AQA GCSE BIOLOGY (HIGHER) · 8461

BIOLOGY



EXAM QUESTION PACK

4.2.2 ANIMAL TISSUES, ORGANS AND ORGAN SYSTEMS (PACK 6)

SCORE	PERCENTAGE
/44	%

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Q1.

The man uses energy as he walks along. Energy is released in the cells in his body.

(i) What name is given to this process which occurs in his cells?

Circle the correct name.

circulation **reproduction** **respiration** **transpiration**

(1)

(ii) What gas is brought to his cells by the blood?

_____

(1)

(iii) What gas is released by his cells and carried away by the blood?

_____

(1)

(Total 3 marks)

Q2.

(a) Respiration is a process which takes place in living cells. What is the purpose of *respiration*?

_____

_____

(1)

(b) (i) Balance the equation for the process of respiration when oxygen is available.

$C_6H_{12}O_6$ + O_2 → CO_2 + H_2O

(1)

(ii) What is the name of the substance in the equation with the formula $C_6H_{12}O_6$?

_____

(1)

(c) Oxygen is absorbed through the alveoli in the lungs.

(i) How are the alveoli adapted for this function?

_____

_____

_____

(2)

(ii) Name the gas which is excreted through the alveoli.

_____

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(1)

(d) (i) What is the name of the process of respiration when oxygen is **not** available?

_____

(1)

(ii) Describe the process of respiration which takes place in human beings when oxygen is **not** available and give an effect.

_____

_____

_____

_____

_____

_____

(3)

(Total 10 marks)

Q3.

The table shows the percentage of some gases in the air a boy breathed in and out.

Gases	Air breathed in	Air breathed out
carbon dioxide	0.04%	4.0%
oxigen	20.0%	16.0%
water vapour	1.0%	6.0%

(a) What happens in the lungs to change the levels of oxygen and carbon dioxide in this way?

Oxygen _____

_____

_____

Carbon dioxide _____

_____

_____

(4)

(b) Compare the percentage of water vapour in the air breathed out with the percentage in air breathed in.

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_____

(2)

(Total 6 marks)

Q4.

Diagram 1 shows the main features of human blood circulation.

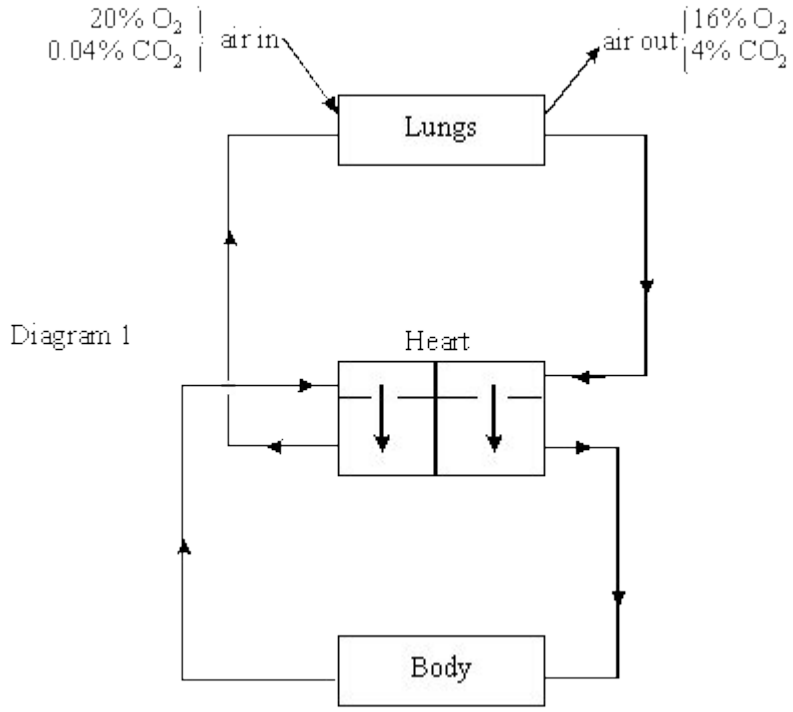


Diagram 1

(a) What changes in the composition of **blood** occur in the lungs?

_____

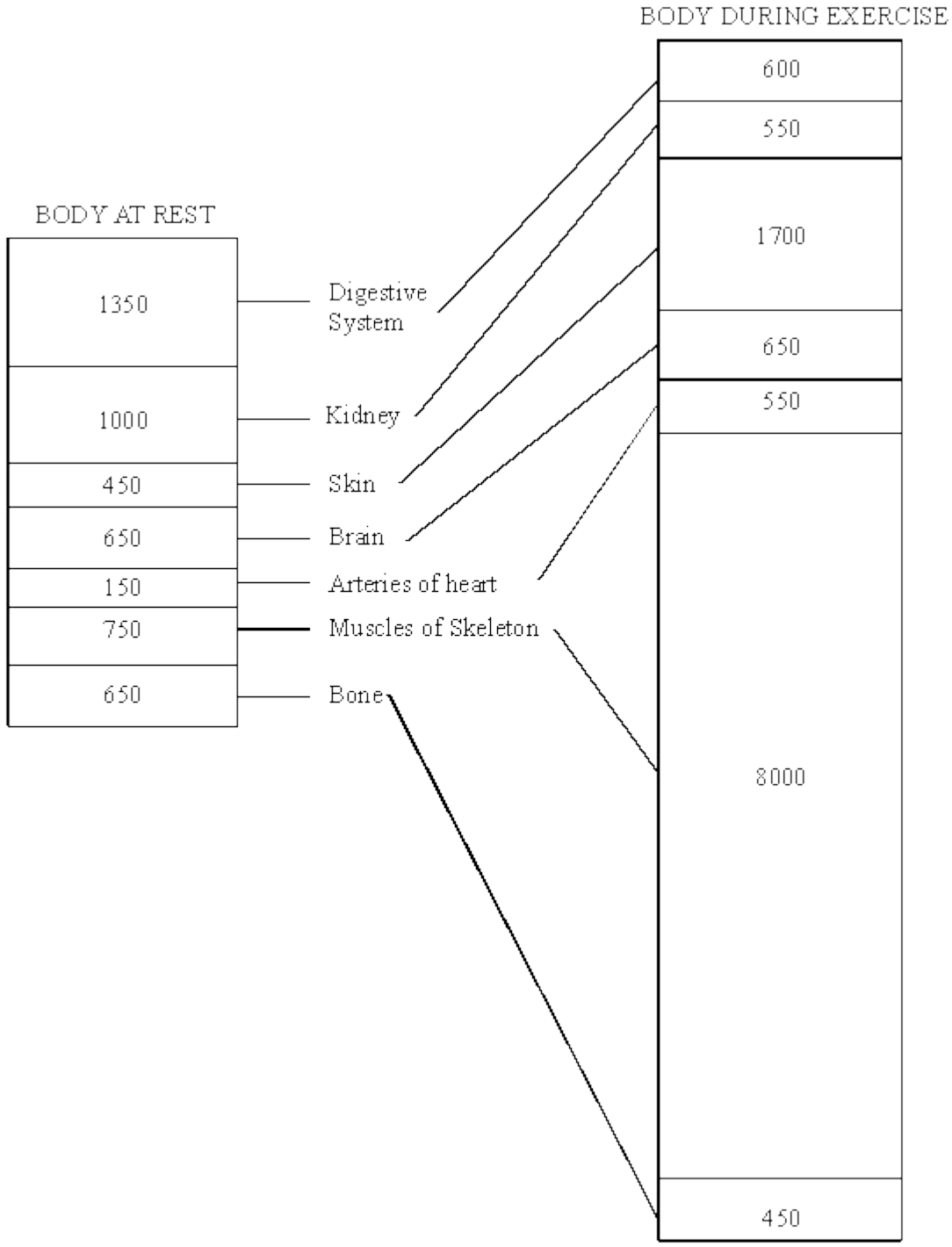
_____

_____

(2)

Diagram 2 shows how the circulation of blood changes between rest and exercise.

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Rate of supply of blood to parts of the body (cm^3/min) when at rest and during exercise.

(b) (i) Use the information from Diagram 2 to complete the table below.

Parts of the body to be included:

Digestive System

Skin

Brain

Arteries of Heart

Muscles of Skeleton

Bone

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HOW BLOOD SUPPLY CHANGES DURING EXERCISE		
reduced	unchanged	increased
Kidney		

(4)

(ii) What happens to the rate of supply of blood to the whole body with exercise?

(You should make full use of the information provided.)

_____

_____

_____

(3)

(Total 9 marks)

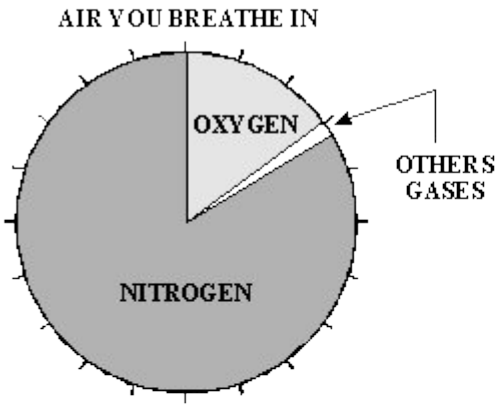
Q5.

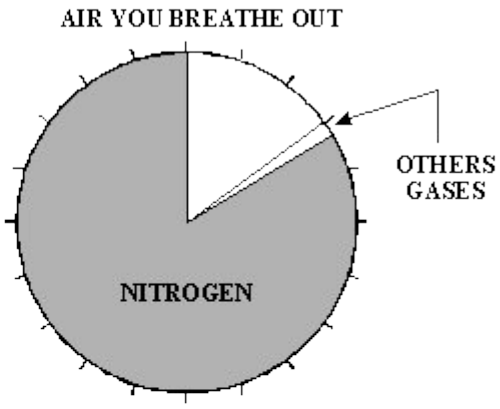
(a) Breathed-out air is different from breathed-in air.

The two pie-charts show the percentages of different gases in each.

Complete the second pie-chart, using the information from the table.

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This air contains less than 1% carbon dioxide. (Too little to show)

Gases in breathed–out air	
nitrogen	79%
oxygen	16%
carbon dioxide	4%
other gases	1%

(3)

(b) Use the information above to complete the following sentences.

The air you breathe out contains more _____ than the air you breathe in.

The air you breathe out contains less _____ than the air you breathe in.

(2)

(Total 5 marks)

Q6.

As they go higher up a mountain, mountaineers take less oxygen into their bodies with each breath.



This is shown in the table below.

	MILLIGRAMS OF OXYGEN TAKEN INTO **LUNGS** WITH EACH NORMAL BREATH	MILLIGRAMS OF OXYGEN TAKEN INTO **BLOOD** WITH EACH NORMAL BREATH

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At bottom of mountain	300	60
At top of mountain	150	30

(a) At the top of the mountain, they only take half as much oxygen into their lungs with each breath as they did at the bottom.

How does this affect the amount of oxygen that gets into their blood with each breath?

_____

_____

(2)

(b) Why do the cells in the mountaineers' bodies need oxygen?

_____

_____

(1)

(Total 3 marks)

Q7.

As they go higher up a mountain, mountaineers take less oxygen into their bodies with each breath, as shown in the table below.

		MILLIGRAMS OF OXYGEN INTO **BLOOD** WITH EACH NORMAL BREATH	
HEIGHT	MILLIGRAMS OF OXYGEN TAKEN INTO **LUNGS** WITH EACH NORMAL BREATH	AT FIRST	AFTER STAYING AT 4500 METRES FOR TWO WEEKS
sea-level	300	60	90
1500 metres	250	50	
3000 metres	200	40	
4500 metres	150	30	45

(a) (i) How does the amount of oxygen taken into the blood with each breath vary with the amount of oxygen breathed into the lungs with each breath?

_____

(2)

(ii) Use the idea of diffusion to explain why the amount of oxygen taken into the blood varies in this way.

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_____

_____

(1)

(b) (i) How does staying at an altitude of 4500 metres for two weeks affect the mountaineers?

_____

(2)

(ii) Suggest an explanation for this.

_____

_____

(1)

(iii) Add the two missing figures to the right-hand column of the table.

(2)

(Total 8 marks)

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