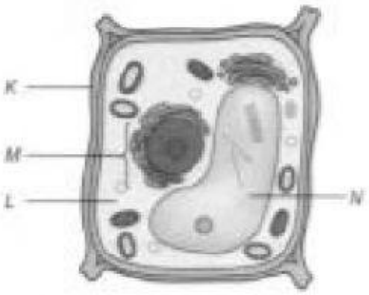
1 Rajah 1 menunjukkan sel tumbuhan.
Diagram 1 shows a plant cell.



Rajah 1 ***Diagram 1***

Antara bahagian berikut, yang manakah dipadankan dengan betul kepada fungsinya?
Which of the following parts is matched correctly to its function?

	Bahagian *Part*	Fungsi *Function*
A	*K*	Membenarkan pergerakan bahan tertentu ke dalam atau ke luar sel *Allows the movement of certain substances into or out of the cell*
B	*L*	Bertindak sebagai medium bagi semua tindak balas biokimia dalam sel *Acts as a medium for all the biochemical reactions in the sel*
C	*M*	Menyimpan air dan mineral terlarut *Stores water and dissolved minerals*
D	*N*	Mengekalkan bentuk sel *Maintains the shape of the cell*

2 Antara berikut, yang manakah merupakan organisma unisel?
Which of the following is a unicellular organism?

A

C

B

D

3 Rajah 2 menunjukkan *Paramecium* sp.
Diagram 2 shows a Paramecium sp.

Rajah 2 ***Diagram 2***

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

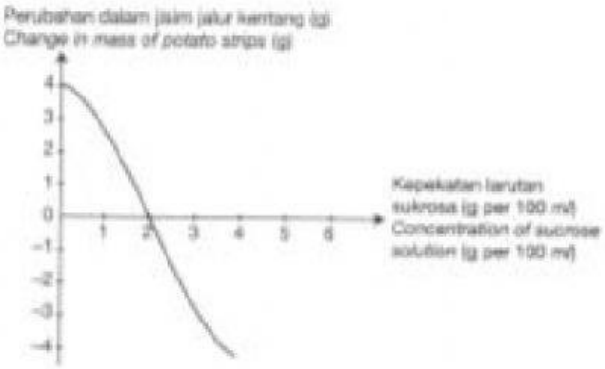
A Untuk membantu pergerakan dan melindunginya daripada pemangsa
To aid in its movement and protect it from predators

B Untuk membantu pergerakan dan mengesan rangsangan daripada persekitaran
To aid in its movement and detect stimuli in the surroundings

C Untuk membantu dalam pembiakan dan menjalankan fagositosis untuk memakan bakteria
To aid in reproduction and carry out phagocytosis to feed on bacteria

D Untuk membantu dalam pembiakan dan pergerakan makanan ke dalam bukaan mulut
To aid in reproduction and facilitate the sweeping of food into the oral groove

4 KBAT Rajah 3 menunjukkan graf perubahan dalam jisim jalur kentang yang direndam dalam larutan sukrosa yang berbeza kepekatannya.
Diagram 3 shows a graph of changes in the mass of potato strips immersed in different concentrations of sucrose solution.



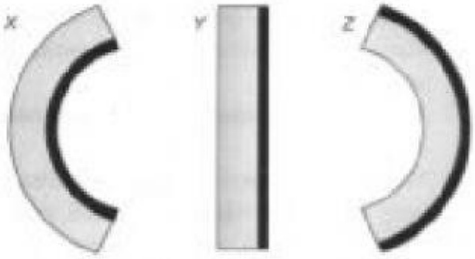
Rajah 3 ***Diagram 3***

LIVEWORKSHEETS

Berdasarkan graf dalam Rajah 3, antara kepekatan sukrosa berikut, yang manakah perlu digunakan supaya satu jalur kentang yang flasid kembali menjadi segah?
Based on the graph in Digram 3, which of the following concentrations of sucrose solution should be used so that a flaccid potato strip regains its turgidity?

A 1.0 g per 100 ml **C** 3.0 g per 100 ml
B 2.0 g per 100 ml **D** 4.0 g per 100 ml

5 Rajah 4 menunjukkan rupa fizikal tiga jalur sawi *X*, *Y* dan *Z* selepas direndam dalam larutan sukrosa yang berbeza kepekatannya selama 50 minit.
KBAT
Diagram 4 shows the appearance of three mustard green strips, X, Y and Z, after being immersed in a sucrose solution of different concentrations for fifty minutes.



Rajah 4 ***Diagram 4***

Antara berikut, yang manakah mewakili kepekatan larutan yang telah menyebabkan perubahan dalam jalur *X*, *Y* dan *Z*?
Which of the following represents the concentrations of the solutions which had caused the changes in strips X, Y and Z?

	Jalur X *Strip X*	Jalur Y *Strip Y*	Jalur Z *Strip Z*
A	Larutan hipotonik *Hypotonic solution*	Larutan isotonik *Isotonic solution*	Larutan hipertonik *Hypertonic solution*
B	Larutan hipotonik *Hypotonic solution*	Larutan hipertonik *Hypertonic solution*	Larutan isotonik *Isotonic solution*
C	Larutan hipertonik *Hypertonic solution*	Larutan hipotonik *Hypotonic solution*	Larutan isotonik *Isotonic solution*
D	Larutan hipertonik *Hypertonic solution*	Larutan isotonik *Isotonic solution*	Larutan hipotonik *Hypotonic solution*

6 Telur ayam yang direndam dalam larutan garam yang pekat berasa masin selepas beberapa hari. Antara pernyataan berikut, yang manakah menerangkan fenomena ini?
KBAT
A chicken egg which is soaked in a saturated salt solution will taste salty after a few days. Which of the following statements explains this phenomenon?

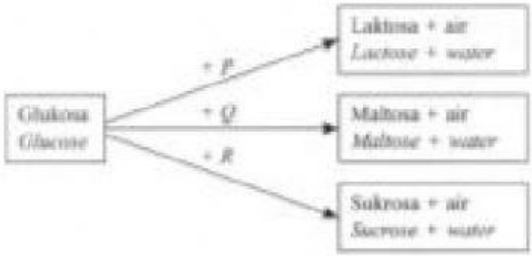
A Zarah garam memasuki telur melalui pengangkutan aktif.
Salt particles enter the egg by active transport.

B Cangkerang dan membran telur bersifat telap penuh.
The egg shell and membrane are fully permeable.

C Larutan garam yang pekat adalah hipotonik terhadap sel-sel telur.
The saturated salt solution is hypotonic to the egg cells.

D Molekul air meresap keluar dari sel-sel telur melalui osmosis.
Water molecules diffuse out of the egg cells by osmosis.

7 Rajah 5 menunjukkan pembentukan disakarida daripada monosakarida.
Diagram 5 shows the formation of disaccharides from monosaccharides.



Rajah 5 ***Diagram 5***

Apakah *P*, *Q* dan *R*?
What are P, Q and R?

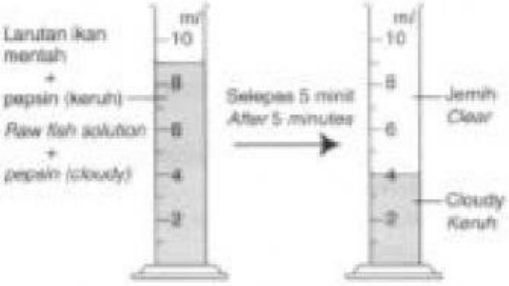
	P	*Q*	*R*
A	Fruktosa *Fructose*	Glukosa *Glucose*	Galaktosa *Galactose*
B	Fruktosa *Fructose*	Galaktosa *Galactose*	Glukosa *Glucose*
C	Galaktosa *Galactose*	Glukosa *Glucose*	Fruktosa *Fructose*
D	Galaktosa *Galactose*	Fruktosa *Fructose*	Glukosa *Glucose*

LIVEWORKSHEETS

8 Apakah sebatian kimia yang bertindak sebagai medium bagi tindak balas kimia dalam sel?
Which chemical compound acts as the medium for chemical reactions in the cell?

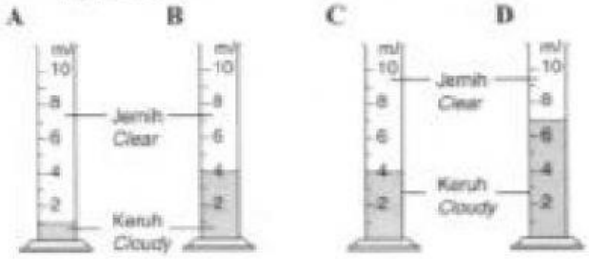
A Lipid *Lipid*
B Air *Water*
C Protein *Protein*
D Asid nukleik *Nucleic acid*

9 Rajah 6 menunjukkan keputusan eksperimen untuk mengkaji tindak balas larutan ikan mentah yang ditambah dengan enzim pepsin pada 35°C.
Diagram 6 shows the results of an experiment to study the reaction of a raw fish solution when added with pepsin enzyme at 35°C.



Rajah 6 ***Diagram 6***

Eksperimen itu diulangi pada 25°C.
Antara berikut, yang manakah menunjukkan keputusan eksperimen itu?
The experiment was repeated at 25°C.
Which of the following shows the results of the experiment?



10 Apakah kepentingan mitosis dalam organisma multisel?
What are the importance of mitosis in multicellular organisms?

I Menghasilkan gamet
Produces gametes
II Membolehkan pembiakan aseks berlaku
Enables asexual reproduction to occur
III Mengekalkan bilangan kromosom dalam organisma
Maintains the number of chromosomes in organisms
IV Menghasilkan pertumbuhan, membaiki sel yang rosak dan menggantikan sel yang mati
Produces growth, repairs injured cells and replaces dead cells

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

11 Jadual 1 menunjukkan perubahan dalam sel semasa mitosis.
Table 1 shows the changes in a cell during mitosis.

Peringkat *Stage* / Struktur dalam sel *Structure in cell*	*P*	*Q*	*R*	*S*
Nukleolus *Nucleolus*	Tiada *Absent*	Hadir *Present*	Tiada *Absent*	Hadir *Present*
Gentian gelendong *Spindle fibres*	Hadir *Present*	Hadir *Present*	Hadir *Present*	Tiada *Absent*
Kromosom *Chromosomes*	Bergerak ke arah kutub-kutub sel *Move towards cell poles*	Tersebar secara rawak dalam sel *Randomly distributed in the cell*	Pada satah khatulistiwa sel *At the equator of the cell*	Pada kutub-kutub sel *At cell poles*
Nuclear membrane *Membran nukleus*	Tiada *Absent*	Tiada *Absent*	Tiada *Absent*	Hadir *Present*

Jadual 1 ***Table 1***

Apakah peringkat *P, Q, R* dan *S*?
What are stages P, Q, R and S?

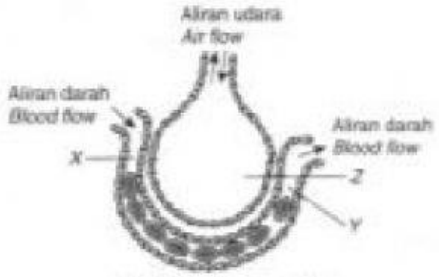
LIVEWORKSHEETS

	P	Q	R	S
A	Telofasa *Telophase*	Metafasa *Metaphase*	Profasa *Prophase*	Anafasa *Anaphase*
B	Anafasa *Anaphase*	Profasa *Prophase*	Metafasa *Metaphase*	Telofasa *Telophase*
C	Profasa *Prophase*	Anafasa *Anaphase*	Metafasa *Metaphase*	Telofasa *Telophase*
D	Metafasa *Metaphase*	Telofasa *Telophase*	Anafasa *Anaphase*	Profasa *Prophase*

12 Antara berikut, yang manakah menunjukkan ciri emfisema dan kesannya terhadap manusia?
Which of the following shows the characteristics of emphysema and its effect on humans?

	Ciri *Characteristic*	Kesan *Effect*
A	Pengumpulan tar dan nikotina dalam alveolus *Accumulation of tar and nicotine in the alveoli*	Meningkatkan risiko mendapat penyakit kanser peparu *Increases the risk of lung cancer*
B	Pengumpulan gas karbon monoksida dalam alveolus *Accumulation of carbon monoxide in the alveoli*	Oksigen yang diterima oleh sel adalah kurang disebabkan hemoglobin lebih cenderung bergabung dengan karbon monoksida. *Less oxygen is received by the cells as haemoglobin is more inclined to bind with carbon monoxide.*
C	Dinding alveolus termusnah kerana alveolus kecil bergabung menjadi kantung besar. *The walls of alveoli are destroyed as small alveoli combine to become bigger sacs.*	Resapan oksigen berkurangan disebabkan oleh pengurangan jumlah luas permukaan alveolus. *Diffusion of oxygen decreases as the total surface area of the alveoli is reduced.*
D	Dinding alveolus termusnah kerana alveolus kecil bergabung menjadi kantung besar. *The walls of the alveoli are destroyed as small alveoli combine to become bigger sacs.*	Meningkatkan risiko mendapat penyakit kanser peparu *Increases the risk of lung cancer*

13 Rajah 7 menunjukkan suatu alveolus dan kapilari darah.
Diagram 7 shows an alveolus and a blood capillary.

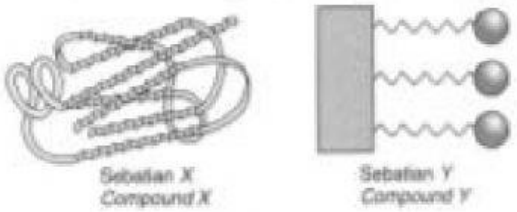


Rajah 7 ***Diagram 7***

Apakah tekanan separa oksigen di *X*, *Y* dan *Z*?
What are the partial pressures of oxygen at X, Y and Z?

	X	Y	Z
A	Rendah *Low*	Rendah *Low*	Tinggi *High*
B	Rendah *Low*	Tinggi *High*	Tinggi *High*
C	Tinggi *High*	Rendah *Low*	Tinggi *High*
D	Tinggi *High*	Tinggi *High*	Rendah *Low*

14 Rajah 8 menunjukkan dua sebatian organik.
Diagram 8 shows two organic compounds.



Rajah 8 ***Diagram 8***

Antara enzim berikut, yang manakah dapat menghidrolisis sebatian *X* dan *Y*?
Which of the following enzymes can hydrolyse compounds X and Y?

	X	Y
A	Pepsin *Pepsin*	Lipase *Lipase*
B	Pepsin *Pepsin*	Amilase *Amylase*
C	Lipase *Lipase*	Pepsin *Pepsin*
D	Amilase *Amylase*	Lipase *Lipase*

15 KBAT Table 2 shows the results obtained from an experiment to determine the concentration of vitamin C in lime juice.
Jadual 2 menunjukkan keputusan eksperimen untuk menentukan kepekatan vitamin C dalam jus limau.

LIVEWORKSHEETS

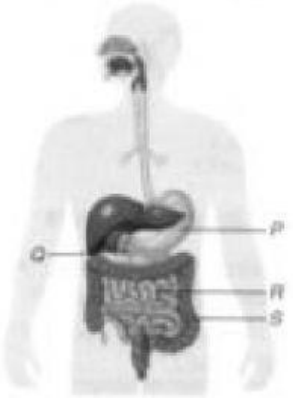
Sampel *Sample*	Isi padu yang diperlukan untuk melunturkan 1.0 cm^3 larutan DCPIP 0.1% (cm^3) *Volume needed to decolourise 1.0 cm^3 of 0.1% DCPIP solution* (cm^3)
Asid askorbik 0.1% *0.1% ascorbic acid*	0.5
Jus limau *Lime juice*	2.0

Jadual 2 *Table 2*

Apakah kepekatan dan peratus vitamin C dalam jus limau?
What are the concentration and the percentage of vitamin C in lime juice?

	Vitamin C dalam jus limau *Vitamin C in the lime juice*	
	Kepekatan/*Concentration* ($mg\ cm^{-3}$)	Peratus *Percentage*
A	0.25	0.025
B	0.25	2.500
C	4.00	0.040
D	4.00	40.000

16 Rajah 9 menunjukkan sistem pencernaan manusia.
Diagram 9 shows the human digestive system.



Rajah 9 *Diagram 9*

Bahagian manakah yang merupakan tapak penyerapan air daripada makanan tercerna?
Which parts are the sites of absorption of water from digested food?

A *P* dan/*and Q*
B *Q* dan/*and R*
C *Q* dan/*and S*
D *R* dan/*and S*

17 Kumpulan makanan manakah amat disyorkan untuk mencegah sembelit?
Which group of food is highly recommended to prevent constipation?

A Susu lembu, ikan dan pisang
Cow's milk, fish and bananas
B Cendawan, mentega dan kerang
Mushrooms, butter and cockles
C Daging ayam, telur dan jus oren
Chicken, eggs and orange juice
D Bayam, roti gandum dan kacang pis
Spinach, wheat bread and peas

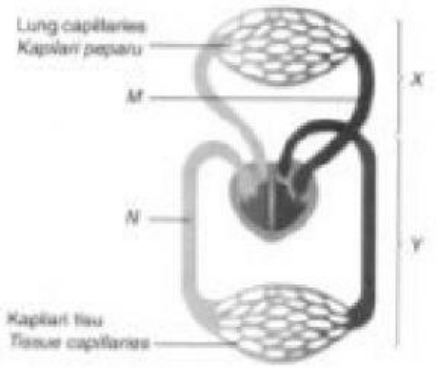
18 Antara berikut, yang manakah merupakan ciri leukosit berbanding dengan eritrosit?
Which of the following is the characteristic of a leucocyte compared to an erythrocyte?

A Saiznya lebih kecil
Smaller in size
B Bilangannya lebih banyak dalam darah
More numerous in blood
C Tidak mempunyai bentuk yang tetap
Does not have a fixed shape
D Tidak mempunyai nukleus atau hemoglobin
Does not have a nucleus nor haemoglobin

19 Bahagian jantung manusia manakah yang menghasilkan tekanan darah yang paling tinggi semasa pengecutan?
Which part of the human heart develops the highest pressure during contraction?

A Atrium kanan *Right atrium*
B Atrium kiri *Left atrium*
C Vetrikel kanan *Right ventricle*
D Ventrikel kiri *Left ventricle*

20 Rajah 10 menunjukkan sistem peredaran darah manusia.
Diagram 10 shows the human blood circulatory system.



Rajah 10 *Diagram 10*

Antara berikut, yang manakah menghuraikan sistem peredaran darah dalam Rajah 10?
Which of the following describes the blood circulatory system in Diagram 10?

LIVEWORKSHEETS

A *M* ialah darah terdeoksigen.
M is deoxygenated blood.

B *N* ialah darah beroksigen.
N is oxygenated blood.

C *X* melibatkan pengaliran darah hanya ke dan dari peparu.
X involves the flow of blood to and from the lungs only.

D *Y* melibatkan pengaliran darah hanya ke dan dari bahagian bawah badan.
Y involves the flow of blood to and from the lower parts of the body only.

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