Transport in animals – 2023 November IGCSE 0610

1. Nov/2023 /Paper_ 0610/11/No.18

Parts of the human circulatory system are listed.

1 arteries

2 capillaries

3 heart

4 veins

Which structures have valves to ensure the one-way flow of blood?

A 1 and 2 **B** 2 and 4 **C** 2 and 3 **D** 3 and 4

2. Nov/2023 /Paper_ 0610/13/No.18

Which human teeth are used for biting and cutting food?

A canines and molars

B incisors and canines

C molars and premolars

D premolars and incisors

3. Nov/2023 /Paper_ 0610/13/No.19

What are features of arteries?

1 narrow lumen

2 thick muscular wall

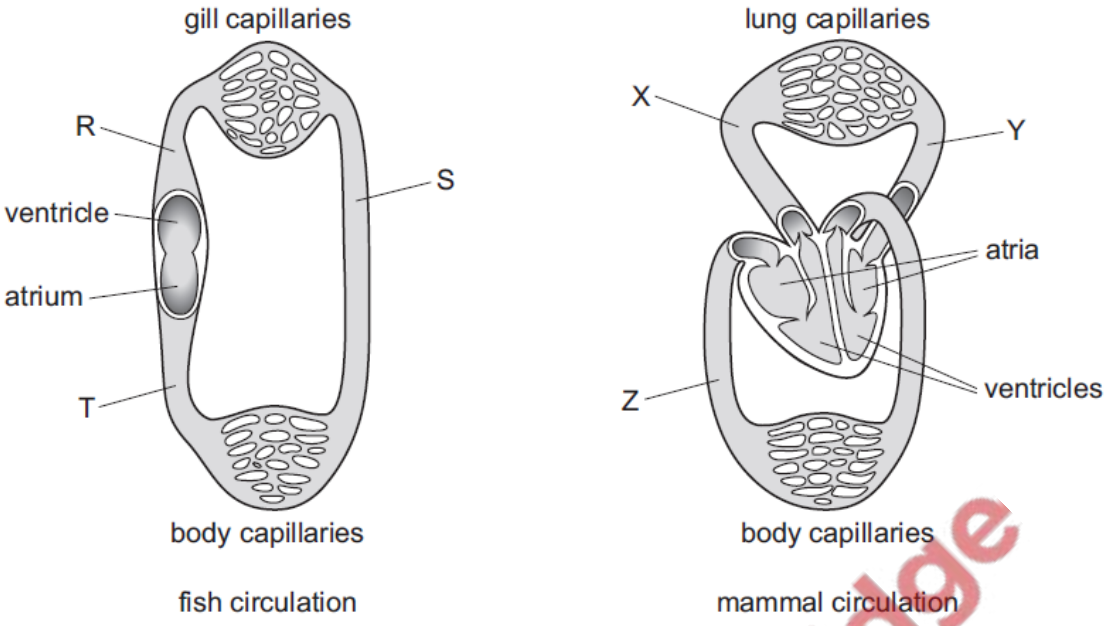
3 walls made of a single layer of cells

4 wide lumen

A 1 and 2 **B** 1 and 3 **C** 2 and 4 **D** 3 and 4

4. Nov/2023 /Paper_ 0610/21/No.18

The diagrams show the single circulation of a fish and the double circulation of a mammal.



Which letters represent areas with the most oxygenated blood?

A R and X **B** S and Y **C** T and Y **D** T and Z

5. ov/2023 /Paper_ 0610/21/No.19

What is the role of lymphocytes in the blood?

A antibody production

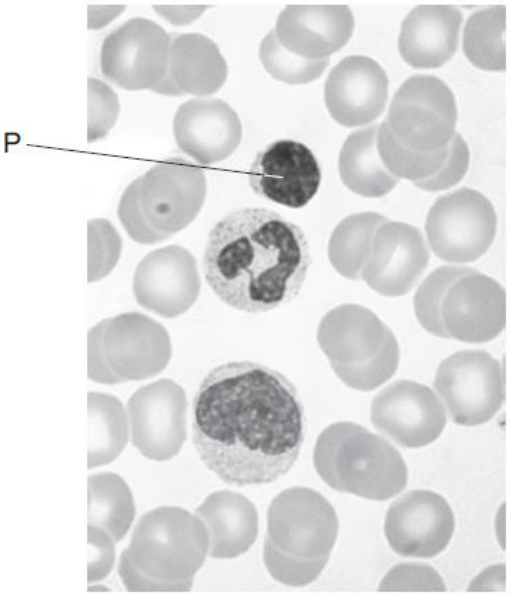
B blood clotting

C phagocytosis

D oxygen transport

6. Nov/2023 /Paper_ 0610/22/No.18

The photomicrograph shows some blood cells.



What is the function of cell P?

A It carries carbon dioxide.

B It carries oxygen.

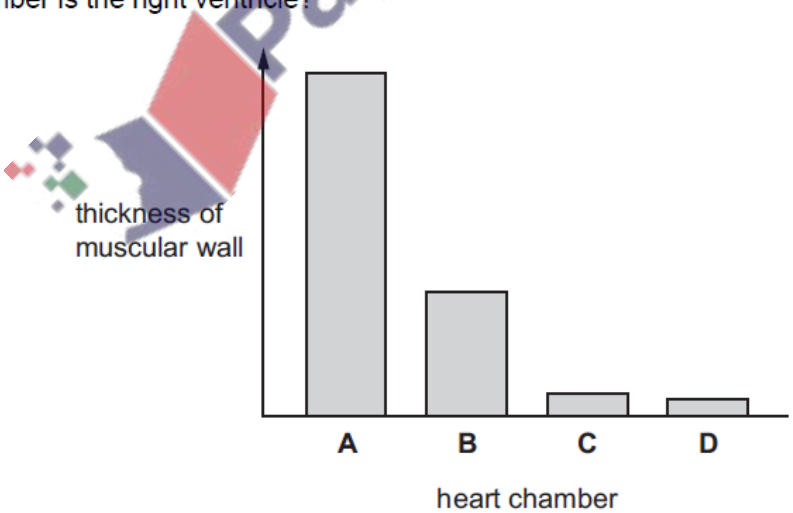
C It helps to clot blood.

D It produces antibodies.

7. Nov/2023 /Paper_ 0610/23/No.18

The graph shows the thickness of the muscular wall in each of the four chambers of the mammalian heart.

Which chamber is the right ventricle?



8. Nov/2023 /Paper_ 0610/23/No.19

Which row shows correct features of the circulatory system of a fish?

	number of atria	number of ventricles	number of times blood flows through the heart during one circuit of the body
A	one	one	one
B	one	two	two
C	two	one	two
D	two	two	two

9. Nov/2023 /Paper_ 0610/32/No.3

(a) Fig. 3.1 is a diagram of a cross-section of a human heart.

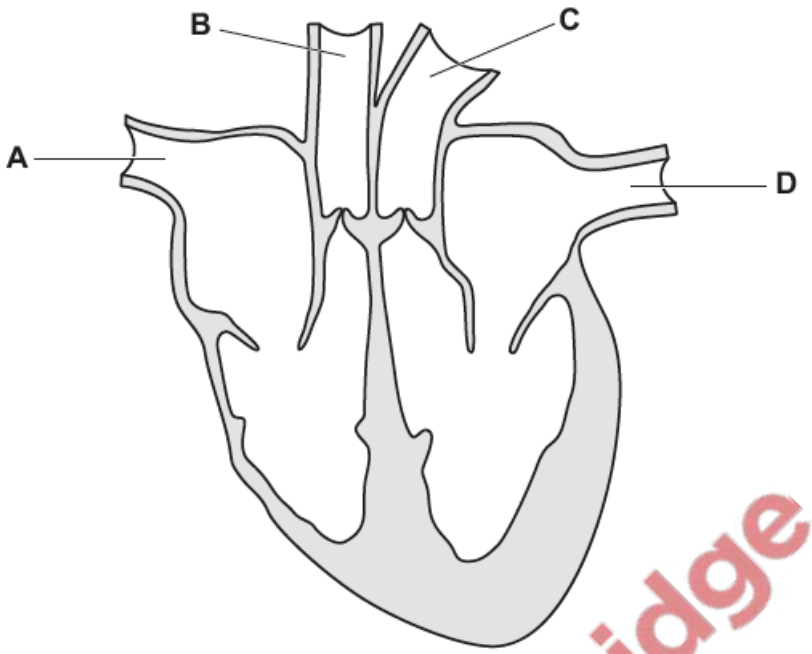


Fig. 3.1

(i) Draw an **X** on Fig. 3.1 to identify the position of the left atrium. [1]

(ii) On Fig. 3.1, label with a label line and the correct name a structure that ensures the one-way flow of blood. [2]

(iii) State **two** letters that identify arteries in Fig. 3.1.

..... and ..... [1]

(iv) State the name of the part that separates the left and right sides of the heart.

..... [1]

(v) State the name of the main tissue the wall of the heart is made from.

..... [1]

(b) In one country, the percentages of males and females with coronary heart disease (CHD) in different age groups were recorded.

Fig. 3.2 shows these data.

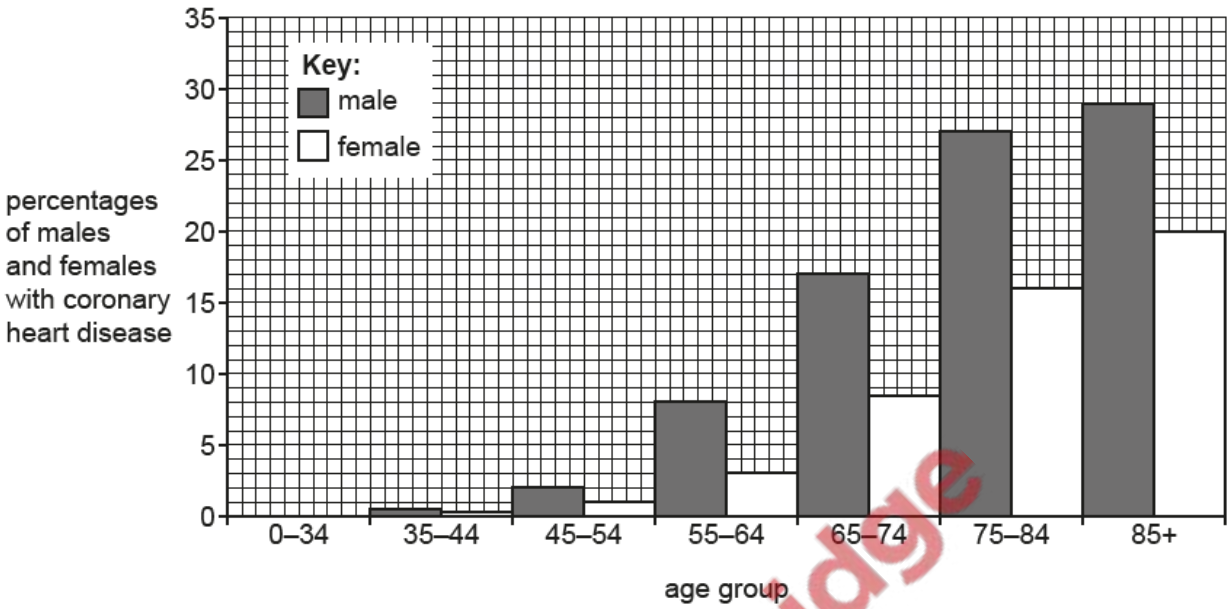


Fig. 3.2

(i) Using the information in Fig. 3.2, describe the similarities and differences between the percentages of males and females with CHD.

.....

.....

.....

.....

.....

.....

..... [3]

(ii) State **three** risk factors for CHD **not** identified in Fig. 3.2.

1 .....

2 .....

3 .....

[3]

[Total: 12]

10. Nov/2023 /Paper_ 0610/33/No.1

(a) Arteries are a type of blood vessel.

State **two** structural features of arteries.

1 .....

2 .....

[2]

(b) Capillaries are another type of blood vessel.

State **one** function of capillaries.

.....

..... [1]

(c) State the name of the structures in veins that ensure the one-way flow of blood.

..... [1]

(d) Fig. 1.1 is a diagram of part of the human circulatory system.

The arrows show the direction of blood flow.

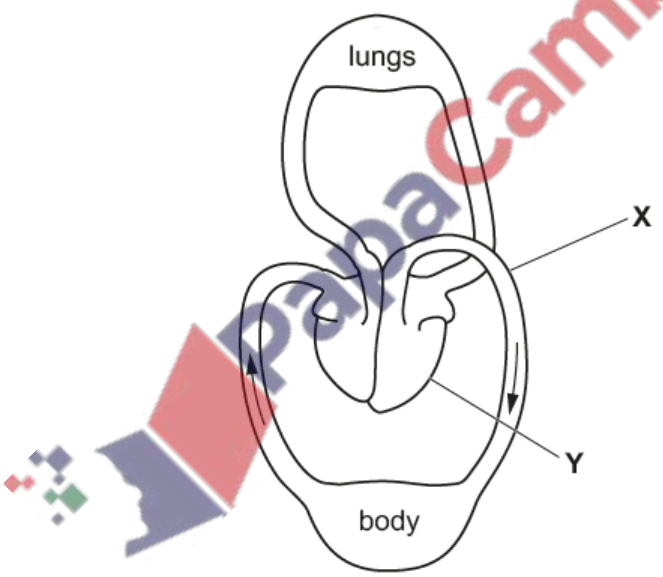


Fig. 1.1

(i) **On Fig. 1.1**, draw arrows to show the direction of blood flow to and from the lungs. [1]

(ii) State the names of blood vessel **X** and organ **Y** in Fig. 1.1.

blood vessel **X** .....

organ **Y** .....

[2]

(e) State the name of the blood vessel that transports oxygenated blood to the kidney.

..... [1]

[Total: 8]

11. Nov/2023 /Paper_ 0610/42/No.1

(a) Red blood cells are specialised cells that transport oxygen.

State the substance in red blood cells that combines with oxygen.

..... [1]

(b) State the name of the component of blood that promotes blood clotting.

..... [1]

(c) Some students investigated the effect of immersing red blood cells in different concentrations of salt solution.

They measured the diameters of samples of red blood cells and calculated the mean.

They then immersed each red blood cell sample in a different concentration of salt solution.

After two minutes they measured and calculated the mean of the samples again.

Table 1.1 shows the results.

Table 1.1

percentage concentration of the salt solution	mean initial diameter of the red blood cells / μm	mean diameter of the red blood cells after two minutes / μm
0.4	7.5	cells burst
0.8	7.5	8.2
0.9	7.5	7.5
1.8	7.5	6.0

(i) Calculate the percentage increase in the mean diameter of red blood cells that were immersed in the 0.8% salt solution.

Give your answer to **two** significant figures.

Space for working.

..... %
[3]

(ii) Explain the results for the red blood cells that were immersed in the 1.8% salt solution.

.....

.....

.....

.....

.....

.....

..... [3]

(iii) State why there was no change in the mean diameter of the red blood cells immersed in the 0.9% salt solution.

.....

.....

..... [1]

(d) State why red blood cells burst when immersed in pure water but plant cells do not.

.....

.....

..... [1]

(e) State **two** uses of water in a plant.

1 .....

2 .....

[2]

[Total: 12]

12. Nov/2023 /Paper_ 0610/42/No.5

(a) Describe **two** ways in which the circulatory system of a fish is different from the circulatory system of a mammal.

1 .....

.....

2 .....

.....

[2]

(b) Explain the advantages of a double circulatory system.

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.....

.....

.....

..... [3]

(c) Fig. 5.1 shows part of the circulatory system of a mammal.

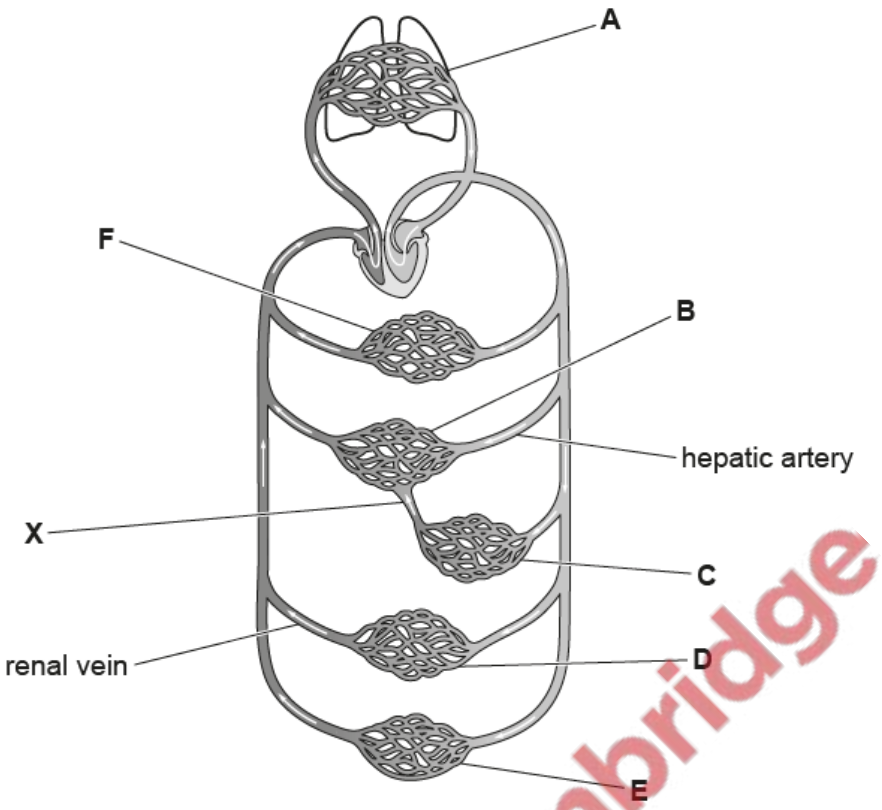

Fig. 5.1

(i) State the letter from Fig. 5.1 that identifies where these processes occur:

absorption of the products of digestion into the blood .....

excretion of carbon dioxide from the body .....

formation of urine .....

production of bile. .....

[4]

(ii) Identify the name of the blood vessel labelled **X** in Fig. 5.1.

..... [1]

(d) Describe the role of the liver in excretion.

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 14]