SOALAN OBJEKTIF

1 Diagram 1 shows the respiratory structure of the fish.
P *Rajah 1 menunjukkan struktur respirasi ikan.*
T

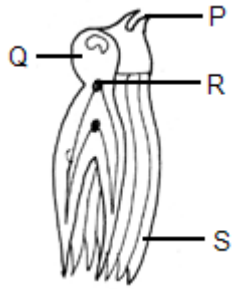


Diagram 1 / *Rajah 1*

Which of the following pair is correct?
*Antara padanan berikut, yang manakah **benar**?*

	Structure *Struktur*	Function *Fungsi*
I.	P	Filter the food particles and sand *Menapis butir makanan dan pasir*
II.	Q	Have one gill arch at the anterior and two rows of filaments at the posterior. *Mempunyai satu baris sisir insang di anterior dan dua baris filamen insang di posterior*
III.	R	Increase the transportation of respiratory gases. *Meningkatkan proses pengangkutan gas respirasi*
IV.	S	Increase the surface area for gases exchange *Menambahkan luas permukaan bagi pertukaran gas*

A I, II and III only
I, II dan III sahaja

B I, III and IV only.
I, III dan IV sahaja

C II, III and IV only.
I, III and IV sahaja

D I, II, III and IV
Semua I, II, III dan IV

2 Diagram 2 shows parts P, Q, R and S of respiratory system in cockroaches.
F The below informations show explanation about the parts.
T *Rajah 2 menunjukkan bahagian-bahagian R,P,Q dan S dalam sistem respirasi seekor lipas. Maklumat di bawah menunjukkan penerangan tentang bahagian-bahagian itu*.

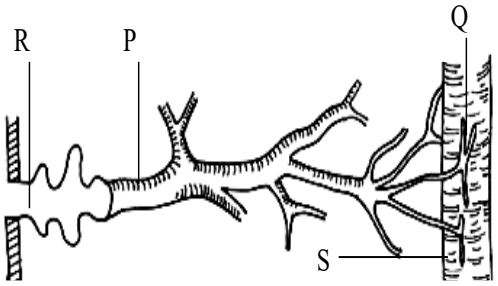
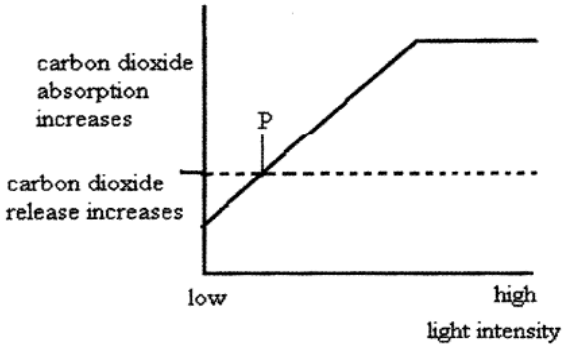


Diagram 2 / *Rajah 2*

Which of the following is **not** the correct explanation?
*Antara bahagian berikut, yang manakah **tidak** benar tentang penerangannya?*

A.	P	Have thickening rings to avoid it from collapsing.. *Mempunyai penebalan bergelang untuk mencegah bahagian itu daripada terkempis*
B.	Q	Have thin wall filled with fluid containing dissolved gases. *Mempunyai dinding nipis dan berisi bendalir yang mempunyai gas-gas terlarut*
C.	R	Opening and closing controlled by thick cuticle. *Pembukaan dan penutupan dikawal oleh kutikel tebal.*
D.	S	Gases exchange take place by diffusion. *Pertukaran gas berlaku secara resapan.*

3 Explain what will happen at point P.
F *Terangkan apa yang berlaku pada titik P.*
T



A Rate of carbon dioxide produced during respiration is equal to the rate of carbon dioxide used for photosynthesis.
Kadar pembebasan karbon dioksida semasa respirasi adalah bersamaan dengan kadar penggunaan karbon dioksida semasa fotosintesis.

B Rate of carbon dioxide produced during respiration is higher than the rate of carbon dioxide used for photosynthesis.
Kadar pembebasan karbon dioksida semasa respirasi melebihi kadar penggunaan karbon dioksida semasa fotosintesis.

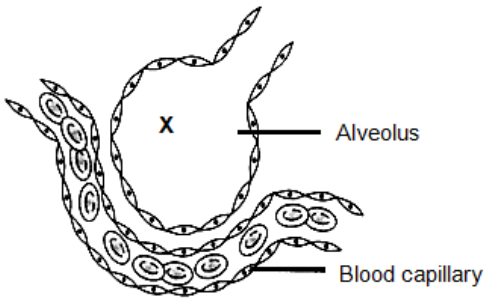
C Rate of carbon dioxide produced during respiration is lower than the rate of carbon dioxide used for photosynthesis.
Kadar pembebasan karbon dioksida semasa respirasi adalah lebih rendah dari kadar penggunaan karbon dioksida semasa fotosintesis

D Rate of carbon dioxide produced during respiration is not equal to the rate of carbon dioxide used for photosynthesis.
Kadar pembebasan karbon dioksida semasa respirasi adalah tidak sama dengan kadar penggunaan karbon dioksida semasa fotosintesis.

4 P T Which of the following are the products of aerobic and anaerobic respiration in muscle cells ?
Manakah antara berikut adalah hasil dari respirasi aerob dan anaerob di sel-sel otot?

	Aerobic Respiration ***Respirasi aerob***	**Anaerobic Respiration** ***Respirasi anaerob***
A	Carbon dioxide and water *Karbon dioksida dan air*	Ethanol *Etanol*
B	Carbon dioxide and water *Karbon dioksida dan air*	Lactic acid *Asid laktik*
C	Lactic acid *Laktik asid*	Ethanol *Etanol*
D	Lactic acid *Laktik asid*	Carbon dioxide and water *Karbon dioksida dan air*

5 F S Which of the following statements are **true** when a person inhales?
Antara pernyataan berikut, yang manakah benar apabila seseorang individu menyedut nafas?



I More oxyhaemoglobin will be formed.
Lebih banyak oksihemoglobin terbentuk

II Oxygen diffuses from X into the blood capillary.
Oksigen meresap dari X ke dalam kapilari darah

III The partial pressure of oxygen in X is higher than the partial pressure of oxygen in the blood capillary.

Tekanan separa oksigen di X adalah tinggi dari tekanan separa oksigen di kapilari darah.

IV The partial pressure of carbon dioxide in X is lower than the partial pressure of carbon dioxide in the blood capillary.
Tekanan separa karbon dioksida di X adalah lebih rendah dari tekanan separa arbon dioksida di kapilari arah

A I and II only
I dan II sahaja

C I, II, and III only
I, II dan III sahaja

B III and IV only
III dan IV sahaja

D I, II, III, and IV
Kesemua I, II, III dan IV

6 A T A students take part in a 200 m spring event. Which equation represents his respiration process after he has run the first 100 m?
Seorang murid mengambil bahagian dalam acara pecut 200m. Antara persamaan berikut yang manakah mewakili proses respirasi semasa ia lari 100 m yang pertama?

A Glucose → Lactic acid + energy
Gukosa → Asid laktik + tenaga

B Glucose + Oxygen → Lactic acid + energy
Glukosa + oksigen → Asid laktik + tenaga

C Glucose → Ethanol + carbon dioxide + energy
Glukosa → Etanol + karbon dioksida + tenaga

D Glucose + Oxygen → Water + carbon dioxide + energy
Glukosa + Oksigen → Air + Karbon dioksida + tenaga

7 A S Diagram 3 shows an experiment to study the changes in temperature during specific period of time.
Rajah 3 menunjukkan bagi satu eksperimen untuk mengkaji perubahan suhu dalam tempoh masa tertentu.

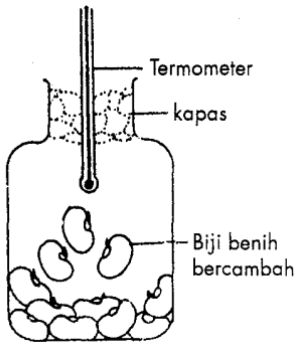
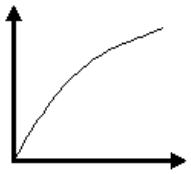
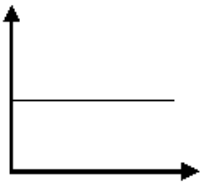
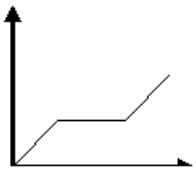


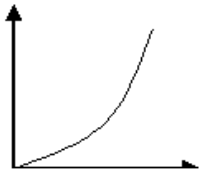
Diagram 3/ *Rajah 3*

Which of the following graph represented the best result of the experiment?
Antara graf-graf yang berikut yang manakah paling tepat mewakili keputusan eksperimen ini?

A 

C 

B 

D 

8 Diagram 4 shows two organisms P and Q.
P *Rajah 4 menunjukkan dua organisma P dan Q.*
T

P Q

Diagram 4 / *Rajah 4*

	P	Q
A	Tracheole *Trakeol*	Lungs *Peparu*
B	Tracheole *Trakeol*	Gills *Insang*
C	Lungs *Peparu*	Tracheole *Trakeol*
D	Lungs *Peparu*	Gills *Insang*

9 The following information shows the results of an experiment to determine the oxygen
A content in exhaled air using J-tube.
S *Maklumat berikut menunjukkan keputusan satu ekperimen untuk menentukan kandungan oksigen dalam udara hembusan dengan menggunakan tiub J*

Length of air column (exhalation) *Panjang turus udara (hembusan)*	= 10.0 cm
Length of exhale air column after treatment with potassium hydroxide *Panjang turus udara hembusan selepas dirawat dengan kalium hidroksida*	= 9.6 cm
Length of exhale air column after treatment with potassium pyrogallol *Panjang turus udara hembusan selepas dirawat dengan kalium pirogalol*	= 8.5 cm

The percentage of oxygen content in exhaled air is
Peratus kandungan oksigen dalam udara hembusan adalah

A	4 %	C	16%
B	11%	D	21%

10 P R Diagram 5 shows a respiratory structure in an organism.
Rajah 5 menunjukkan struktur respirasi dalam satu organisma.

What is the respiratory structure shown in the diagram?
Apakah struktur respirasi yang ditunjukkan oleh rajah?

A	Gills *Insang*	C	Alveolus *Alveolus*
B	Trachea *Trakea*	D	Moist skin *Kulit lembab*

11 P T Diagram 6 shows an equation for aerobic respiration.
Rajah 6 menunjukkan persamaan untuk respirasi aerob.

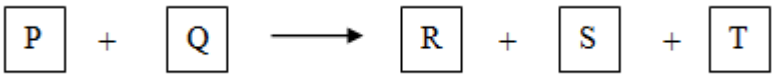
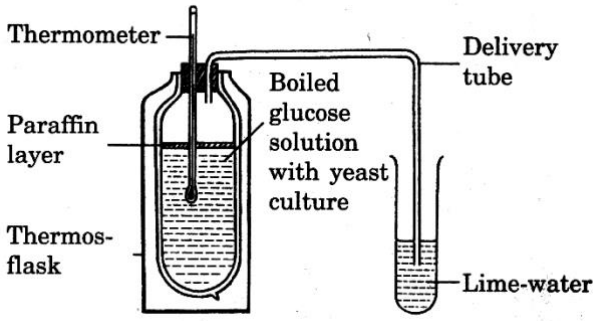


Diagram 6 / *Rajah 6*

What are P, Q, R, S and T?
Apakah P, Q, R, S dan T?

	P	Q	R	S	T
A	Glucose *Glukosa*	Carbon dioxide Karbon dioksida	Oxygen *Oksigen*	Water *Air*	ATP *ATP*
B	ATP *ATP*	Glucose *Glukosa*	Oxygen *Oksigen*	Carbon dioxide Karbon dioksida	Water *Air*
C	Carbon dioxide Karbon dioksida	ATP *ATP*	Glucose *Glukosa*	Oxygen *Oksigen*	Water *Air*
D	Glucose *Glukosa*	Oxygen *Oksigen*	Carbon dioxide Karbon dioksida	Water *Air*	ATP *ATP*

12 Diagram 7 shows an experiment on anaerobic respiration in yeast.
F *Rajah 7 menunjukkan satu eksperimen tentang respirasi anaerob dalam yis.*
T



Which of the following are observed after 30 minutes?
Antara berikut, manakah yang boleh diperhatikan selepas 30 minit?

X Temperature in thermos-flask increases
Suhu dalam kelalang termos meningkat

Y Lime water turns cloudy
Air kapur berkeladak

Z Gas bubbles are released
Gelembung gas dibebaskan.

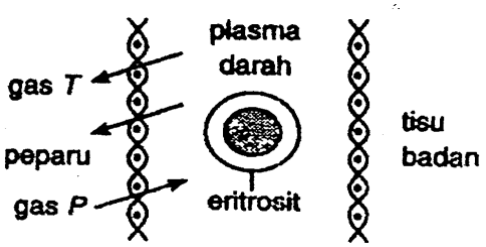
A X and Y only
X dan Y sahaja

B Y and Z only
Y dan Z sahaja

C X and Z only
X dan Z sahaja

D X, Y and Z
X, Y da Z.

13 Which of the following is the method in transportation of gas T in blood?
F *Antara berikut yang manakah merupakan kaedah pengangkutan gas T dalam darah?*
S



I As carbaminohaeoglobin
Dalam bentuk karbaminohemoglobin

II Ad carbonic ion
Dalam bentuk ion bikarbonat

III Dissolve in blood plasma
Terlarut dalam plasma darah

IV Combine with red blood cell

Berpadu dengan eritrosit

A I and II only
I dan II sahaja

B II and III only
II dan III sahaja

C I, II and III only
I, II dan III sahaja

D II, III and IV only
II, III dan IV sahaja

14 ANS Which of the following information is true about photosynthesis and aerobic respiration?
Antara maklumat berikut, yang manakah benar bagi kedua-dua proses fotosintesis dan respirasi aerob?

		Photosynthesis *Fotosintesis*	Aerobic respiration *Respirasi aerob*
A	Cell which undergo the process *Sel yang menjalani proses*	Cell contain chloroplast *Sel berkloroplas*	All living cell *Semua jenis sel hidup*
B	The situation for the process take place *Keadaan dimana proses berlaku*	In the present of light *Keadaan bercahaya*	In the absent of light *Keadaan tanpa cahaya*
C	Substrate *Substrat*	Water & carbon dioxide *Air dan karbon dioksida*	Glukosa *Glucose*
D	Product *Hasil tindak balas*	Glucose, oxygen & water *Glukosa, oksigen dan air*	Carbon dioxide, ethanol & energy *Karbon dioksida, etanol dan tenaga*

15 ANS Which of the following is the different between photosynthesis and respiration?
Yang manakah antara berikut adalah perbezaan antara fotosintesis dan respirasi?

	Photosynthesis	Respiration
A	Take place in mitochondrion *Berlaku dalam mitokondrion*	Take place in chloroplast *Berlaku dalam kloroplas*
B	Produce oxygen, glucose qnd energy *Menghasilkan oksigen, glukosa dan tenaga*	Produce energy, water and oxygen *Menghasilkan tenaga, air dan oksigen*
C	Take place in chloroplast *Berlaku dalam kloroplas*	Take place in mitochondrion *Berlaku dalam mitokondrion*
D	Produce energy, water and oxygen *Menghasilkan tenaga, air dan oksigen*	Produce oxygen, glucose qnd energy *Menghasilkan oksigen, glukosa dan tenaga*

16
P
R

Glucose ⟶ Energy + Ethanol + Carbon dioxide *Glukosa* ⟶ *Tenaga + Etanol + Karbon dioksida*

Where the above process take place?
Di manakah proses di atas berlaku?

A Leaf
Daun

B Liver
Hati

C Muscle
Otot

D Yeast
Yis

17 The blood from lung carry .....
P *Darah dari peparu membawa...*
R

A Less carbon dioxide and less oxygen
Kurang karbon dioksida dan kurang oksigen

B Less carbon dioxide and more oxygen
Kurang karbon dioksida dan lebih oksigen

C More oxygen and more carbon dioxide
Lebih oksigen dan lebih karbon dioksida

D More oxygen
Lebih oksigen

18 Diagram 9 below shows the respiratory system in humans.
P *Rajah 9 di bawah menunjukkan sistem pernafasan pada manusia.*
T

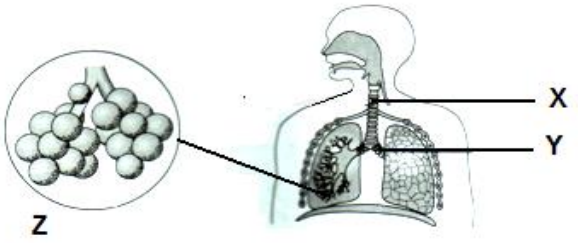


Diagram 9 /*Rajah 9*

What are X, Y and Z?
Apakah X, Y dan Z?

	X	Y	Z
A	Trachea *Trakea*	Bronchus *Bronkus*	Bronchiole *Bronkiol*
B	Trachea *Trakea*	Bronchus *Bronkus*	Alveolus *Alveolus*
C	Oesophagus *Esofagus*	Trachea *Trakea*	Bronchus *Bronkus*
D	Oesophagus *Esofagus*	Trachea *Trakea*	Alveolus *Alveolus*

19 F R Which of the following processes in plants need energy?
Manakah antara proses berikut memerlukan tenaga?

I Mitosis
Mitosis

II Water diffusion
Resapan air

III Growth of pollen tube
Pemanjangan tiub debunga

IV Mineral salts absorption
Penyerapan garam mineral

A I and II only
I dan II sahaja

B III and IV only
III dan IV sahaja

C I, III and IV only
I, III dan IV sahaja

D I, II, III and IV
I, II, III da IV.

20 A R Diagram 10 shows an experiment to investigate a yeast activity. The yeast is suspended in a boiled, cooled glucose solution.
Rajah 10 menunjukkan satu eksperimen untuk mengkaji aktiviti yis. Yis dimasukkan bersama larutan glukosa didih yang telah disejukkan

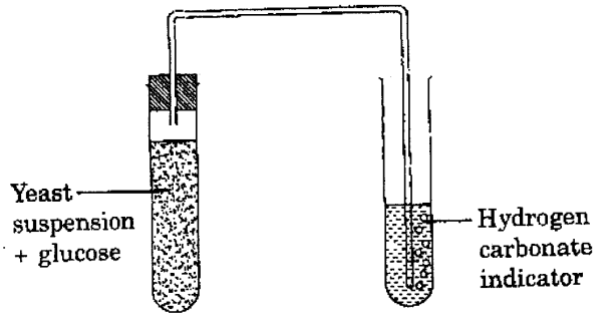


Diagram 10 / *Rajah 10*

What is the activity?
Apakah aktiviti tersebut?

A Diffusion of gas
Resapan gas

B Digestion of starch
Pencernaan kanji

C Anaerobic respiration
Respiarsi anaerob

D Synthesis of carbohydrate
Sintesis karbohiderat

21 A S Diagram 11 shows a model of the ribs to illustrate the breathing mechanism in humans.
Rajah 11 menunjukkan model tulang rusuk untuk menerangkan mekanisma bernafas manusia.

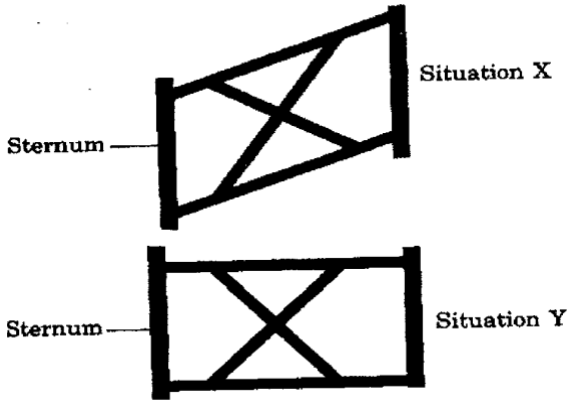


Diagram 11 / *Rajah 11*

What takes place as the position of the ribs changes from X to Y?
Apakah yang telah berlaku bila tulang rusuk bertukar bentuk dari X ke Y?

I Pressure in the lungs increases
Tekanan dalam peparu bertambah

II Volume of chest cavity decreases
Isipadu rongga dada berkurang

III Rib cage pushes upwards and outwards
Sangkar rusuk bergerak ke atas dan ke depan

IV Inhalation takes place
Berlaku sedutan nafas

A I and II only
I dan II sahaja

B Ill and IV only
III dan IV sahaja

C I, III and IV only
I, III dan IV sahaja

D I, II, III and IV
I, II, III dan IV

22 Diagram 12 shows an experiment of yeast respiration.
A *Rajah 12 menunjukkan eksperimen tentang respirasi yis.*
S

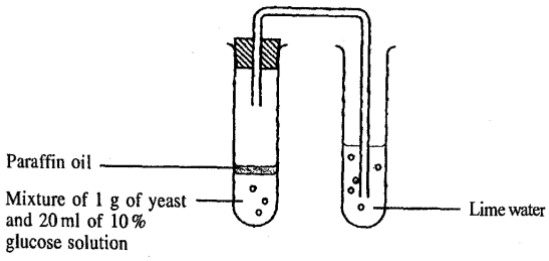


Diagram 12/ *Rajah 12*

Which of the following mixtures can increase the rate of respiration of yeast?
Campuran manakah boleh meningkatkan kadar respirasi yis?

A 1 g of yeast and 25 ml of 5 % glucose solution
1g yis dan 25 ml larutan glukosa 5%.

B 1 g of yeast and 25 ml of 7 % glucose solution
1g yis dan 25 ml larutan glukosa 7%.

C 1 g of yeast and 25 ml of 10 % glucose solution
1g yis dan 25 ml larutan glukosa 10%.

D 1 g of yeast and 25 ml of 15 % glucose solution
1g yis dan 25 ml larutan glukosa 15%.

23 Diagram 13 shows a model of the lungs.
A *Rajah 13 menunjukkan model peparu.*
S

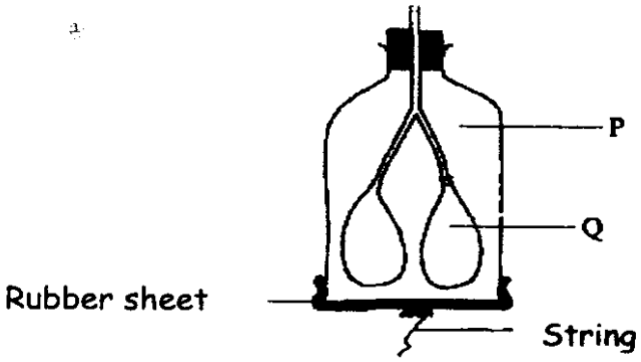


Diagram 13 / *Rajah 13*

What will happen in P and in Q when the string is pulled downwards?
Apa berlaku pada P dan Q jika tali ditarik ke bawah?

	P	Q
A	Volume increases *Isipadu bertambah*	Expand *Mengembang*
B	Volume decreases *Isipadu berkurang*	Contract *Mengecut*

C	Pressure increases *Tekanan bertambah*	Expand *Mengembang*
D	Pressure decreases *Tekanan berkurang*	Contract *Mengecut*

24 F S Diagram 14 shows the structure of the gill of a fish.
Rajah 14 menunjukkan struktur insang ikan.

Diagram 14 / *Rajah 14*

What process occurs at X during the gas exchange of the fish?
Apakah proses yang berlaku di X semasa pertukaran gas pada ikan?

A Osmosis
Osmosis

B Facilitated diffusion
Resapan berbantu

C Diffusion
Resapan

D Active transport
Pengangkutan aktif

25 P S Diagram 15 shows parts of the tracheal system of insects.
Rajah 15 menunjukkan bahagian-bahagian pada sistem trakea serangga.

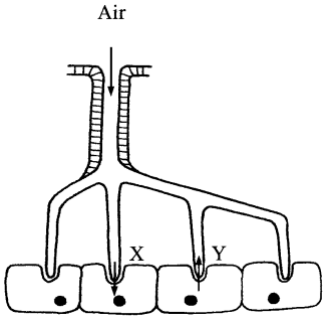


Diagram 15 / *Rajah 15*

What are substances X and Y?
Apakah bahan X dan Y?

	X	**Y**
A	Oxygen *Oksigen*	Carbon dioxide *Karbon dioksida*
B	Carbon dioxide *Karbon dioksida*	Oxygen *Oksigen*
C	Oxygen *Oksigen*	Water *Air*

D

Water *Air*	Oxygen *Oksigen*

26 F S What are the characteristics that enable gaseous exchange at the gill filaments of the fish to be carried out efficiently?
Apakah ciri-ciri yang membolehkan pertukaran gas pada insang ikan berlaku dengan berkesan?

I large surface area
Luas permukaan yang besar

II Thin walls of membrane
Dinding membran yang nipis

III A network of blood capillaries
Satu jaringan kapilari darah

IV The flow of blood which is opposite to the direction of the flow of water
Pengaliran darah yang berlawanan arah dengan arah pengaliran air

A I and II only
I dan II sahaja

B III and IV only
III dan IV sahaja

C I, II and IV only
I, II and IV sahaja

D I, II, III and IV only
I, II, III dan IV sahaja

27 P S Carbon monoxide in tobacco smoke is harmful because it..
Karbon monoksida dalam asap rokok merbahaya kerana ..

A causes addiction.
menyebabkan ketagihan

B causes lung cancer.
menyebabkan barah peparu

C kills the cells lining the trachea.
membunuh sel-sel yang melapisi trakea

D competes with oxygen to combine with haemoglobin.
bersaing dengan oksigen untuk bergabung dengan haemoglobin

28 F R Diagram 16 shows human respiratory system.
Rajah 16 menunjukkan sistem respirasi pada manusia.

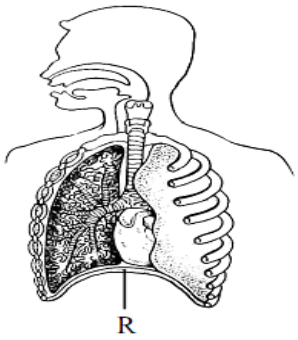


Diagram 16/ *Rajah 16*

What happen to structure R during exhalation?
Apakah yang berlaku kepada struktur R semasa hembus nafas?

A Relaxes and becomes flatten
Mengendur dan menjadi mendatar

B Contracts and becomes flatten
Mengecut dan menjadi mendatar

C Relaxes and becomes dome shape
Mengendur dan menjadi bentuk kubah

D Contracts and becomes dome shape
Mengecut dan menjadi bentuk kubah

29 F R Which equation represents aerobic respiration?
Persamaan manakah yang mewakili respirasi aerobik?

A Glucose → Lactic acid + energy
Glukosa → *Asid laktik + tenaga*

B Glucose + oxygen → Ethanol + carbon dioxide+ energy
Glukosa + Oksigen → *Etanol + karbn dioksida + tenaga*

C Glucose → Ethanol + carbon dioxide+ energy
Glukosa → *Etanol + karbn dioksida + tenaga*

D Glucose + oxygen → Carbon dioxide+ water + energy
Glukosa + Oksigen → *Karbn dioksida + air + tenaga*

30 AN R Which of the following statement shows the interdependent between respiration and photosynthesis?
Antara pernyataan berikut, yang manakah menunjukkan saling bersandaan antara respirasi dan fotosintesis?

A Both processes use and release energy
Kedua-dua proses menggunakan dan membebaskan tenaga

B Respiration occurs all the time while photosynthesis occurs at the day time.
Respirasi berlaku sepanjang masa, manakala fotosintesis berlaku pada siang hari

C The product of one process is the raw materials in the other process
Hasil dari satu proses menjadi bahan mentah untuk proses yang lain

D Respiration occurs only in animals while photosynthesis occurs only in plant.
Respirasi hanya berlaku dalam haiwan manakala fotosintesis hanya berlaku dalam tumbuhan.

31 APS Lactic acid accumulated in an athelete's muscles after taking paart in 100 m sprint. Which of the following contribute to the situation?
Asid laktik terkumpul di dalam otot seorang atlit selepas meNgambil bahagian dalam acara 100m lari pecut.
Antara berikut yang manakah menyumbang kepada situasi tersebut?

A Anaerobic respiration in muscles cells increases.
Respirasi anaerobik dalam sel-sel otot meningkat.

B Anaerobic respiration in muscles cells decreases.
Respirasi anaerobik dalam sel-sel otot berkurang.

C Aerobic respiration in muscles cells increases.
Respirasi aerobik dalam sel-sel otot meningkat.

D Aerobic respiration in muscles cells decreases.
Respirasi aerobik dalam sel-sel otot berkurang.

32 FS Diagram 17 shows a longitudinal sectionof an alveolus nd blood capillary.
Rajah 17 menunjukkan keratan memanjang bagi satu alveolus dan kapilari darah.

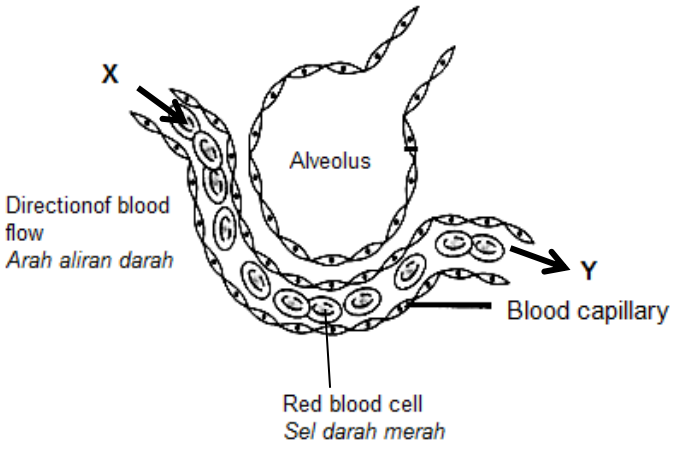


Diagram 17 / *Rajah 17*

What is the partial pressure of carbon dioxide at X and Y?
Apakah tekanan separa bagi karbon dioksida di X dan Y?

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

	Tinggi	*Rendah*
D	High *Tinggi*	High *Tinggi*

33 The following statements show a person's responses in a certain situation.
N *Pernyataan berikut menunjukkan gerak balas seseorang dalam suatu situasi tertentu.*
R

- Heartbeat rate increases
  Kadar denyutan jantung meningkat
- Breathing rate increases
  Kadar pernafasan meningkat
- Adrenaline produced increases
  Penghasilan adrenalina meningkat

Which situation is related to the responses?
Situasi manakah yang berkaitan dengan gerak balas tersebut?

A Cycling across the country
Berbasikal merentasi desa

B Rafting along the steep rapids
Berakit menyusuri jeram yang curam

C Running across the field
Berlari merentasi padang

D Singing in a party
Menyanyi dalam majlis

34 Diagram 19 shows relationship between two processes.
AN *Rajah 19 menunjukkan hubungan antara dua proses.*
R

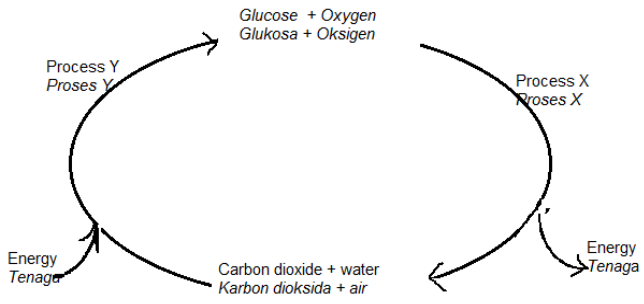


Diagram 19/ *Rajah 19*

What are X and Y?
Apakah X dan Y?

	Process X *Proses X*	Process Y *Proses Y*
A	Condensation *Kondensasi*	Hydrolysis Hidrolisis
B	Condensation *Kondensasi*	Photosynthesis *Fotosintesis*
C	Respiration *Respirasi*	Photosynthesis *Fotosintesis*
D	Respiration *Respirasi*	Condensation *Kondensasi*

35 F S Diagram 20 shows part of human respiratory system.
Rajah 20 menunjukkan sebahagian daripada sistem respirasi manusia.

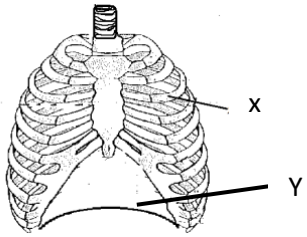


Diagram 20/ *Rajah 20*

What happen to structure X and Y during exhalation?
Apakah berlaku kepada struktur X dan Y semasa menghembus nafas?

	X	Y
A	Move upwards and downwards *Bergerak ke atas dan ke bawah*	Contracts *Mengecut*
B	Move downwards and inwards *Bergerak ke bawah dan ke dalam*	Rekaxes *Mengendur*
C	Move upwards and downwards *Bergerak ke atas dan ke bawah*	Contracts *Mengecut*
D	Move downwards and inwards *Bergerak ke bawah dan ke dalam*	Rekaxes *Mengendur*

36 F S Diagram 21 shows a process occurs in an animal cell.
Rajah 21 menunjukkan suatu proses dalam sel haiwan.

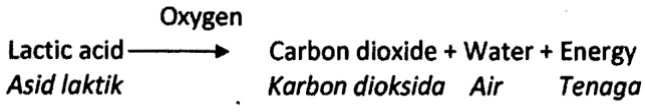
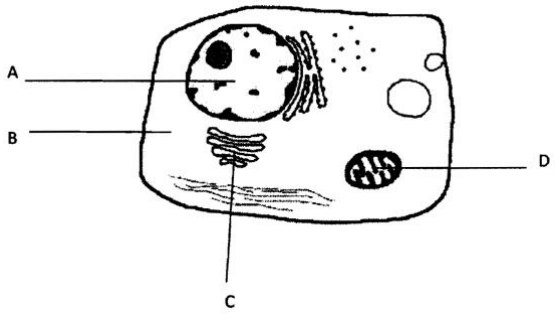


Diagram 21 / *Rajah 21*

Which of the structure labelled A, B, C and D does this process occurs?

Antara bahagian berlabel A, B, C dan D, di manakah proses ini berlaku?



37 N R Breathing is an involuntary process which is controlled by respiratory centre located in medulla oblongata.
Which of the following will trigger the respiratory centre to increase the breathing rate?

Respirasi adalah tindakan luar kawal yang dikawal oleh pusat kawalan pernafasan di medulla oblongota
Manakah antara berikut akan menyebabkan pusat kawalan pernafasan meningkatkan kadar respirasi?

A The blood pH decreases
pH darah menurun

B The blood glucose level decreases
Aras glukosa darah menurun.

C The blood temperature decreases
Suhu darah menurun.

D The blood osmotic pressure decreases
Tekanan darah menurun