

- 1 The structure labelled X in Diagram 1 is known as a
 R Struktur berlabel X di dalam Rajah 1 adalah
 P

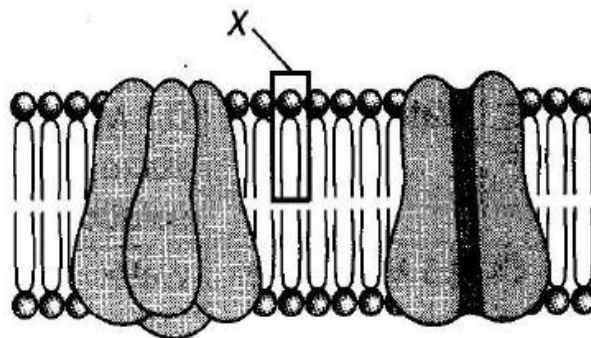


Diagram 1
 Rajah 1

- | | | | |
|---|--------------------------------------|---|---|
| A | cholesterol
<i>kolesterol</i> | C | phospholipid
<i>fosfolipid</i> |
| B | pore protein
<i>protein liang</i> | D | carrier protein
<i>protein pembawa</i> |

- 2 Which of the following terms explain a process of water movement from a
 R hypotonic solution to a hypertonic solution through a semi-permeable
 P membrane?

Manakah antara istilah berikut yang menerangkan proses pergerakan air daripada larutan hipotonik kepada larutan hipertonic melalui selaput separa telap?

- | | | | |
|---|---------------------|---|---|
| A | Osmosis
Osmosis | C | Active transport
Pengangkutan aktif |
| B | Difusion
Resapan | D | Passive transport
Pengangkutan pasif |

- 3 Diagram 2 shows the structure of a plasma membrane.

S *Rajah 2 menunjukkan struktur membran plasma.*
 F

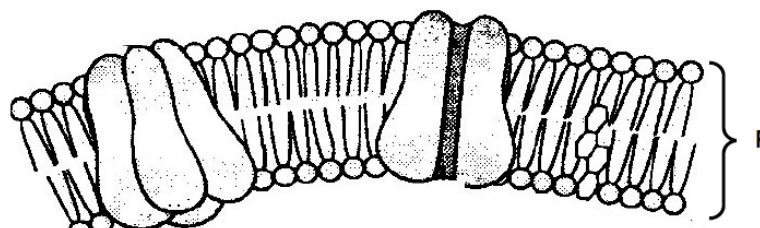


Diagram 2 / Rajah 2

Which of the following molecules can pass through P?

Manakah antara molekul berikut dapat merentasi P?

- | | | | |
|---|---------------------------------|---|-----------------------------|
| A | Amino Acid
<i>Amino Asid</i> | C | Glycogen
<i>Glikogen</i> |
| B | Water
<i>Air</i> | D | Starch
<i>Kanji</i> |

- 4 Diagram 3 shows an animal cell.
S *Rajah 3 menunjukkan sel haiwan.*
P

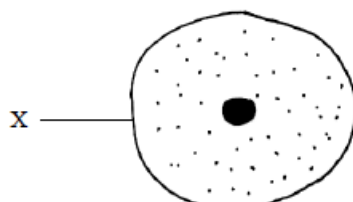


Diagram 3 / *Rajah 3*

Which of the following statements is **true** about structure X?
*Antara berikut, yang manakah **benar** tentang struktur X?*

- | | |
|---|---|
| A | It allows only water to pass through it
<i>la membenarkan hanya air melaluinya</i> |
| B | It does not allow any substances to pass through it
<i>la tidak membenarkan mana-mana bahan melaluinya</i> |
| C | It allows only selected substances to pass through it
<i>la hanya membenarkan bahan-bahan terpilih sahaja melaluinya</i> |
| D | It allows all substances to pass through it
<i>la membenarkan semua bahan melaluinya</i> |

- 5 Which of the following factors affect the movement of molecules across the plasma
T membrane ?
A *Manakah antara faktor-faktor berikut mempengaruhi pergerakan bahan merentasi membran plasma?*

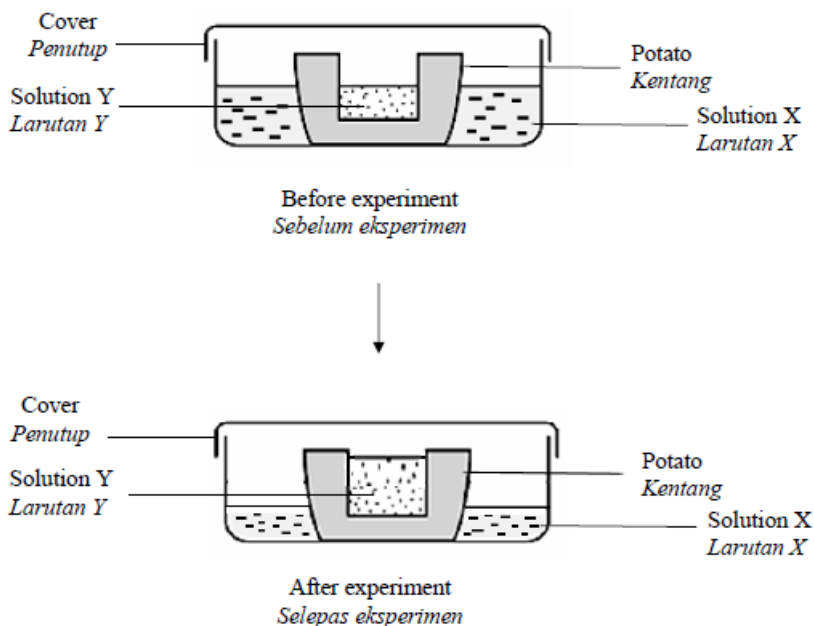
- I the solubility of the molecules in lipid
kelarutan molekul di dalam lipid
- II the shape of molecules
bentuk molekul
- III the polarity of the molecules
kekutuban molekul
- IV the size of molecules
saiz molekul

- | | | | |
|---|---|---|---------------------------------------|
| A | I and III only
<i>I dan III sahaja</i> | C | I, III and IV
<i>I, III dan IV</i> |
| B | III and IV | D | I and II |

III dan IV

I dan II

6 The diagram shows diffusion in potato cells.
 T Rajah menunjukkan resapan dalam sel kentang.
 A



What is solution X and solution Y ?
 Apakah larutan X dan larutan Y ?

	Solution X Larutan X	Solution Y Larutan Y
A	Distilled water Air suling	10% sucrose solution Larutan sukrosa 10%
B	Distilled water Air suling	Distilled water Air suling
C	10% sucrose solution Larutan sukrosa 10%	Distilled water Air suling
D	10% sucrose solution Larutan sukrosa 10%	10% sucrose solution Larutan sukrosa 10%

7 Diagram 4 shows a condition of stomata.
 T Rajah 4 menunjukkan suatu keadaan stomata..
 AN

Guard cells
 Sel pengawal

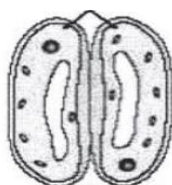


Diagram 4 / Rajah 4

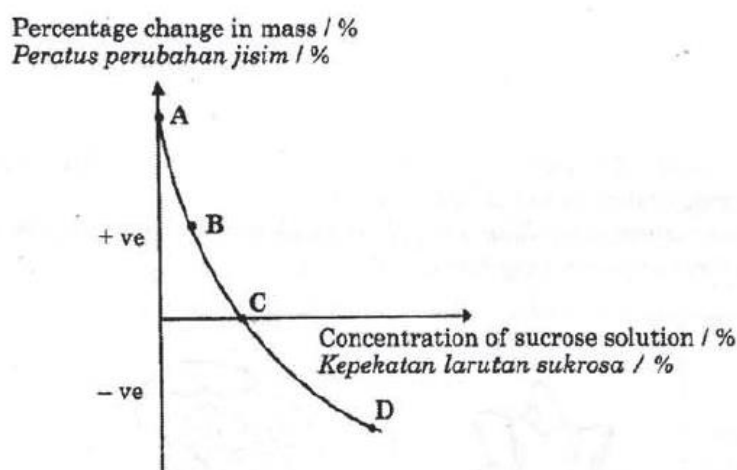
Which of the following may cause the condition in Diagram 4?

Yang manakah antara berikut menyebabkan keadaan dalam Rajah 4?

- A High light intensity
Keamatan cahaya yang tinggi
- B Water enter the guard cells
Air masuk ke dalam sel pengawal
- C Potassium ion leaves the guard cells
Ion kalium meninggalkan sel pengawal
- D High concentration of glucose in the guard cells
Kepekatan glukosa yang tinggi di dalam sel

8 The graph shows the result of an experiment to determine the concentration of the cell
T sap of potato tissues.

A *Graf menunjukkan keputusan satu eksperimen untuk menentukan kepekatan sap sel ubi kentang.*

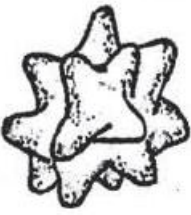



At which point A, B, C and D is the concentration of sucrose solution hypertonic to the cell sap of potato tissues?

Yang manakah antara titik A, B, C dan D merupakan kepekatan larutan sukrosa yang hipertonic terhadap sap sel tisu ubi kentang?

9 Diagram 5 shows the condition of red blood cell samples which have been placed in
S different concentration of salt solutions M and N.

A *Rajah 5 menunjukkan keadaan sampel sel darah merah yang telah diletakkan di dalam larutan garam yang berbeza kepekatan, M dan N.*

Condition of red blood cell <i>Keadaan sel darah merah</i>		
Solution <i>Larutan</i>	Salt solution M <i>Larutan garam M</i>	Salt solution N <i>Larutan garam N</i>

What are the type of solution M and N compared to the red blood cells?
Apakah jenis larutan M dan N berbanding dengan sel darah merah tersebut?

	Solution M <i>Larutan M</i>	Solution N <i>Larutan N</i>
A	Hypotonic <i>Hipotonik</i>	Hypertonic <i>Hipertonik</i>
B	Hypertonic <i>Hipertonik</i>	Hypotonic <i>Hipotonik</i>
C	Hypertonic <i>Hipertonik</i>	Isotonic <i>Isotonik</i>
D	Hypotonic <i>Hipotonik</i>	Isotonic <i>Isotonik</i>

- 10 Diagram 6 is an experiment to show the movement of water through a membrane.
T *Rajah 6 adalah eksperimen yang menunjukkan pergerakan molekul merentasi*
F *membran.*

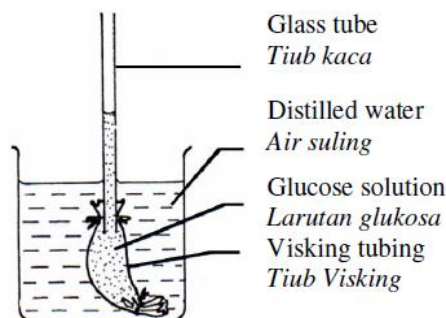


Diagram 6 / *Rajah 6*

At the end of the experiment, the water level in the glass tube will rise because
Di akhir eksperimen, paras air di dalam tiub kaca akan meningkat kerana

- A glucose solution flowed out of the visking tubing.
larutan glukosa keluar daripada tiub visking
- B water diffused into the visking tubing.
air meresap ke dalam tiub visking
- C air goes into the visking tubing.
udara masuk ke dalam tiub visking
- D the atmospheric pressure causes the water level to rise.
tekanan udara menyebabkan paras air meningkat

11 A student soaked an egg in a saturated salt solution. A few days later, he found
 S that the egg tasted salty. Which of the following statements explain this
 F observation?

Seorang pelajar merendam sebiji telur di dalam larutan garam. Selepas beberapa hari didapati telur itu berasa masin. Manakah antara kenyataan berikut menerangkan pemerhatian ini?

- I The eggshell is permeable to salt solution.
Kulit telur adalah telap terhadap larutan garam.
- II Salt particles enter the egg by active transport.
Partikel garam memasuki telur secara pengangkutan aktif.
- III The saturated salt solution is hypertonic to the content of the egg
Larutan garam tepu adalah hipertonik terhadap kandungan telur.
- IV Salt particles can diffuse through the eggshell and plasma membrane.
Partikel garam boleh meresap melalui kulit telur dan membran plasma

- | | | | |
|---|-------------------------------|---|---|
| A | I and III
<i>I dan III</i> | C | II, III and IV
<i>II, III and IV</i> |
| B | I and IV
<i>I dan IV</i> | D | I, III and IV
<i>I, III and IV</i> |

12 Diagram 7 shows a plant cell that has been immersed into 30% sucrose solution.
 T *Rajah 7 menunjukkan sel tumbuhan yang telah direndam ke dalam larutan*
 A *sukrosa 30%.*

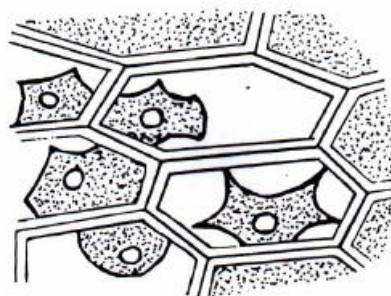


Diagram 7 / Diagram 7

Which of the following shows the changes of the cell?

Manakah antara yang berikut menunjukkan perubahan pada sel?

- I The cell is plasmolysed
Sel mengalami plasmolisis
 - II The plasma membrane is detached from the cell wall
Membran plasma tertarik daripada dinding sel
 - III The vacuole in the cell is filled with 30% sucrose solution.
Ruang vacuol di dalam sel dipenuhi dengan larutan sukrosa 30%
 - IV The space between the plasma membrane and the cell wall is filled with 30% sucrose solution.
Ruang diantara membran plasma dan dinding se dipenuhi oleh larutan sukrosa 30%
- A I and II only C I, II and IV only
I dan II sahaja I, II dan IV sahaja
- B II and IV only D II, III and IV only
II dan IV sahaja II, III dan IV sahaja

13 The following statements are about the movement of substances across the plasma membrane .

AN *Pernyataan berikut adalah berkaitan pergerakan bahan merentasi membran plasma.*

- Transport large water soluble molecules following the concentration gradient.
Mengangkut molekul-molekul besar yang larut air mengikuti kecerunan kepekatan
- Required carrier protein.
Memerlukan protein pembawa

What is the process ?

Apakah proses tersebut ?

- | | | | |
|---|--|---|--|
| A | Osmosis
<i>Osmosis</i> | C | Active transport
<i>Pengangkutan aktif</i> |
| B | Simple diffusion
<i>Resapan ringkas</i> | D | Facilitated diffusion
<i>Resapan berbantu</i> |

14 Diagram 8 shows the structure of a plasma membrane.
 R *Rajah 8 menunjukkan membrane plasma.*
 F

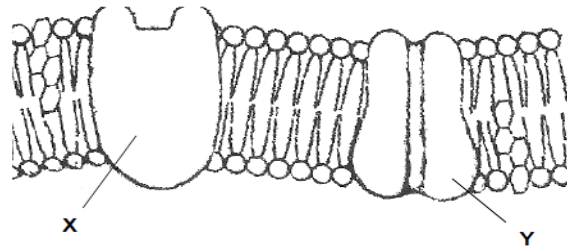
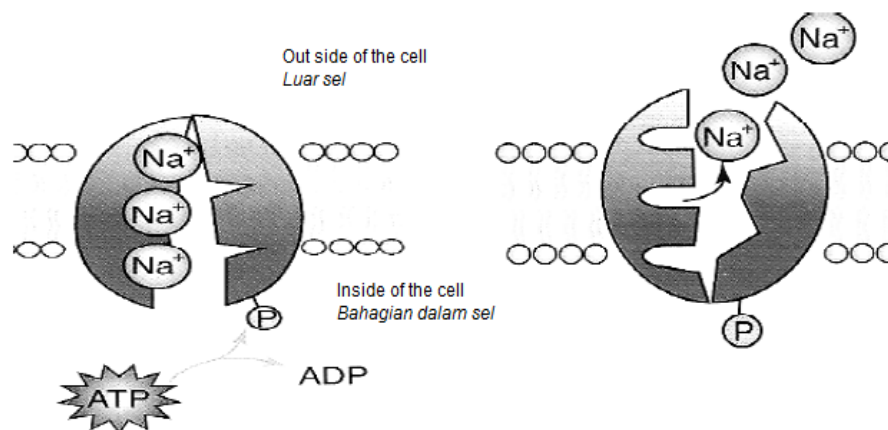


Diagram 8 / *Rajah 8*

The proteins labelled X and Y are
Protein berlabel X dan Y ialah

	X	Y
A	Pore protein <i>Protein liang</i>	Pore protein <i>Protein liang</i>
B	Carrier protein <i>Protein pembawa</i>	Carrier protein <i>Protein pembawa</i>
C	Pore protein <i>Protein liang</i>	Carrier protein <i>Protein pembawa</i>
D	Carrier protein <i>Protein pembawa</i>	Pore protein <i>Protein liang</i>

15 Diagram 8 shows a sodium-potassium pump.
 S *Rajah 8 menunjukkan pam natrium-kalium.*
 A



What process involves in the mechanism?
 Apakah proses yang terlibat dalam mekanisme ini?

- | | | | |
|---|-----------------------------|---|---|
| A | Osmosis
<i>Osmosis</i> | C | Plasmolysis
<i>Plasmolisis</i> |
| B | Diffusion
<i>Resapan</i> | D | Active transport
<i>Pengangkutan aktif</i> |

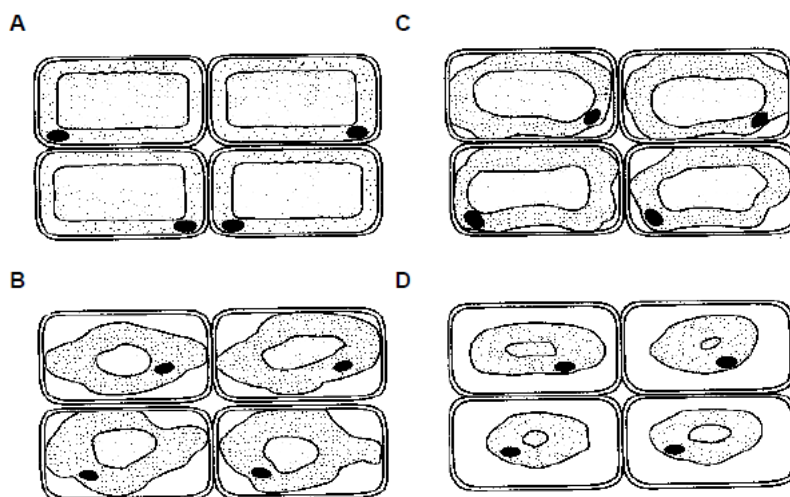
16 Which process does **not** use energy released by respiration?
 T Proses manakah **tidak** menggunakan tenaga yang dibebaskan oleh respirasi?
 F

- | | |
|---|--|
| A | Passage of nerve impulses
<i>Laluan impuls saraf</i> |
| B | Active transport of glucose into the villi
<i>Pengangkutan aktif glukosa ke dalam vilus</i> |
| C | Formation of gametes in the gonads
<i>Pembentukan gamet di gonad</i> |
| D | Diffusion of oxygen across the alveolar surface
<i>Resapan oksigen merentasi permukaan alveolus</i> |

17 Which process takes place in a root hair cell when oxygen is not available?
 S Proses manakah berlaku dalam rambut akar apabila oksigen tidak ada?
 F

- | | | | |
|---|---|---|---|
| A | Active transport and osmosis
<i>Pengangkutan aktif dan osmosis</i> | C | Active transport
<i>Pengangkutan aktif</i> |
| B | Active transport and diffusion
<i>Pengangkutan aktif dan resapan</i> | D | Diffusion
<i>Resapan</i> |

18 Onion cells have been placed in four solution of different concentration.
 S Which cells is immersed in hypotonic solution?
 AN Sel bawang diletakkan dalam empat larutan yang berbeza kepekatan.
 Sel manakah yang telah direndam dalam larutan hipotonik?



- 19 Diagram 9 shows the intake of K into a root cell.
 S *Rajah 9 menunjukkan pengambilan K ke dalam sel akar.*
 P

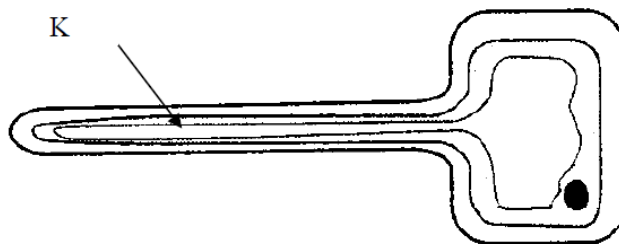


Diagram 9 / *Rajah 9*

The process requires energy. Which of the following is K?
Proses ini memerlukan tenaga. Manakah berikut adalah K?

- | | | | |
|---|----------------------------------|---|---------------------------|
| A | Water
<i>Air</i> | C | Oxygen
<i>Oksigen</i> |
| B | Sodium ion
<i>Ion natrium</i> | D | Glucose
<i>Glukosa</i> |
- 20 Diagram 10 shows gaseous exchange in an alveolus.
 R *Rajah 10 menunjukkan pertukaran gas dalam alveolus.*
 P

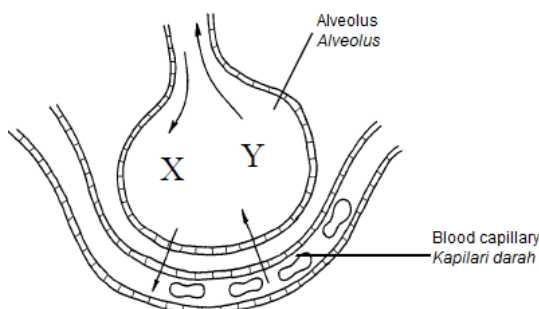


Diagram 10/ *Rajah 10*

Which of the following process occur in the exchange of gases X and Y.
Antara proses berikut yang manakah berlaku semasa pertukaran gas X dan Y?

- | | | | |
|---|--|---|--|
| A | Osmosis
<i>Osmosis</i> | C | Active transport
<i>Pengangkutan aktif</i> |
| B | Simple diffusion
<i>Resapan ringkas</i> | D | Facilitated diffusion
<i>Resapan berbantu</i> |
- 21 Diagram 11 shows two substances P and R passing through the plasma membrane of a cell.
 S *Rajah 11 menunjukkan dua bahan P dan R merentasi membran plasma suatu sel.*
 P

Which of the following represent X and Y?
 Yang manakah antara berikut mewakili X dan Y?

	X	Y
A	20% sucrose solution 20% larutan sukrosa	Distilled water Air suling
B	Distilled water Air suling	20% sucrose solution 20% larutan sukrosa
C	20% sucrose solution 20% larutan sukrosa	20% sucrose solution 20% larutan sukrosa
D	Distilled water Air suling	Distilled water Air suling

23 Why does salted fish remain preserved after a few months?
 S Mengapakah ikan masin kekal terawet selepas beberapa bulan?

- A
- A The growth of bacteria is inhibited
Pertumbuhan bakteria tidak berlaku
 - B The pH of the solution used is low
pH larutan yang digunakan adalah rendah
 - C The water content in the fish is maintained
Kandungan air di dalam ikan dikekalkan
 - D Water molecules enter the fish cells by osmosis
Molekul air memasuki sel-sel ikan secara osmosis

24 Diagram 13 shows processes X and Y which occur when erythrocytes are immersed
 S in distilled water and concentrated salt solution respectively.
 AN Rajah 13 menunjukkan proses-proses X dan Y yang berlaku apabila eritrosit masing-masing direndam dalam air suling dan larutan garam pekat.

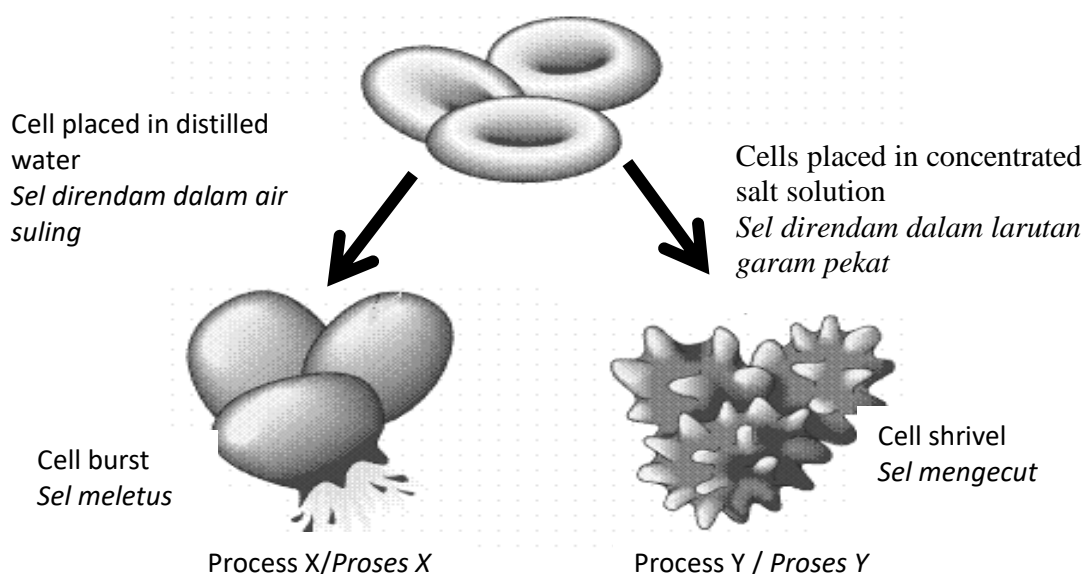


Diagram 13/ Rajah 13

Which of the following are processes X and Y ?
 Antara berikut, yang manakah proses-proses X dan Y ?

	Process X <i>Proses X</i>	Process Y <i>Proses Y</i>
A	Haemolysis <i>Hemolisis</i>	Plasmolysis <i>Plasmolisis</i>
B	Haemolysis <i>Hemolisis</i>	Crenation <i>Krenasi</i>
C	Crenation <i>Krenasi</i>	Haemolysis <i>Hemolisis</i>
D	Plasmolysis <i>Plasmolisis</i>	Crenation <i>Krenasi</i>

25 Diagram 14 shows a mango strip.
 S Rajah 14 menunjukkan jalur mempelam
 A

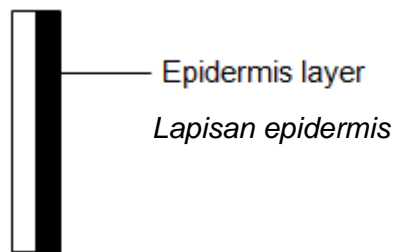
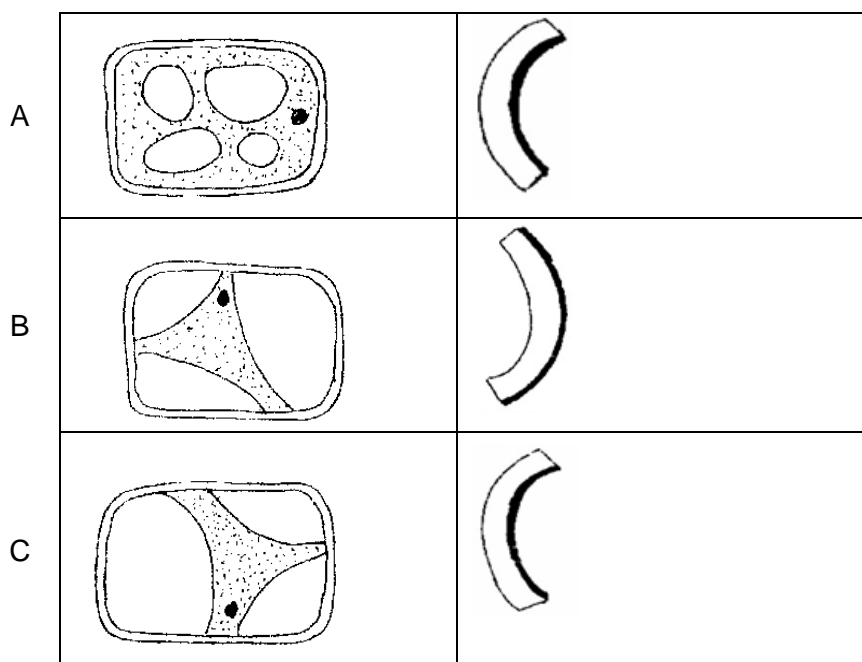
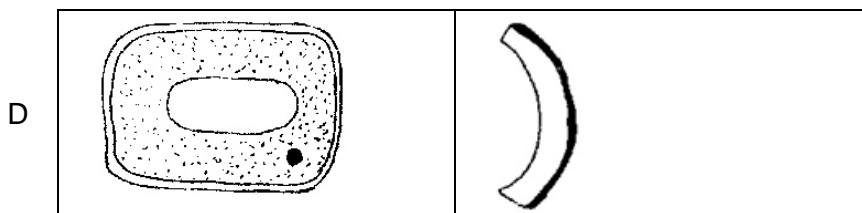


Diagram 14/ Rajah 14

A student soaks the mango strip in a concentrated sugar solution for 24 hours. Which of the following shows its condition after 24 hours?
 Seorang murid merendam jalur mempelam dalam larutan gula pekat selama 24 jam.
 Antara berikut, yang manakah menunjukkan keadaan sel selepas 24 jam?





26 S F Cucurber slices are immersed in 0.1% sucrose solution. After 3 hours, the slices are found to be turgid and hard. Which of the following statements explains this phenomenon?

Kepingan mentimun yang direndam dalam larutan sukrosa 0.1%. Selepas 3 jam, kepingan tersebut didapati menjadi keras dan segar. Manakah antara pernyataan berikut menerangkan fenomena tersebut?

- A The high osmotic pressure in the vacuole causes water to diffuse into the cell
Tekanan osmosis dalam vakuol menyebabkan air meresap ke dalam sel
- B The cell sap is hypotonic towards the sucrose solution
Sap sel adalah hipotonik kepada larutan sukrosa
- C The cucumber cell wall prevents it from shrinking
Dinding sel mentimun menghalangnya dari mengecut
- D The cucumber cell wall allows the sucrose molecules to diffuse into the cell
Dinding sel membenarkan molekul sukrosa meresap ke dalam sel

27 T AN Diagram 15 shows the movement of molecules P through the plasma membrane. *Rajah 15 menunjukkan pergerakan molekul P merentasi membran plasma*

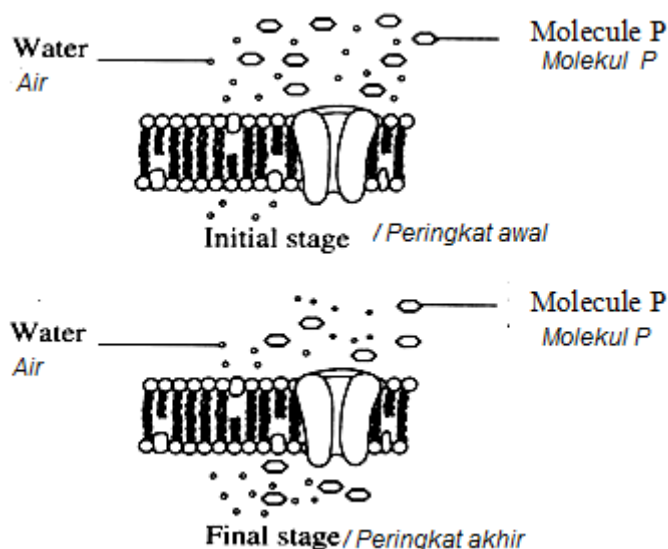


Diagram 15 / Rajah 15

Which conclusion could be obtained from Diagram 15?
Apakah kesimpulan yang boleh diperoleh dari Rajah 15?

- A Molecule P is soluble in lipid
Molekul P adalah larut lipid

- B Molecule P moves by osmosis
Molekul P bergerak secara osmosis
- C Molecule P moves by active transport
Molekul P bergerak secara pengangkutan aktif
- D Molecule P moves by facilitated diffusion
Molekul P bergerak secara resapan berbantu

28 S A A plant cell is immersed in distilled water for 20 minutes. It is then taken out and immersed in 30% sucrose solution. Table I shows the observed condition of the cell.
Sel tumbuhan direndam dalam air suling selama 20 minit. Sel tersebut kemudian dikeluarkan dan direndam dalam larutan sukrosa 30%. Jadual 1

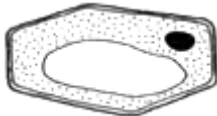
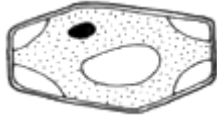
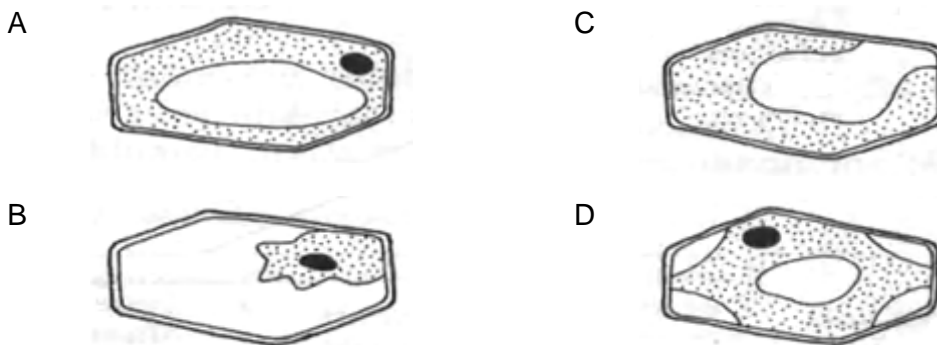
Condition of cell <i>Keadaan sel</i>		
Type of solution <i>Jenis larutan</i>	Distilled water <i>Air suling</i>	30% sucrose solution <i>Larutan sukrosa 30%</i>

Table 1 / *Jadual 1*

If the cell is put back into the distilled water for 20 minutes, which condition of the cell would be expected?

Jika sel tersebut direndam semula di dalam air suling selama 20 minit, keadaan sel yang manakah dijangka akan dapat dilihat?



29 S A In which of the following solutions would the rate of the contraction of the contractile vacuole of a *Paramecium* sp. be the fastest?
Antara larutan berikut, yang manakah kadar pengecutan vakuol mengecut dalam Paramecium sp. adalah paling cepat?

- A Pond water
Air kolam
- B 0.1% sucrose solution
Larutan sukrosa 0.1%
- C Distilled water
Air suling
- D 30% sucrose solution
Larutan sukrosa 30%

30 Potato strips were placed in 5 % , 15 % and 30 % sucrose solution. The initial mass of
T the potato strips is 1.40 g.
A Which of the following should the final mass of the potato strips in 30 % sucrose solution
be ?

*Satu eksperimen telah dijalankan untuk menyiasat kesan kepekatan larutan natrium
klorida terhadap jisim jalur-jalur kentang. Jisim awal jalur-jalur kentang ialah 1.40 g.*

*Yang manakah antara berikut berkemungkinan jisim akhir jalur-jalur kentang di dalam
larutan sukrosa 30 %*

A 1.14g

C 1.58g

B 1.40g

D 1.79g