

- 1 Antara yang berikut, manakah menunjukkan bidang kajian Biologi dan definisi yang betul?

Which of the following is the correct match between type of biological field and its definition?

	Bidang kajian biologi <i>Biological field</i>	Definisi <i>Definition</i>
A	Virologi <i>Virology</i>	Kajian mengenai kulat <i>Study of fungi</i>
B	Mikologi <i>Mycology</i>	Kajian mengenai tisu organisma <i>Study of tissues of organisms</i>
C	Taksonomi <i>Taxonomy</i>	Kajian mengelaskan haiwan dan tumbuhan <i>Study of classification of animals and plants</i>
D	Histologi <i>Histology</i>	Kajian mengenai virus <i>Study of viruses</i>

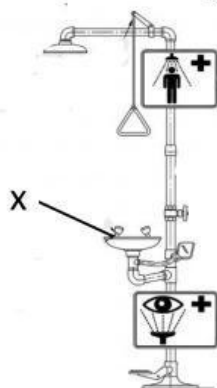
- 2 Antara yang berikut, manakah merupakan fungsi goggles?

Which of the following is the function of goggles?

- I** Melindungi mata daripada spesimen biologi
Protect eye from biological specimens
- II** Melindungi mata daripada sinar ultraungu
Protect eyes from ultraviolet rays
- III** Melindungi mata daripada terkena bahan kimia berbahaya
Protect eyes from harmful chemicals
- IV** Melindungi muka daripada terkena bahan kimia berbahaya
Protect face from harmful chemicals

- A** I dan II / *I and II*
- B** I dan III / *I and III*
- C** II dan IV / *II and IV*
- D** III dan IV / *III and IV*

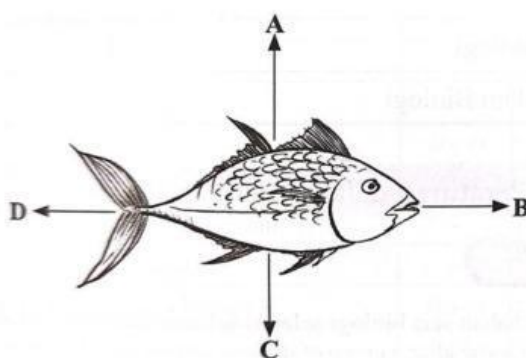
- 3 Rajah 1 menunjukkan peralatan di dalam makmal.
Diagram 1 shows an equipment in the laboratory.



Rajah 1 / Diagram 1

Apakah fungsi bahagian X?
What is the function of part X?

- A Membilas mata yang terkena bahan kimia
Rinse eyes that has come into contact with chemicals
 - B Menyiram badan yang terkena bahan kimia
Flush the body that has come into contact with chemicals
 - C Membasuh tangan yang terkena bahan kimia
Wash hands that come into contact with chemicals
 - D Menjalankan eksperimen menggunakan bahan kimia yang mudah meruap
Carry out experiments that use volatile chemical substances
- 4 Rajah 2 menunjukkan satu organisma.
Diagram 2 shows an organism.

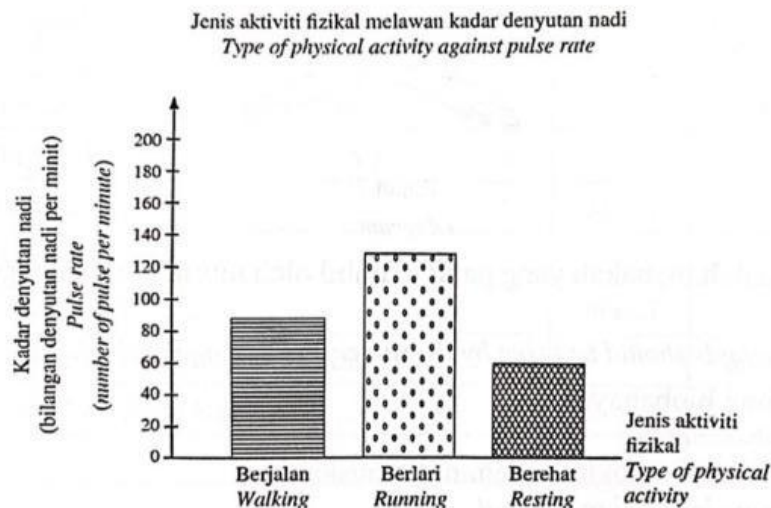


Rajah 2
Diagram 2

Antara A, B, C dan D, arah manakah menunjukkan anterior?
Which direction among A, B, C, and D indicates the anterior?

- 5 Rajah 3 menunjukkan satu carta bar bagi satu eksperimen yang dilukis oleh seorang murid.

Diagram 3 shows a bar chart of an experiment drawn by a student.

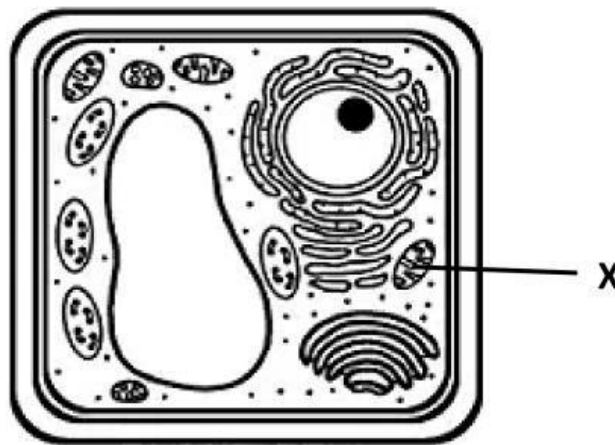


Rajah 3
Diagram 3

Antara yang berikut, aspek manakah merupakan satu kesilapan pada carta bar tersebut?
Which of the following aspects is a mistake in the bar chart?

- A Tajuk graf
Title of the graph
 - B Lebar palang
Width of the bar
 - C Unit pada paksi
Unit on the axis
 - D Label pada paksi
Label on the axis
- 6 Antara yang berikut, manakah merupakan langkah terakhir dalam penyiasatan saintifik?
Which of the following is the final step in a scientific investigation?
- A Membina hipotesis
Making a hypothesis
 - B Menulis laporan
Writing a report
 - C Mengumpul data
Collecting data
 - D Menginterpretasi data
Interpreting data

- 7 Rajah 4 menunjukkan satu sel tumbuhan.
Diagram 4 shows a plant cell.



Rajah 4 / Diagram 4

Apakah X?

What is X?

- | | |
|-------------------------------------|---|
| A Ribosom
<i>Ribosome</i> | C Vakuol
<i>Vacuole</i> |
| B Nukleus
<i>Nucleus</i> | D Mitokondrion
<i>Mitochondrion</i> |
- 8 Pernyataan berikut menghuraikan tentang satu organel Q.
The following statements describe an organelle Q.

- Memerangkap tenaga cahaya daripada Matahari.
Traps light energy from the Sun
- Menukarkan tenaga cahaya kepada tenaga kimia
Converts light energy into chemical energy

Berdasarkan pernyataan di atas, apakah organel Q?

Based on the statements above, what is organelle Q?

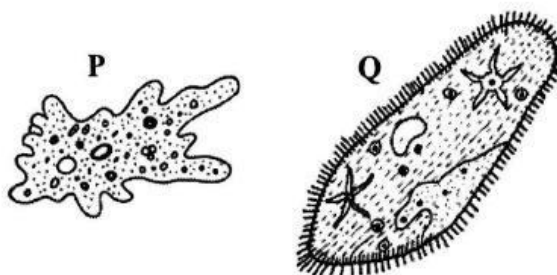
- | | |
|--|--|
| A Jalinan endoplasma licin
<i>Smooth endoplasmic reticulum</i> | C Kloroplas
<i>Chloroplast</i> |
| B Jalinan endoplasma kasar
<i>Rough endoplasmic reticulum</i> | D Vakuol
<i>Vacuole</i> |

- 9 Antara yang berikut, manakah fungsi vakuol mengecut dalam organisma unisel seperti protozoa yang tinggal dalam habitat air tawar?

Which of the following is the function of the contractile vacuole in unicellular organisms such as protozoa that live in freshwater habitats?

- A Mencerna makanan dalam sel
Digest food inside the cell
- B Mengawal keseimbangan air dalam sel
Regulate water balance in the cell
- C Menggerakkan organisma
Move the organism
- D Menjalankan respirasi
Carry out respiration

- 10 Rajah 5 menunjukkan dua organisma unisel.
Diagram 5 shows two unicellular organisms.



Rajah 5
Diagram 5

Antara yang berikut, pernyataan manakah betul bagi kedua-dua organisma?

Which of the following statement is correct for both organisms?

	P	Q
A	Membiak secara belahan dedua <i>Reproduced via binary fission</i>	Membiak secara konjugasi <i>Reproduced via conjugation</i>
B	Hidup di kawasan air tawar <i>Lives in freshwater area</i>	Hidup di kawasan air masin <i>Lives in saltwater area</i>
C	Bergerak menggunakan silium <i>Moves using cilium</i>	Bergerak menggunakan pseudopodium <i>Moves using pseudopodium</i>
D	Menolak makanan ke dalam alur mulut <i>Pushes food into oral groove</i>	Memerangkap makanan secara fagositosis <i>Traps food by phagocytosis</i>

- 11 Maklumat berikut adalah tentang organisasi sel.
The following information is about cell organisation.

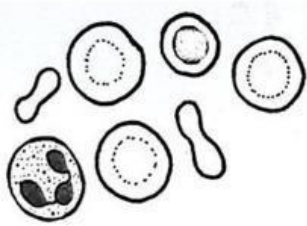
Struktur J terdiri daripada beberapa jenis tisu berbeza yang menjalankan fungsi yang khusus.

Structure J is made up of several types of different tissues which carry out a specific function.

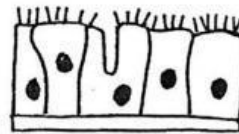
Antara yang berikut, manakah mewakili struktur J?

Which of the following represents structure J?

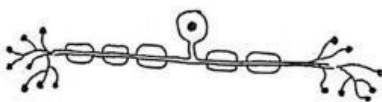
A



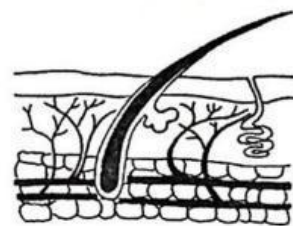
C



B

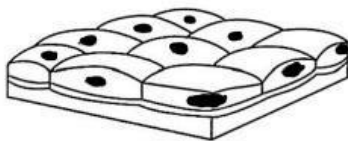


D

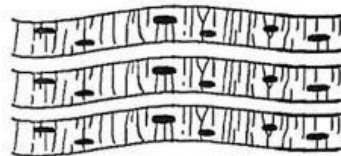


- 12 Antara yang berikut, manakah merupakan tisu epitelium?
Which of the following is an epithelial tissue?

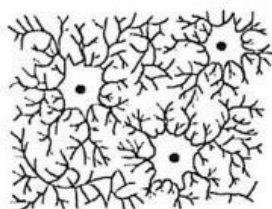
A



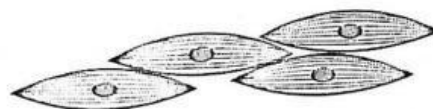
C



B



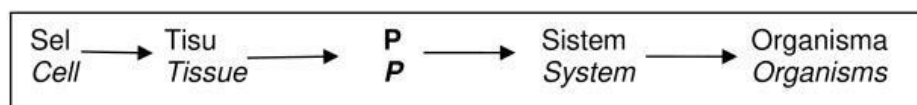
D



- 13 Antara yang berikut, manakah merupakan tisu penghubung bergentian?
Which of the following is a fibrous connective tissue?

- | | |
|---------------------------------|------------------------------------|
| A Darah
<i>Blood</i> | C Rawan
<i>Cartilage</i> |
| B Tulang
<i>Bones</i> | D Tendon
<i>Tendon</i> |

- 14 Manakah antara bahagian badan manusia diwakili oleh **P** dalam organisasi organisma multisel?
Which part of the human body is represented by **P** in the organization of a multicellular organism?



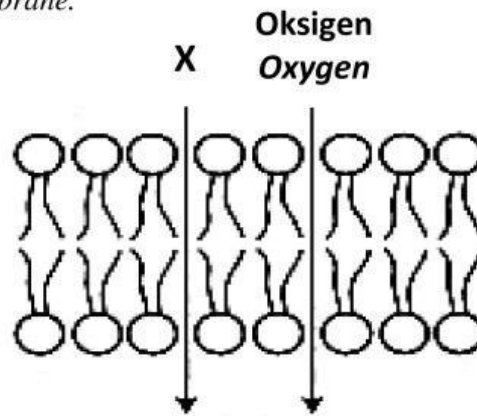
- | | |
|------------------------------------|---|
| A Jantung
<i>Heart</i> | C Otot
<i>Muscle</i> |
| B Nukleus
<i>Nucleus</i> | D Epitelium
<i>Epithelium</i> |
- 15 Rajah 6 menunjukkan sel khusus yang dimiliki oleh suatu sistem.
Diagram 6 shows a specialised cell which belong to a system.



Rajah 6
Diagram 6

- | | |
|--|---|
| A Sistem perkumuhan
<i>Excretory system</i> | C Sistem pencernaan
<i>Digestive system</i> |
| B Sistem peredaran
<i>Circulatory system</i> | D Sistem pembiakan
<i>Reproductive system</i> |

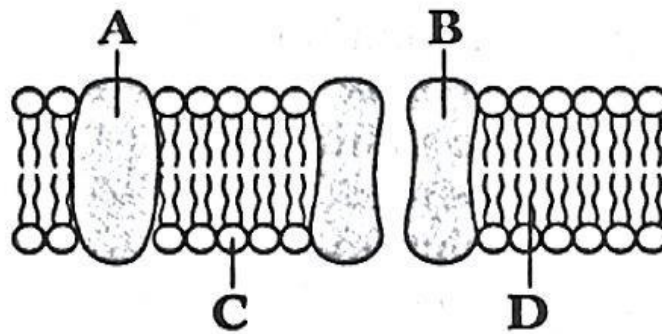
- 16** Rajah 7 menunjukkan pergerakan bahan X dan molekul oksigen melalui membran separa telap.
Diagram 7 shows the movement of the substance X and oxygen molecules through semi-permeable membrane.



Rajah 7 / Diagram 7

Apakah proses tersebut?
What is the process?

- | | |
|--|---|
| A Pengangkutan aktif
<i>Active transport</i> | C Resapan berbantu
<i>Facilitated diffusion</i> |
| B Resapan ringkas
<i>Simple diffusion</i> | D Pam natrium-kalium
<i>Sodium-potassium pump</i> |
- 17** Rajah 8 menunjukkan struktur membran plasma.
Diagram 8 shows the structure of the plasma membrane.



Rajah 8 / Diagram 8

Antara bahagian yang berlabel A, B, C atau D, yang manakah merupakan protein liang?
Which of the labelled parts A, B, C or D, is the pore protein?

18 Antara pernyataan yang berikut, manakah **benar** tentang osmosis?

*Which of the following statements regarding osmosis **are correct**?*

- I Ia melibatkan pergerakan molekul-molekul air
It involves the movement of water molecules
 - II Ia berlaku merentasi membran separa telap
It occurs through a semi-permeable membrane
 - III Zarah-zarah bahan bergerak menentang kecerunan kepekatan
Particles of substances move against the concentration gradient
 - IV Ia memerlukan tenaga sel
It requires cellular energy
-
- A I dan II / *I and II*
 - B I dan III / *I and III*
 - C II dan IV / *II and IV*
 - D III dan IV / *III and IV*

19 Satu eksperimen menunjukkan membran plasma sel darah merah hilang bentuk apabila direndam dalam larutan 1.5% natrium klorida.

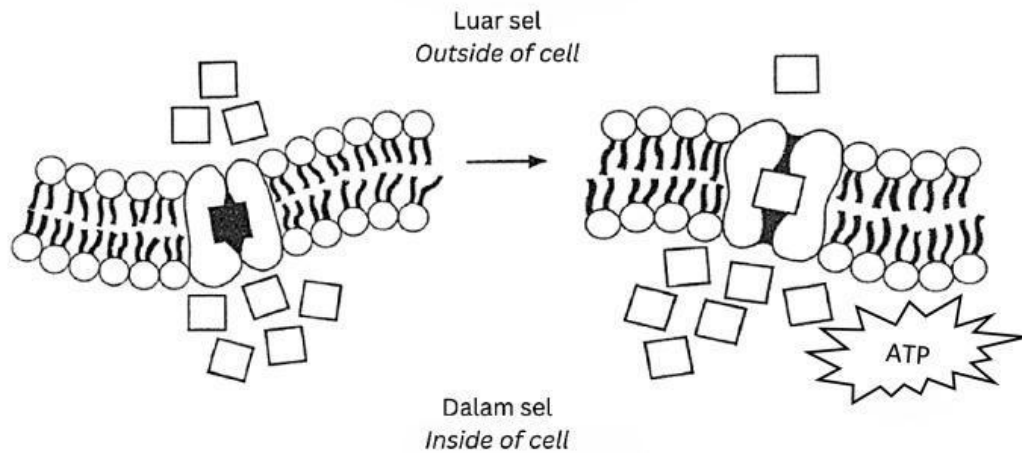
Apakah yang menyebabkan sel darah merah berubah bentuk?

An experiment shows that plasma membrane of red blood cells loses its shape when immersed in 1.5% sodium chloride solution.

What causes the red blood cell to lose its shape?

- A Air meresap ke dalam sel melalui osmosis
Water diffuses into the cell by osmosis
- B Air meresap keluar dari sel melalui osmosis
Water diffuses out of the cell by osmosis
- C Natrium klorida meresap ke dalam sel melalui pengangkutan aktif
Sodium chloride diffuses into the cell by active transport

- 20 Rajah 9 menunjukkan pergerakan bahan merentas membran plasma.
Diagram 9 shows the movement of substances across the plasma membrane.



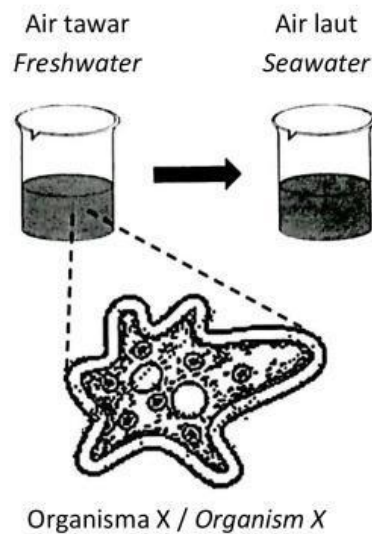
Rajah 9 / Diagram 9

Antara pernyataan yang berikut, manakah menerangkan pergerakan bahan dalam Rajah tersebut?

Which of the following statements explains the movement of substances in the Diagram?

- A Pergerakan bahan menuruni kecerunan kepekatan melalui protein liang
Movement of substances down the concentration gradient through pore protein
- B Pergerakan bahan menentang kecerunan kepekatan melalui protein liang
Movement of substances against the concentration gradient through pore protein
- C Pergerakan bahan dari kawasan berkepekatan rendah ke kawasan berkepekatan tinggi melalui protein pembawa
Movement of substances from the region of low concentration to the region of high concentration through carrier protein
- D Pergerakan bahan dari kawasan berkepekatan tinggi ke kawasan berkepekatan rendah melalui protein pembawa
Movement of substances from the region of high concentration to the region of low concentration through carrier protein

- 21 Rajah 10 menunjukkan keadaan organisma X dalam air tawar.
Diagram 10 shows the condition of organism X in fresh water.



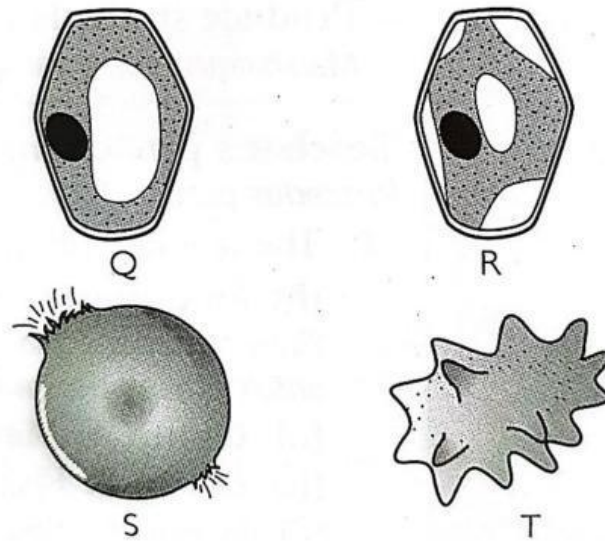
Rajah 10 / Diagram 10

Apakah yang akan berlaku kepada organisma tersebut sekiranya dipindahkan ke dalam air laut?

What will happen to the organism if it placed in seawater?

- A Pecah dan mati
Burst and die
- B Mengecut dan akhirnya mati
Shrink and eventually die
- C Mengembang dengan lebih cepat
Expand faster
- D Tidak mengalami sebarang perubahan
Not experience any changes

- 22 Rajah 11 menunjukkan beberapa sel haiwan dan sel tumbuhan.
Diagram 11 shows some animal and plant cells.



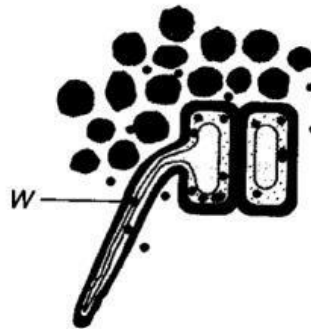
Rajah 12/ Diagram 12

Sel-sel manakah telah diletakkan ke dalam larutan hipotonik berbanding sel?
Which cells were placed in the hypotonic solution compared to the cell?

- A R dan/ and T
 - B Q dan/ and T
 - C Q dan/ and S
 - D R dan/ and S
- 23 Mengapakah sel tumbuhan tidak pecah apabila mengalami kesegahan sel yang melampau?
Why do plant cells not burst when they experience excessive turgidity?
- A Vakuol dapat menyerap semua air
The vacuole can absorb all the water
 - B Sel tumbuhan mempunyai dinding sel
Plant cells have a cell wall
 - C Lebih banyak ion kalium diserap secara pengangkutan aktif
More potassium ion is absorbed by active transport
 - D Vakuol mengecut dapat menyingkirkan air berlebihan
The contractile vacuole can excrete out excess water

- 24 Rajah 12 menunjukkan suatu proses penyerapan bahan W ke dalam sel rambut akar tumbuhan.

Diagram 12 shows a process of absorption of substance W into plant root hair cells.



Rajah 12/ Diagram 12

Proses penyerapan ini memerlukan tenaga. Apakah bahan W?

This absorption process requires energy. What is substance W?

- | | |
|------------------------------------|-----------------------------|
| A Air
Water | C Oksigen
Oxygen |
| B Ion natrium
Sodium ion | D Glukosa
Glucose |
- 25 Seorang murid merendam sebiji telur di dalam larutan garam tepu. Selepas beberapa hari, didapati telur itu berasa masin.
Antara pernyataan yang berikut, manakah menerangkan pemerhatian ini?
A student soaked an egg in a saturated salt solution. A few days later, he found that the egg tasted salty.
Which of the following statements explain this observation?

- I** Kulit telur adalah telap terhadap larutan garam
The eggshell is permeable to salt solution
- II** Ion natrium dan ion klorida memasuki telur secara pengangkutan aktif
Sodium ions and chloride ions enter the egg by active transport
- III** Larutan garam tepu adalah hipertonik terhadap kandungan telur
The saturated salt solution is hypertonic to the content of the egg
- IV** Butiran garam boleh meresap melalui kulit telur dan membran plasma
Salt granules can diffuse through the eggshell and plasma membrane

- A** I dan II / I and II
- B** I dan III / I and III
- C** II dan IV / II and IV
- D** III dan IV / III and IV

- 26 Rajah 13 menunjukkan kesan penggunaan baja berlebihan kepada pokok bunga yang ditanam oleh seorang suri rumah.

Diagram 13 shows the effect of excessive fertilizer use on a flowering plant grown by a housewife.



Rajah 13 / Diagram 13

Apakah yang perlu dilakukan oleh surirumah untuk mencegah pokok itu daripada terus layu?

What should housewife do to prevent the plant from continuing to wilt?

- A Menyiram dengan larutan Natrium Klorida 0.02%
Watering with 0.02% Sodium Chloride solution
 - B Menyiram dengan larutan Natrium Klorida 20.0%
Watering with 20.0% Sodium Chloride solution
 - C Menyiram dengan larutan sukrosa 10.0%
Watering with 10.0% sucrose solution
 - D Menyiram dengan larutan sukrosa 20.0%
Watering with 20.0% sucrose solution
- 27 Molekul air mempunyai ciri lekitan yang tinggi.
Antara berikut, proses yang manakah melibatkan ciri tersebut?
Water molecules have high cohesion characteristic.
Which of the following process involved the characteristics?
- A Mengekalkan suhu badan beruang kutub
Maintain the body temperature of polar bear
 - B Menggerakkan air dalam salur xilem yang sempit
Moves water in narrow xylem vessel
 - C Membantu pembentukan bendalir tisu dan limfa
Helps in formation of tissue fluid and lymph
 - D Memastikan pergerakan hasil turasan glomerulus dalam tubul renal
Ensure the movement of glomerular filtrate in the renal tubule

- 28** Antara yang berikut, manakah merupakan sejenis polisakarida yang digunakan sebagai benang pembedahan?
Which of the following is a type of polysaccharide used as a surgical thread?
- A** Kanji
Starch
 - B** Glikogen
Glycogen
 - C** Heparin
Heparin
 - D** Kitin
Chitin
- 29** Semasa proses pencernaan protein, enzim pencernaan menguraikan dipeptida melalui proses hidrolisis.
During the digestion of protein, digestive enzymes break down a dipeptide through the process of hydrolysis.
- Apakah hasil tindak balas tersebut?
What is the product of this reaction?
- A** Dua asid amino terbentuk
Two amino acids are produced
 - B** Satu protein terbentuk
One protein is formed
 - C** Satu rantai polipeptida terbentuk
A polypeptide chain is formed
 - D** Disakarida terbentuk
A disaccharide is formed