8.1 The Circulatory System

Question Paper

Course	CIE A Level Biology (9700) exams from 2022
Section	8. Transport in Mammals
Topic	8.1 The Circulatory System
Difficulty	Medium

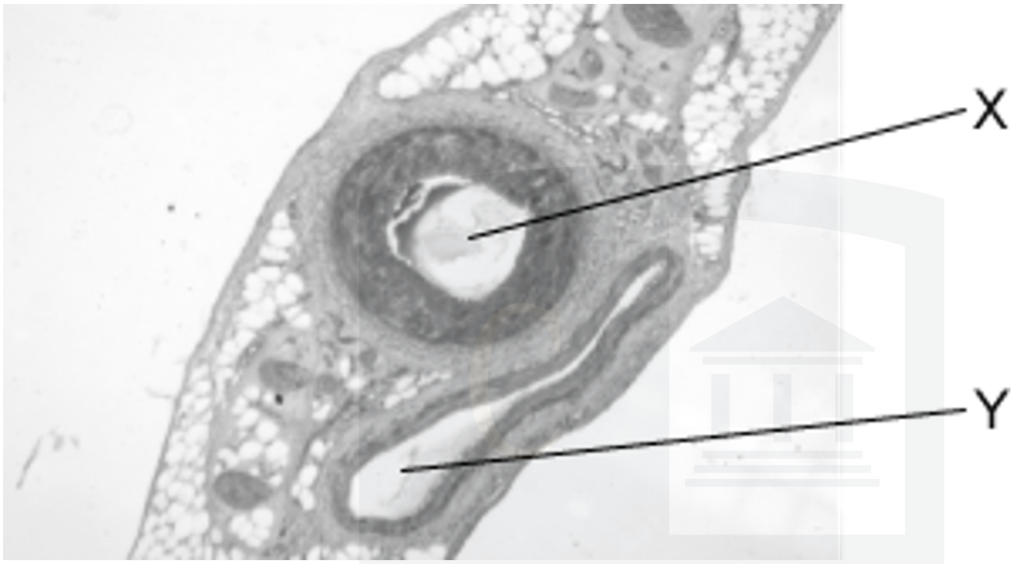
Time allowed: **10**

Score: **/10**

Percentage: **/100**

Question 1

The image below shows two structures commonly found in mammals. A light microscope was used to view the sample.



	X	Y	Feature
A	vein	atrium	**Y** contains deoxygenated blood
B	trachea	artery	the lumen of **X** allows air to pass through
C	bronchiole	vein	**Y** contains cells with oxyhaemoglobin
D	artery	vein	**Y** contains cells with haemoglobinic acid

[1 mark]

Question 2

When a transverse section of different blood vessels was viewed under a light microscope the following observations were made.

Which row is correct?

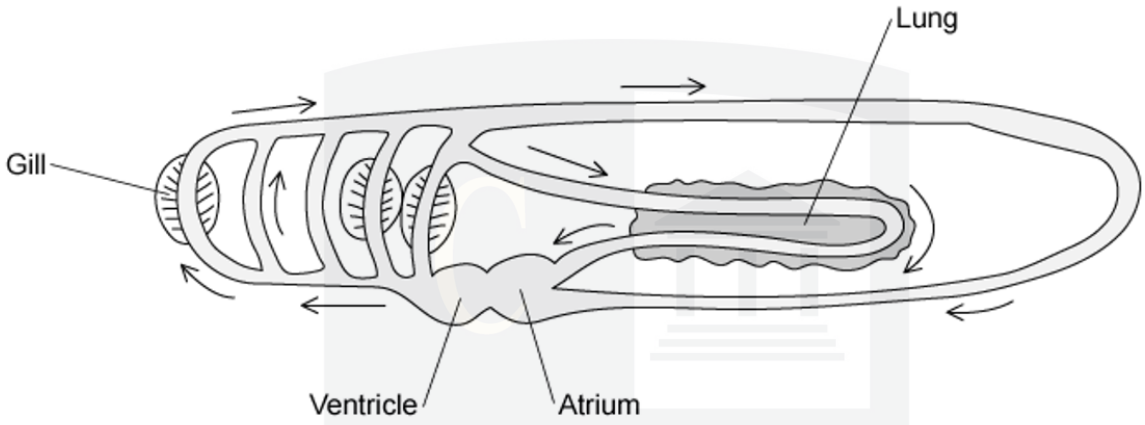
	outer wall of artery	layer of muscles and elastic fibres	diameter of the lumen
A	thinner	thinner	wider
B	thinner	thicker	narrower
C	thicker	thinner	wider
D	thicker	thicker	narrower

[1 mark]

Question 3

Most mammals have a closed double circulatory system.

The diagram shows a circulatory system. The arrows indicate the direction of flow of the blood.



Which of the following is the correct description for this type of circulation?

A open single

B open double

C closed single

D closed double

[1 mark]

Question 4

The table shows the features of three blood vessels in the mammalian circulatory system.

vessel 1	vessel 2	vessel 3
thin layer of smooth muscle with few elastic fibres	thick layer of elastic fibres and smooth muscle	no elastic fibres or smooth muscle

What are vessels 1, 2 and 3?

	vein	capillary	Artery
A	3	2	1
B	1	3	2
C	2	3	1
D	1	2	3

[1 mark]

Question 5

Venous pressure in the feet changes when a person is moving compared to standing still. Normal pressure in the feet is 3.3 kPa, when a person is standing completely still it rises to 5.0 kPa.

Which of the following is the correct description for this change in pressure?

A Systolic blood pressure increases.

B Muscles in the walls of the veins contract, reducing the diameter of the veins.

C Skeletal muscles in the legs are not squeezing blood upwards in the veins.

D The semilunar valves in the veins of the leg cease to function.

[1 mark]

Question 6

Which statement correct identifies similarities between blood plasma and tissue fluid?

A White blood cells are found in both blood plasma and tissue fluid.

B The blood plasma is under the same pressure as the tissue fluid.

C Protein is found in the equal concentration in both blood plasma and tissue fluid.

D The water potential of the blood plasma and tissue fluid are equal.

[1 mark]

Question 7

The pressure of the blood leaving the capillaries is about seven times smaller than that of blood entering the capillaries.

Which of the following statements describe this observation?

1 Veins have fewer elastic and muscle fibres in their walls than arteries.

2 Tissue fluid formation is due to a net loss of plasma from capillaries.

3 Blood pressure decreases with distance from the heart.

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

[1 mark]

Question 8

Which row of the table below correctly identifies the blood vessels?

	collagen fibres present in tunica externa (adventitia)	**thick tunica media present**	**squamous endothelium present**
A	veins	veins	arteries veins and capillaries
B	arteries and veins	arteries	arteries veins and capillaries
C	arteries and veins	arteries	veins and capillaries
D	veins	arteries and veins	arteries and capillaries

[1 mark]

Question 9

The following statements compare blood tissue fluid and lymph

1 **W** lacks large plasma proteins and red blood cells and has a higher water potential than **Z**

2 **X** is at a lower pressure than **Y** and contains red blood cells and large plasma proteins

3 **Y** is a higher pressure than **W** and contains red blood cells and large plasma proteins

4 **Z** is at a lower pressure than **Y** and lacks red blood cells

Which row identifies correctly **W**, **X**, **Y**, and **Z**?

	W	**X**	**Y**	**Z**
A	tissue fluid	blood leaving the capillary	blood entering the capillary	lymph
B	lymph	blood entering the capillary	tissue fluid	blood leaving the capillary
C	blood leaving the capillary	lymph	tissue fluid	blood entering the capillary
D	blood entering the capillary	lymph	blood leaving the capillary	tissue fluid

[1 mark]

Question 10

Which of the following is the correct sequence of layers in the vessel wall from outside to inside?

	tunica media	tunica intima	tunica externa
A	3	2	1
B	1	3	2
C	2	3	1
D	1	2	3

[1 mark]