6.2 The Blood System

Question Paper

Course	DP IB Biology
Section	6. Human Physiology
Topic	6.2 The Blood System
Difficulty	Easy

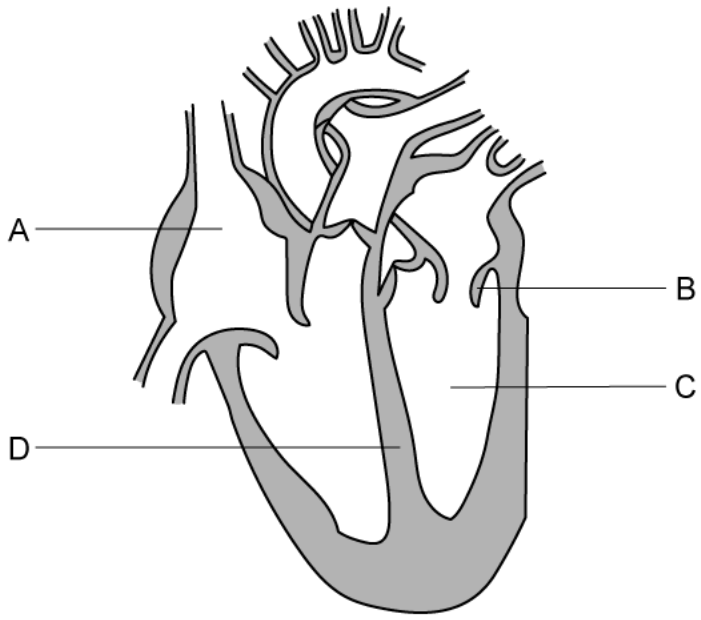
Time allowed: 50

Score: /39

Percentage: /100

Question 1a

a)
The following diagram shows the internal structure of the heart.



A and **C** represents two heart chambers.

i)
Label chambers **A** and **C**.

[2 marks]

ii)
State **one** difference in the function of **A** and **C**.

[1 mark]

[3 marks]

Question 1b

b)
State the main difference between the blood found in the chambers on the left and right side of the heart.

[1 mark]

[1 mark]

Question 1c

c)
Structure **B** plays an important role in the flow of blood through the heart.

i)
Label structure **B**.

[1 mark]

ii)
State the role of structure **B** in the flow of blood through the heart.

[1 mark]

[2 marks]

Question 1d

d)
Structure **D** is a wall of muscular tissue.

Describe the purpose of structure **D** in the heart.

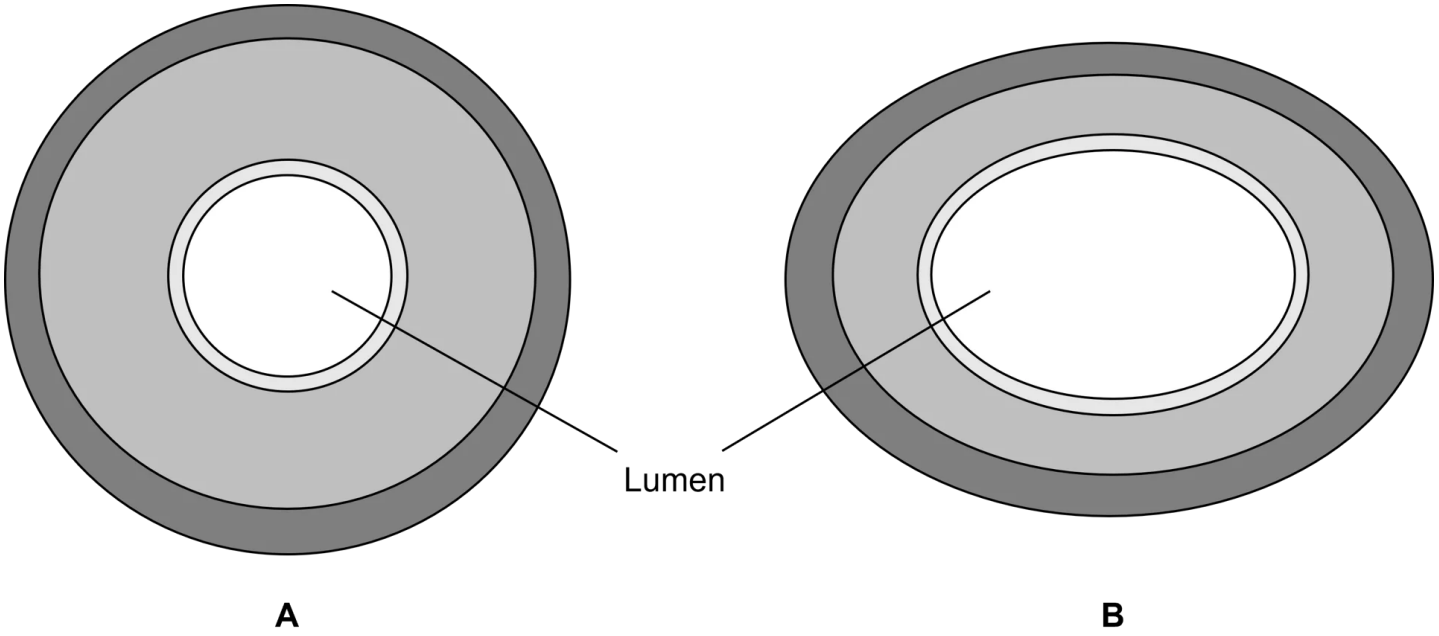
[1 mark]

[1 mark]

Question 2a

a)

The following diagram compares the structure of two main blood vessels in the body.



i)

Identify blood vessel **A**.

[1 mark]

ii)

State a reason for your answer in part i).

[1 mark]

[2 marks]

Question 2b

b)
Blood vessel **B** has a very large lumen.

i)
Identify blood vessel **B**.

[1 mark]

ii)
State **one** reason for the presence of a large lumen in blood vessel **B**.

[1 mark]

[2 marks]

Question 2c

c)
The flow of blood in veins is not assisted by the pressure generated by the beating of the heart.

List **two** structures that assist with the flow of blood in veins.

[2 marks]

[2 marks]

Question 2d

d)
Systolic pressure is one of the measurements taken by a doctor to determine the blood pressure of a patient.

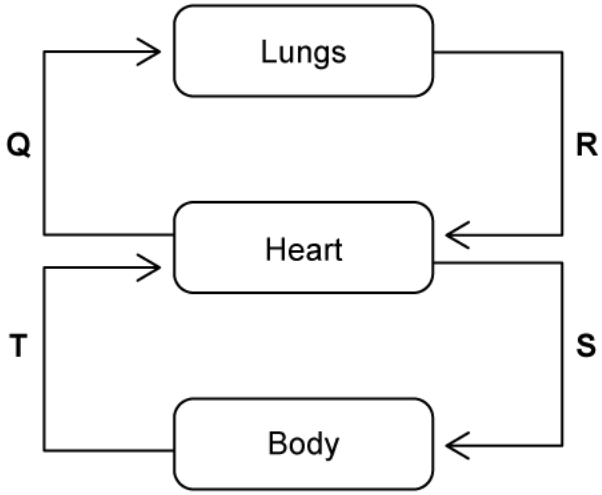
Define the term 'systolic pressure'.

[1 mark]

[1 mark]

Question 3a

a)
The following diagram shows part of the blood circulation of a mammal.



i)
Identify **one** example of an artery in this diagram.

[1 mark]

ii)
Based on the information in the diagram, state a reason for your answer in part i).

[1 mark]

[2 marks]

Question 3b

b)
Mammals have two separate circulations that supply blood to different organs.

State the name of the circulation that blood vessels **T** and **S** form part of.

[1 mark]

[1 mark]

Question 3c

c)
The following table shows the mean pressure (in mmHg) measured in different blood vessels of the body.

Blood vessel	Mean blood pressure / mmHg
Aorta	94
Arteries	90
Arterioles	68
Capillaries	24
Venules	10
Veins	3
Vena Cava	2

Calculate the percentage difference between the mean blood pressure of the aorta and vena cava. Show your working and give your answer to three significant figures.

[2 marks]

[2 marks]

Question 3d

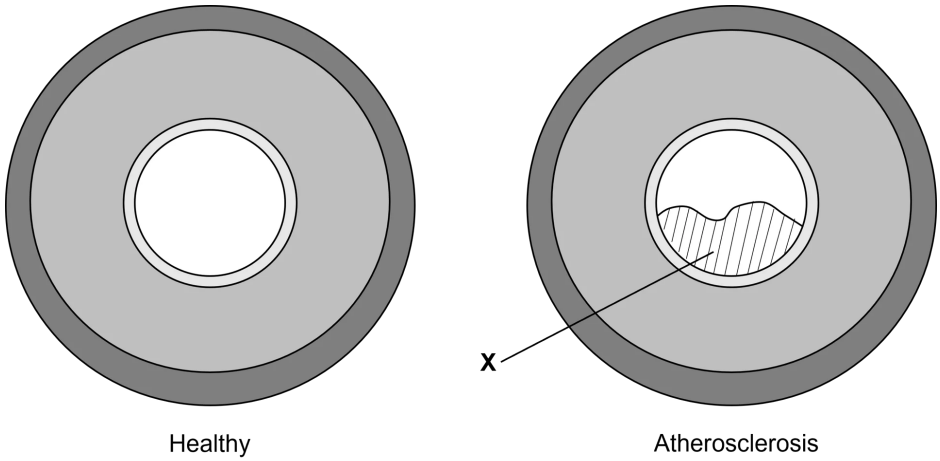
d)
Using the table provided, identify the blood vessels where the greatest decrease in mean blood pressure occurs.

[1 mark]

[1 mark]

Question 4a

a)
The following diagram compares the structure of an artery of a healthy person with that of someone suffering from atherosclerosis.



Identify structure **X**.

[1 mark]

[1 mark]

Question 4b

b)
Atherosclerosis can lead to the occlusion of arteries over time.

Define the term 'occlusion'.

[1 mark]

[1 mark]

Question 4c

c)
Occlusion of the arteries can have a serious impact on cardiovascular health.

List **two** consequences of an occlusion of the arteries.

[2 marks]

[2 marks]

Question 4d

d)
When blood flow to part of the heart muscle is restricted it will impair its ability to contract fully. This will reduce blood flow, and therefore oxygen flow, to the body tissues.

State **one** way in which the heart will compensate for this.

[1 mark]

[1 mark]

Question 5a

One mark is available for clarity of communication throughout this question.

a)
Atherosclerosis results in a build-up of fatty deposits known as plaque inside arteries, which may lead to coronary heart disease.

Outline the risk factors for developing atherosclerosis.

[5 marks]

[5 marks]

Question 5b

b)
Capillaries provide the exchange surface in the tissues of the body.

List **three** characteristics of capillaries.

[3 marks]

[3 marks]

Question 5c

c)
Describe the flow of oxygenated blood through the left side of the heart as it returns from the lungs.

[6 marks]

[6 marks]