td>
<td>Spiracle</td>
</tr>
<tr>
<td></td>
<td>Trakeol</td>
<td>Trakea</td>
<td>Spirakel</td>
</tr>
<tr>
<td>C</td>
<td>Spiracle</td>
<td>Tracheole</td>
<td>Trachea</td>
</tr>
<tr>
<td></td>
<td>Spirakel</td>
<td>Trakeol</td>
<td>Trakea</td>
</tr>
<tr>
<td>D</td>
<td>Spiracle</td>
<td>Trachea</td>
<td>Tracheole</td>
</tr>
<tr>
<td></td>
<td>Spirakel</td>
<td>Trakea</td>
<td>Trakeol</td>
</tr>
</tbody>
</table>
23. Diagram 18 shows gaseous exchange between blood capillary and body cells. *Rajah 18 menunjukkan pertukaran gas antara kapilari darah sel badan.*

![Diagram 18](image)

**Diagram 18**

*Rajah 18*

What are the partial pressures of carbon dioxide at P and Q?

*Apakah tekanan separa karbon dioksida di P dan Q?*

<table>
<thead>
<tr>
<th></th>
<th>P</th>
<th>Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Tinggi</td>
<td>Tinggi</td>
</tr>
<tr>
<td>B</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Tinggi</td>
<td>Rendah</td>
</tr>
<tr>
<td>C</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Rendah</td>
<td>Tinggi</td>
</tr>
<tr>
<td>D</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Rendah</td>
<td>Rendah</td>
</tr>
</tbody>
</table>

24. Which of the following is the **CORRECT** equation for the respiration in yeast cells?

*Manakah yang berikut menunjukkan persamaan yang BETUL bagi respirasi di dalam sel yis?*

A. Glucose → lactic acid + energy
   *Glucosa → asid laktik + tenaga*

B. Glucose → ethanol + carbon dioxide + energy
   *Glucosa → etanol + carbon dioksida + tenaga*

C. Glucose + oxygen → carbon dioxide + ethanol + energy
   *Glucosa + oksigen → carbon dioksida + etanol + tenaga*

D. Glucose + oxygen → carbon dioxide + water + ethanol + energy
   *Glucosa + oksigen → carbon dioksida + air + etanol + tenaga*
25. Diagram 19 shows the experiment to investigate the content of carbon dioxide and oxygen in an air sample.

*Rajah 19 menunjukkan eksperimen untuk menyiapkan kandungan karbon dioksida dan oksigen dalam suatu sampel udara.*

<table>
<thead>
<tr>
<th>Initial length of bubble gas</th>
<th>10.00 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Panjang awal gelembung udara</em></td>
<td></td>
</tr>
<tr>
<td>Length of bubbles gas + potassium hydroxide solution</td>
<td>9.40 cm</td>
</tr>
<tr>
<td><em>Panjang gelembung udara + potassium hidroksida</em></td>
<td></td>
</tr>
<tr>
<td>Length of bubble gas + potassium pyrogalate solution</td>
<td>8.00 cm</td>
</tr>
<tr>
<td><em>Panjang gelembung udara + potassium pirogalat</em></td>
<td></td>
</tr>
</tbody>
</table>

What is the percentage of carbon dioxide in the air sample?

*Apakah peratus karbon dioksida di dalam sampel udara?*

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6%</td>
</tr>
<tr>
<td>B</td>
<td>10%</td>
</tr>
<tr>
<td>C</td>
<td>14%</td>
</tr>
<tr>
<td>D</td>
<td>16%</td>
</tr>
</tbody>
</table>

26. Diagram 20 shows an interaction between two organisms, U and V.

*Rajah 20 menunjukkan interaksi antara organisme U dan V.*
What type of interaction shown in the diagram?

Apakah jenis interaksi yang ditunjukkan dalam rajah?

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

27. Diagram 21 shows a food web in an ecosystem.
Rajah 21 menunjukkan satu siratan makanan dalam ekosistem.

![Diagram 21](image)

Which of the following represents the tertiary consumers in the food web?
Yang mana berikut, mewakili pengguna tertier dalam siratan makanan ini?

A  Snake  
Ular
B  Frog  
Katak
C  Eagle  
Helang
D  Rat  
Tikus

28. Which is the correct hierarchy from the smallest to the largest unit?
Manakah merupakan hierarki dari unit paling kecil sehingga unit paling besar yang betul?

A  Genus → species → order → family → class → phylum → kingdom
B  Species → genus → family → order → class → phylum → kingdom
C  Species → genus → order → family → class → phylum → kingdom
D  Species → genus → order → class → family → phylum → kingdom
29. Diagram 22 shows the distribution of mangroves at a river mouth.
   *Rajah 22 menunjukkan taburan tumbuhan paya bakau di muara sungai.*

Diagram 22
*Rajah 22*

Which zone A, B, C or D is colonised by *Bruguiera* sp.?
*Antara zon A, B, C atau D, yang manakah dikoloni oleh *Bruguiera* sp.?*

30. Diagram 23 shows part of the nitrogen cycle.
   *Rajah 23 menunjukkan sebahagian daripada kitar nitrogen.*

Diagram 23
*Rajah 23*
Which of the following represent bacteria X and Y?
Antara berikut yang manakah menunjukkan bakteria X dan Y?

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Nitroacter sp</td>
<td>Nitrosomonas sp</td>
</tr>
<tr>
<td>B</td>
<td>Rhizobium sp</td>
<td>Nitroacter sp</td>
</tr>
<tr>
<td>C</td>
<td>Nitrosomonas sp</td>
<td>Nitroacter sp</td>
</tr>
<tr>
<td>D</td>
<td>Nitroacter sp</td>
<td>Nostoc sp</td>
</tr>
</tbody>
</table>

31. Diagram 24 shows the root system of a mangrove plant.
Rajah 24 menunjukkan sistem akar tumbuhan bakau.

![Diagram 24](Image)

Diagram 24
Rajah 24

What is the function of R?
Apakah fungsi R?

A To absorb sunlight
   *Untuk menyerap cahaya*

B To support the plant
   *Untuk sokongan tumbuhan*

C To reduce transpiration
   *Untuk mengurangkan proses transpirasi*

D To allow gas exchange
   *Untuk membolehkan pertukaran gas berlaku*

32. Which of the following gases can cause the formation of acid rain?
Antara berikut, gas yang manakah boleh menyebabkan pembentukan hujan asid?

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chlorofluorocarbon</td>
<td>Sulphur dioxide</td>
<td>Methane</td>
<td>Carbon monoxide</td>
</tr>
<tr>
<td></td>
<td><em>Klorofluorokarbon</em></td>
<td><em>Sulfur dioksida</em></td>
<td><em>Metana</em></td>
<td><em>Karbon monoksida</em></td>
</tr>
</tbody>
</table>
33. Diagram 25 shows one of the human activities.
*Rajah 25 menunjukkan satu aktiviti manusia.*

![Diagram 25](image)

**Diagram 25**
*Rajah 25*

Which of the following is one of the effects of the activities?
*Antara berikut adalah salah satu daripada kesan aktiviti?*

- **A** The Greenhouse effect  
  *Kesan rumah hijau*
- **B** Reduce the BOD value  
  *Mengurangkan nilai BOD*
- **C** Increase the human's immune system  
  *Meningkatkan sistem imum manusia*
- **D** Effect the digestive system  
  *Kesan kepada sistem pencernaan*

34. Diagram 26 shows an experiment to determine the level of pollution in rivers T and U.
*Rajah 26 menunjukkan eksperimen untuk menentukan tahap pencemaran sungai T dan U.*

![Diagram 26](image)

**Diagram 26**
*Rajah 26*

*Water sample from river T*  
*Sampel air dari sungai T*

*Water sample from river U*  
*Sampel air dari sungai U*
What is the conclusion that can be made by this student?

*Apakah kesimpulan yang boleh dibuat oleh pelajar ini?*

I. River T has a higher concentration of dissolved oxygen
   *Sungai T mempunyai kepekatan oksigen ierlarut yang lebih tinggi*

II. River T has more bacterial decomposers
   *Sungai T mempunyai bakteria pereputan*

III. River U has more aquatic organisms
     *Sungai U mempunyai banyak organisma akuatik*

IV. River U has a higher BOD value
    *Sungai U mempunyai nilai BOD yang tinggi*

A. I and III only  
B. I and IV only  
C. II and III only  
D. II and IV only

35. The following statement shows the eutrophication events.
     *Maklumat berikut menunjukkan kejadian eutrofiikasi.*

P. Algae and aquatic plants in the bottom of the water cannot photosynthesis and die
   *Alga dan tumbuhan akuatik di dasar air tidak dapat melakukan fotosintesis dan mati*

Q. Results in population explosion called algal bloom
    *Menyebabkan ledakan populasi yang dipanggil alga bloom*

R. The decomposition of aerobic bacteria on dead organic matter will raise the BOD and reduce the oxygen content
    *Penguraian bakteria aerobik ke atas bahan organik mati meningkatkan BOD dan mengurangkan kandungan oksigen*

S. Increased in mineral salt concentration in the water due to excessive fertilisers
    *Peningkatan kepekatan garam mineral di dalam air disebabkan oleh penggunaan baju berlebihan*

Which of the following is the correct sequence of the above events?
*Antara urutan berikut yang manakah betul mengenai kejadian di atas?*

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

36. Which of the following is an effect of deforestation?
    *Antara berikut, yang manakah kesan daripada penyahhutanan?*

A. Global warming  
   *Pemanasan global*

B. Acid rain  
   *Hujan asid*

C. Eutrophication  
   *Eutrofiikasi*

D. Haze  
   *Jerebu*
37. Diagram 27 shows part of the pulmonary circulatory system.
Rajah 27 menunjukkan sebahagian daripada sistem peredaran pulmonari.

**Diagram 27**

![Diagram of heart and organ X](image)

What is organ X?
Apakah organ X?

A  Liver  
   *Hati*  

B  Lung  
   *Peparu*  

C  Lymph node  
   *Nodus Limfa*  

D  Gills  
   *Insang*

38. Diagram 28 shows the cross section of dicotyledonous stem.
Rajah 28 menunjukkan keratan rentas batang tumbuhan dikotiledon.

**Diagram 28**

![Diagram of stem cross section](image)

Which of the labelled parts A, B, C or D transport glucose?
Bahagian bertlabel yang manakah A, B, C atau D berfungsi mengangkut glukosa?
39. Diagram 29 shows a sequence in a process carried out by neutrophil.
Rajah 29 menunjukkan satu turutan di dalam proses yang dijalankan oleh neutrophil.

What is process?
Apakah proses itu?

A  Lysis
   *Lisis*

B  Agglutination
   *Aglutinasi*

C  Phagocytosis
   *Fagositosis*

D  Antitoxin
   *Antitoksin*

40. Diagram 30 shows the concentration of antibody in the blood after two injections of antiserum.
Rajah 30 menunjukkan kepekatan antibodi di dalam darah selepas dua suntikan yang mengandungi antiserum.

Antibody concentration in the blood
*Kepekatan antibodi dalam darah*

Immunity level
*Aras keimunan*

Time/week
*Masa/minggu*

First injection
*Suntikan pertama*

Second injection
*Suntikan kedua*
What type of immunity is shown in Diagram 30?

*Apakah jenis keimunan yang ditunjukkan dalam Rajah 30?*

A  Artificial active immunity  
*Keimunan aktif buatan*

B  Natural active immunity  
*Keimunan aktif semulajadi*

C  Artificial passive immunity  
*Keimunan pasif buatan*

D  Natural passive immunity  
*Keimunan pasif semulajadi*

41. Which of the following substances causes prothrombin convert into thrombin?

*Antara bahan berikut, yang manakah menyebabkan protrombin bertukar kepada trombin?*

A  Vitamin K  
*Vitamin K*

B  Calcium ion  
*Ion Kalsium*

C  Fibrinogen  
*Fibrinogen*

D  Thrombokinase  
*Trombokinase*

42. Diagram 31 shows the blood circulatory system of an organism.

*Rajah 31 menunjukkan sistem peredaran sejenis organisma.*

![Diagram 31](image)

Diagram 31
*Rajah 31*

Which of the following organism has the similar circulatory system as shown in the diagram?

*Antara organisma berikut, yang manakah mempunyai sistem peredaran yang sama seperti yang ditunjukkan dalam rajah?*

A  Fish  
*Ikan*

B  Frog  
*Katak*

C  Bird  
*Burung*

D  Snake  
*Ular*
43. Diagram 32 shows the water movement through the leaf.
*Rajah 32 menunjukkan pergerakan air melalui daun*

![Diagram 32](image)

What is the function of S?
*Apa fungsii bahagian S?*

A. To remove water  
*Menyingkirkan air*  
C. To transport water and mineral  
*Mengangkut air dan mineral*

B. To support plants  
*Menyokong tumbuhan*  
D. To transport photosynthesis products  
*Mengangkut hasil fotosintesis*

44. Diagram 33 shows a typical cervical vertebra.
*Rajah 33 menunjukkan vertebra servik.

![Diagram 33](image)

What is T?
*Apa T?*

A. Centrum  
*Sentrum*  
C. Neural canal  
*Salur saraf*

B. Neural spine  
*Spina saraf*  
D. Vertebra arterial canal  
*Salur vertebra arteri*
45. Diagram 34 shows the structure of human forearm. 
*Rajah 34 menunjukkan struktur tangan manusia.*

Which of the following action of P and Q will cause the arm bend? 
*Antara tindakan P dan Q yang berikut, yang manakah akan menyebabkan lengan dibengkokkan?*

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</table>

46. Diagram 35 shows the cross section of the thorax of a bird. 
*Rajah 35 menunjukkan keratan rentias bahagian toraks burung.*

Diagram 35
*Rajah 35*
What happen if muscle U is injured?
Apa yang akan berlaku jika otot U cedera?

A  The bird will not be able to glide
*Burung tidak boleh meluncur*

B  The bird will not be able to move forward
*Burung tidak boleh bergerak ke hadapan*

C  The bird will not be able to move its wings upwards and forward
*Burung tidak boleh menggerakkan sayap ke atas dan ke hadapan*

D  The bird will not be able to move its wings downwards and backwards
*Burung tidak boleh menggerakkan sayap ke bawah dan ke belakang*

47. Diagram 36 shows the transmission of the nerve impulse through a synapse.
*Rajah 36 menunjukkan penghantaran impuls melalui sinaps*

Diagram 36
*Rajah 36*

Which of the following might be substance Z?
*Manakah antara berikut adalah bahan Z?*

A  Adrenaline  
*Adrenalina*

B  Sodium ions  
*Ion natrium*

C  Acetylcholine  
*Asetikolina*

D  Potassium ions  
*Ion kalium*
48. Diagram 37 shows afferent neurone.
*Rajah 37 menunjukkan satu neuron aferen.*

![Diagram 37](image)

What is the function of \( V \)?
*Apakah fungsi \( V \)?*

A. To release neurotransmitter in the synaptic cleft
*Membebaskan neurotransmitter ke dalam celah sinaps*

B. To carry impulse away from the cell body
*Membawa impuls keluar dari badan sel*

C. To speed up the conduction of impulse
*Mempercepatkan penghantaran impuls*

D. To carry impulse towards the cell body
*Menghantar impuls ke badan sel*

49. Diagram 38 shows a cross section of a human brain.
*Rajah 38 menunjukkan keratan rentas otak manusia.*

![Diagram 38](image)

Which part labelled A, B, C or D, controls the rate of heartbeat?
*Antara bahagian berlabel A, B, C atau D, yang manakah mengawal kadar denyutan jantung?*
50. Diagram 39 shows the pathway of an impulse in a reflex arc.
*Rajah 39 menunjukkan laluan impuls saraf dalam arka refleks.*

![Diagram 39](image)

Which following statement is **TRUE** about Diagram 39?
*Antara pernyataan berikut yang manakah **BENAR** tentang Rajah 39?*

A. J receive an impulse direct from L and carries it to N
   *J menerima impuls terus dari L dan membawanya ke N*

B. L transmits the impulse to M from the central nervous system
   *L menghantar impuls ke M dari sistem saraf pusat*

C. The rate of impulse transmission through K increases
   *Kadar penghantaran impuls melalui K bertambah*

D. N causes the finger to react
   *N menyebabkan gerak balas pada jari*