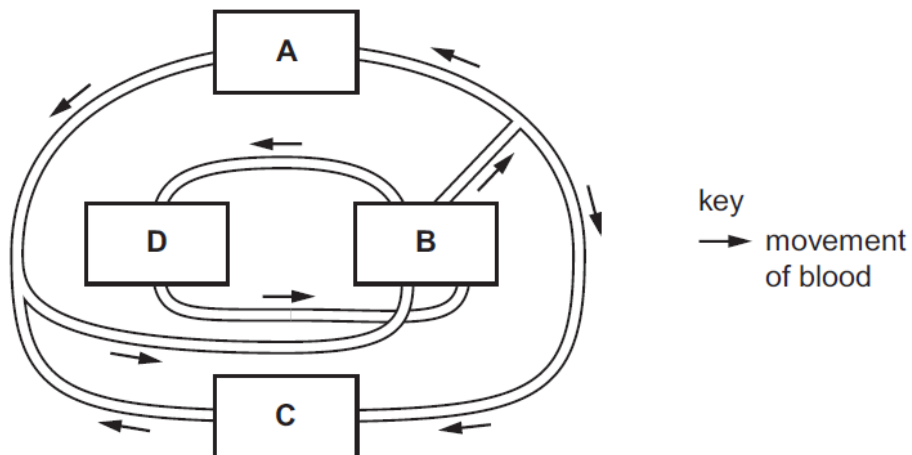


Transport in humans – 2021 O Level 5090

1. [Nov/2021/Paper_11/No.14](#)

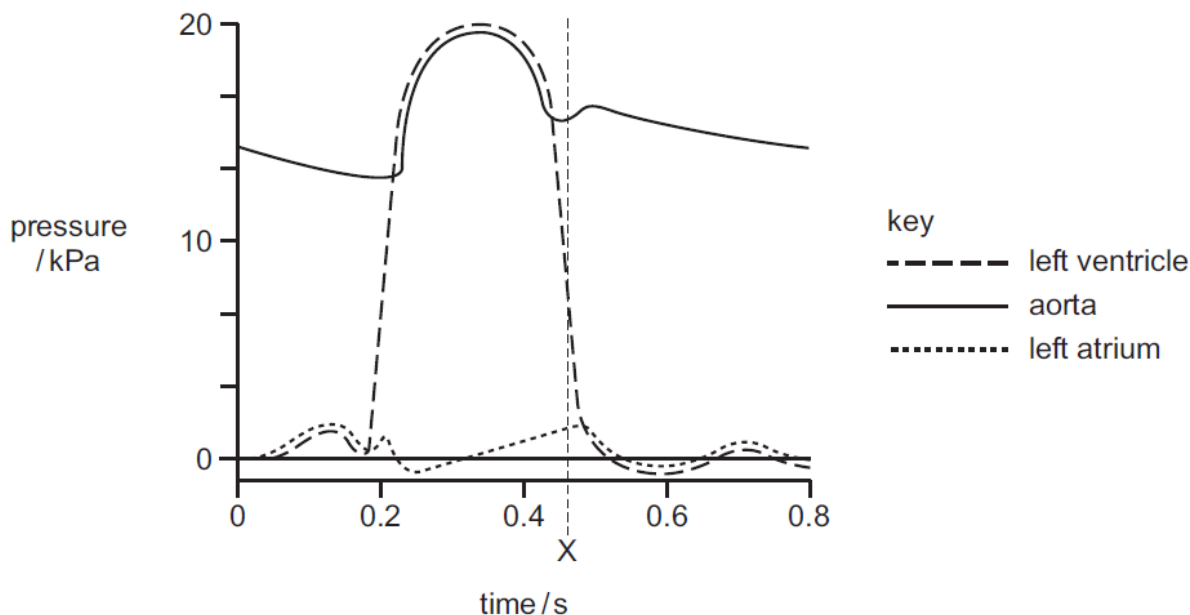
The diagram shows a simplified human circulatory system.

Which structure represents the heart?



2. [Nov/2021/Paper_11/No.15](#)

The diagram shows the pressures in the left side of the heart during one heartbeat.



Which valves are open and which are closed at the time marked X?

	bicuspid	semi-lunar
A	closed	closed
B	closed	open
C	open	closed
D	open	open

3. Nov/2021/Paper_12/No.13

How do veins differ from arteries?

	width of lumen in veins	wall thickness of veins	elastic fibres	muscles in wall
A	narrower	thicker	more	fewer
B	narrower	thinner	fewer	more
C	wider	thicker	more	more
D	wider	thinner	fewer	fewer

4. Nov/2021/Paper_21/No.8

(a) Water enters living organisms and is transported to all their cells.

Compare the transport of water in a human and a flowering plant.

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..... [6]

(b) Water in humans and flowering plants contains dissolved mineral ions.

Suggest reasons why the mineral ion requirements of humans and plants are different.

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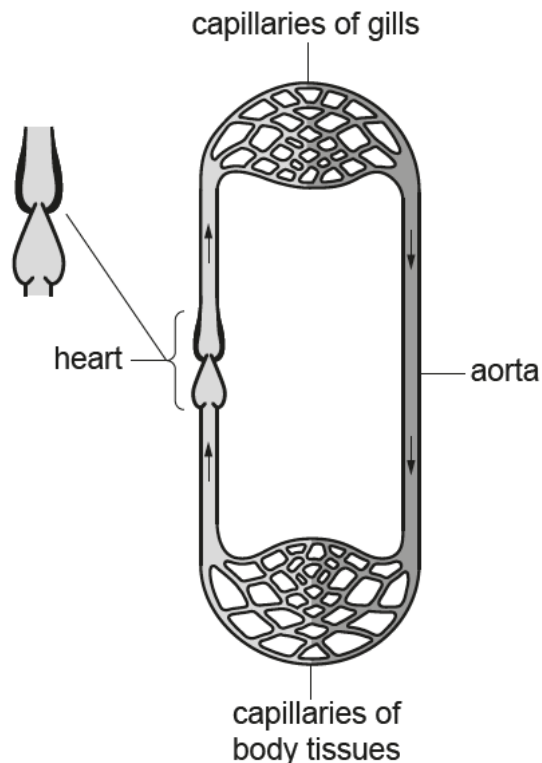
..... [4]

[Total: 10]

5. Nov/2021/Paper_22/No.2

The diagram shows the circulatory system of a fish.

The lungs of a human and the gills of a fish both have a large surface area for gas exchange.



(a) (i) State **two** differences between the structure of the heart of a fish and the structure of the heart of a human.

1

.....

2

.....

[2]

(ii) Draw a **ring** around the correct words to complete the sentence below.

higher than the same as lower than

The pressure of blood in the aorta of a fish will be the pressure of blood in the aorta of a human.

[1]

(b) The photograph shows an Antarctic icefish.



The blood of Antarctic icefish is colourless.

(i) State which component of human blood is **not** present in the blood of an Antarctic icefish.

.....

[1]

Antarctic icefish live in the Antarctic Ocean where the water temperature is very cold.

Aerobic respiration is an enzyme-controlled reaction.

More oxygen is able to dissolve in water at a lower temperature.

Antarctic icefish have a larger heart, wider blood vessels and a greater volume of blood than fish of the same size that live in warmer water.

(ii) Suggest how Antarctic icefish with colourless blood are able to survive in the low temperatures of the Antarctic Ocean.

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..... [5]

[Total: 9]

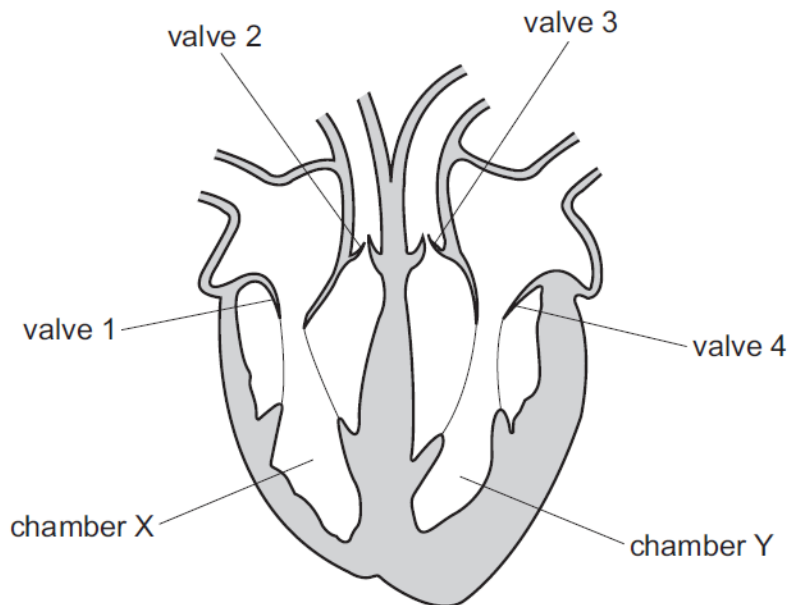
6. Jun/2021/Paper_11/No.13

Which row describes the functions of the blood components?

	plasma	platelets	white blood cells
A	antibody formation	clotting	transport of nutrients
B	clotting	transport of nutrients	antibody formation
C	clotting	antibody formation	transport of nutrients
D	transport of nutrients	clotting	antibody formation

7. Jun/2021/Paper_11/No.14

The diagram shows a section through the human heart.

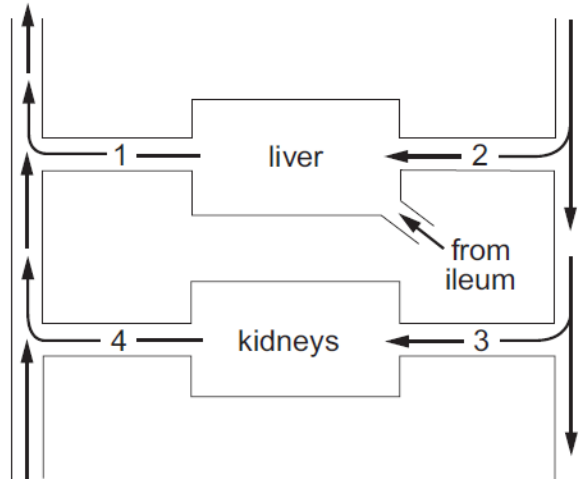


What will be the state of the valves when the walls of chambers X and Y are contracting?

	valves			
	1	2	3	4
A	closed	open	open	closed
B	closed	open	closed	open
C	open	closed	open	closed
D	open	closed	closed	open

8. Jun/2021/Paper_11/No.15

The diagram represents the blood supply to the liver and to the kidneys.



Which vessels contain blood with the highest and lowest concentrations of urea?

	highest	lowest
A	1	2
B	1	4
C	3	2
D	3	4

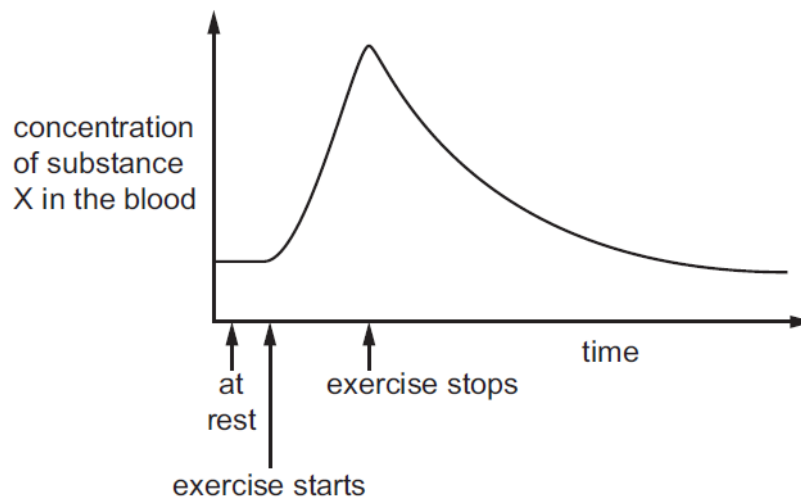
9. Jun/2021/Paper_12/No.13

Which row describes the functions of the blood components?

	plasma	platelets	white blood cells
A	antibody formation	clotting	transport of nutrients
B	clotting	transport of nutrients	antibody formation
C	clotting	antibody formation	transport of nutrients
D	transport of nutrients	clotting	antibody formation

10. Jun/2021/Paper_12/No.17

The graph shows the concentration of substance X in a person's blood, before, during and after exercise.



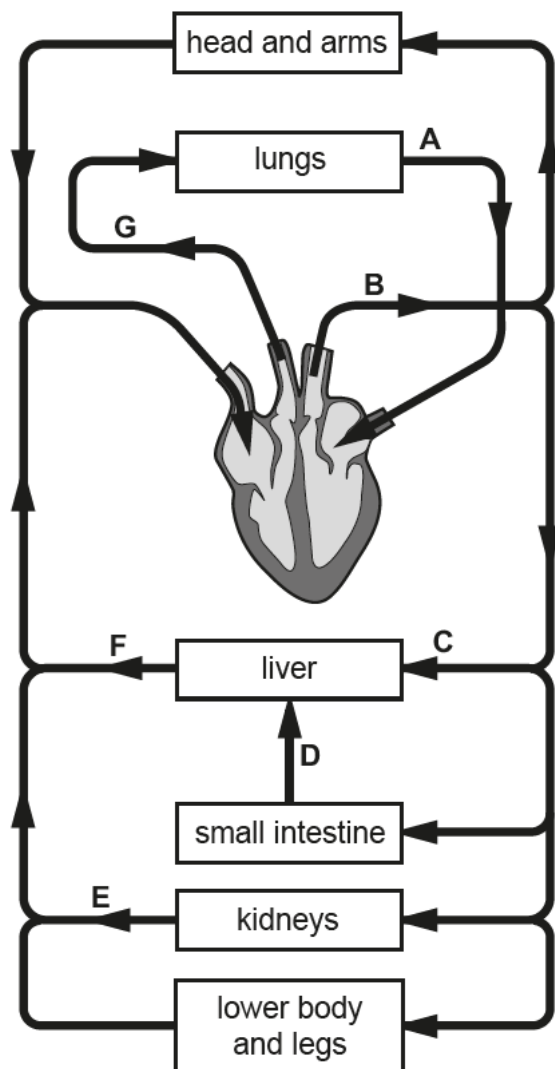
What is substance X?

- A** alcohol
- B** glycogen
- C** lactic acid
- D** urea

11. Jun/2021/Paper_22/No.2

The diagram shows the arrangement of major blood vessels in the human circulatory system.

Arrows show the direction that blood moves in each vessel.



(a) Seven of the blood vessels have been labelled on the diagram using the letters **A** to **G**.

Complete the table by writing **one** letter, **A** to **G**, for each name or description of a blood vessel.

The first row has been completed for you.

name or description	blood vessel
the aorta	B
carries blood containing the lowest concentration of urea	
one vessel that carries oxygenated blood	
carries blood at the highest pressure	
carries blood containing the highest concentration of glucose	
the hepatic vein	
an artery that carries deoxygenated blood	

[6]

(b) Explain why the movement of blood through the circulatory system of a human is described as a double circulation.

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..... [3]

[Total: 9]

12. Jun/2021/Paper_22/No.4

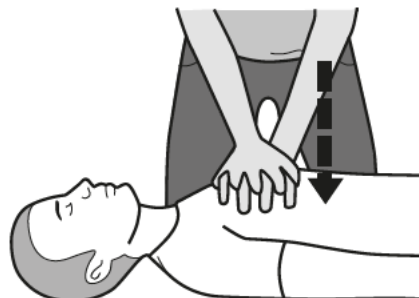
Cardiopulmonary resuscitation (CPR) is a first aid procedure.

Air is forced into a patient's lungs by another person. The heart is made to pump blood by repeated compression of the patient's chest over the heart.

A person performing CPR on a patient is shown in the diagrams.



air forced into lungs

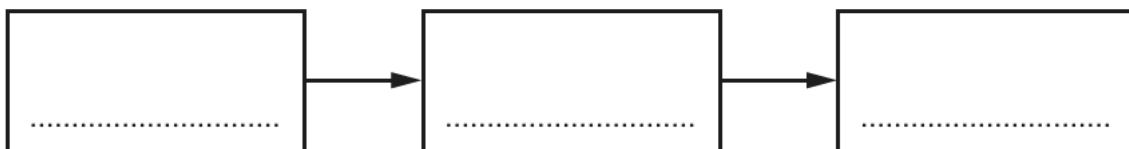


repeated compression of chest

(a) (i) State what will be seen to happen to the patient's chest when air is forced into the lungs.

..... [1]

(ii) Name, in the correct order, the tubes through which air will travel from the patient's mouth to the alveoli of the lungs.



[2]

(iii) The air forced into the patient's lungs has different concentrations of gases compared to the air the patient would normally breathe in.

State **two** differences in the concentrations of gases.

.....

 [2]

(b) Explain how each action of the CPR procedure will benefit the patient:

air forced into the patient's lungs

.....
.....
.....
.....

repeated compression of the patient's chest.

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.....
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[4]

[Total: 9]