9. Transport in animals

9.1 Circulatory systems

Paper 1 and 2

Question Paper

Paper 1

Questions are applicable for both core and extended candidates

1 Which statement describes the circulation of blood in the human body?

A Blood is pumped away from the heart by the atria.

B Blood is pumped away from the heart through arteries.

C Blood is pumped away from the heart through veins.

D Blood is pumped to the heart through capillaries.

2 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

3 Which statements describe how the structures in the circulatory system function?

1 a muscular pump to push blood into vessels

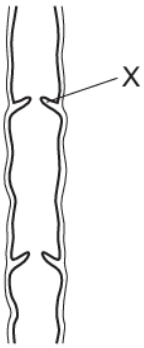
2 valves to ensure one-way blood flow

3 veins to take blood away from the heart

4 vessels to return blood to the heart

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

4 The diagram shows a section of a human vein.



What is the function of the part labelled X?

A to make sure the blood flows to the heart

B to make sure the blood flows to the kidneys

C to make sure the blood flows to the brain

D to make sure the blood flows to the lungs

5 What ensures that blood flows in one direction in the human circulatory system?

A diffusion of carbon dioxide

B diffusion of oxygen

C thick walled arteries

D valves

6 Which blood vessel carries blood to the muscle of the heart?

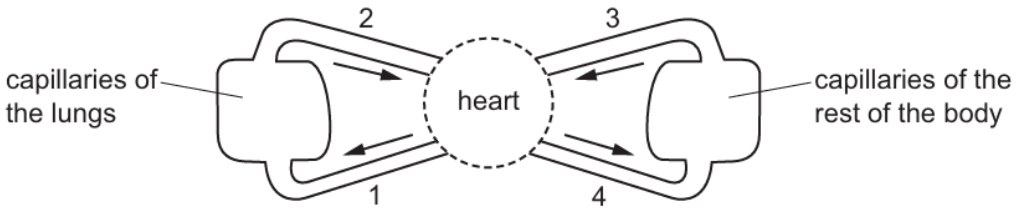
A coronary artery

B pulmonary artery

C renal vein

D vena cava

7 The diagram shows a circulatory system.



Which vessels carry oxygenated blood?

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

Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

8 What is an advantage of having a double circulatory system? **(extended only)**

A It uses less energy because blood flows through the heart only once in each circuit around the body.

B Concentration gradients of solutes and gases are kept low.

C Deoxygenated and oxygenated blood are separated to allow a high rate of oxygen supply to the tissues.

D It maintains high-pressure blood flow to the lungs and low-pressure blood flow to the body.

9 Which pathway is taken by blood in a fish? **(extended only)**

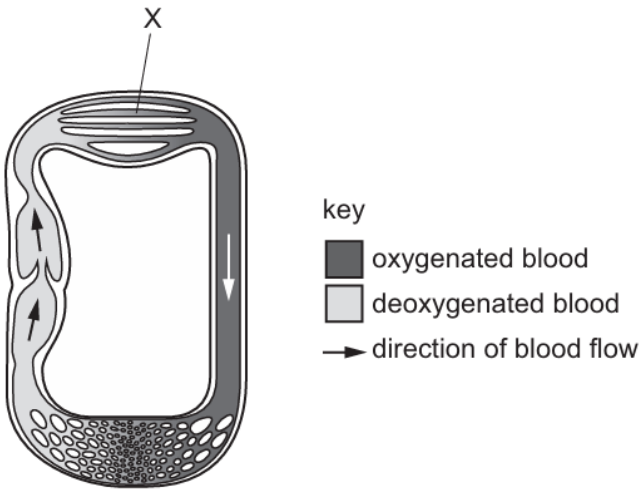
A gills → heart → body → gills

B body → gills → heart → body

C heart → gills → body → heart

D heart → body → gills → body

10 The diagram shows the circulatory system of a fish.



What is the structure labelled X? **(extended only)**

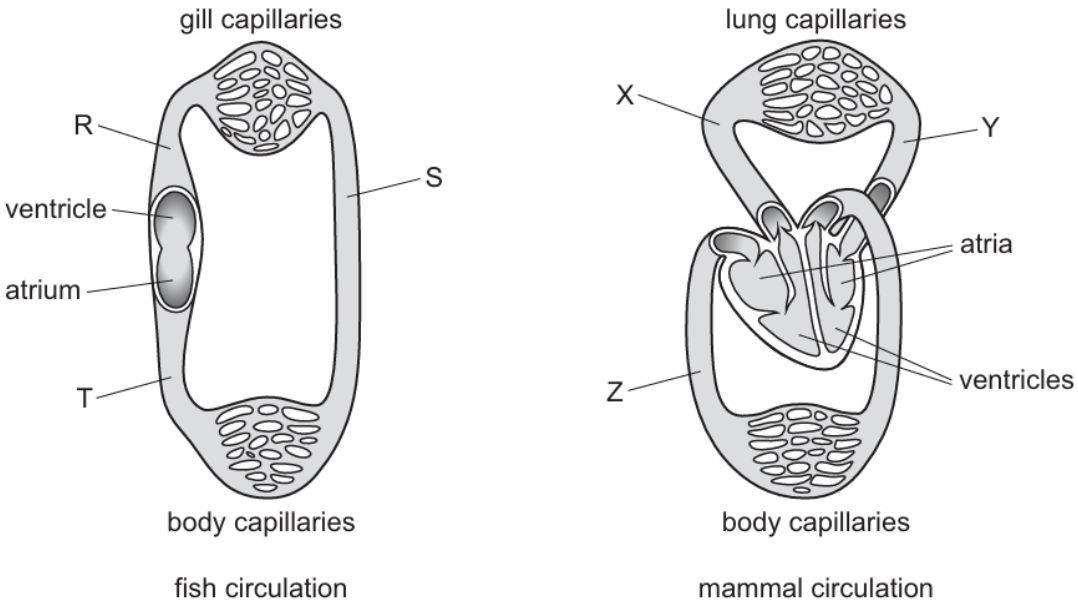
A aorta

B gills

C heart

D vena cava

11 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? **(extended only)**

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

12 Which statements describe how the structures in the circulatory system function?

1 a muscular pump to push blood into vessels

2 valves to ensure one-way blood flow

3 veins to take blood away from the heart

4 vessels to return blood to the heart

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

13 What is the sequence of organs that blood passes through during one circulation of the body of a fish? **(extended only)**

A muscle → heart → gill → muscle

B muscle → gill → heart → muscle

C muscle → heart → gill → heart → muscle

D muscle → gill → heart → gill → muscle

14 What ensures that blood flows in one direction in the human circulatory system?

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