6.2 The Blood System

Question Paper

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

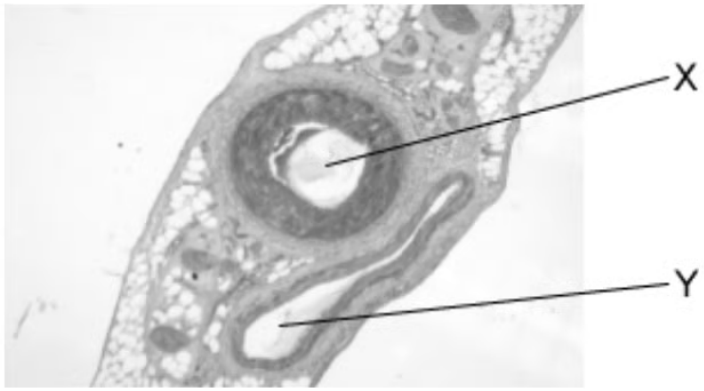
Time allowed: 20

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.



Identify the structures labelled **X** and **Y** along with one correct feature of these structures.

	X	Y	Feature
A	Vein	Artery	**Y** contains deoxygenated blood
B	Trachea	Artery	the lumen of **X** allows air to pass through
C	Artery	Vein	**Y** contains many cells filled with oxyhaemoglobin
D	Artery	Vein	**X** contains many cells filled with oxyhaemoglobin

[1 mark]

Question 2

Galen developed theories about circulation which were later disregarded as a result of the work of William Harvey.

Which of the following statements correctly defines a theory?

A A carefully thought out idea with accompanying evidence that explains observations of the natural world.

B A prediction about the result we expect to see from an investigation.

C A phenomenon which the scientific community has observed.

D A proposed idea to be tested by experimentation and observation.

[1 mark]

Question 3

The table gives 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

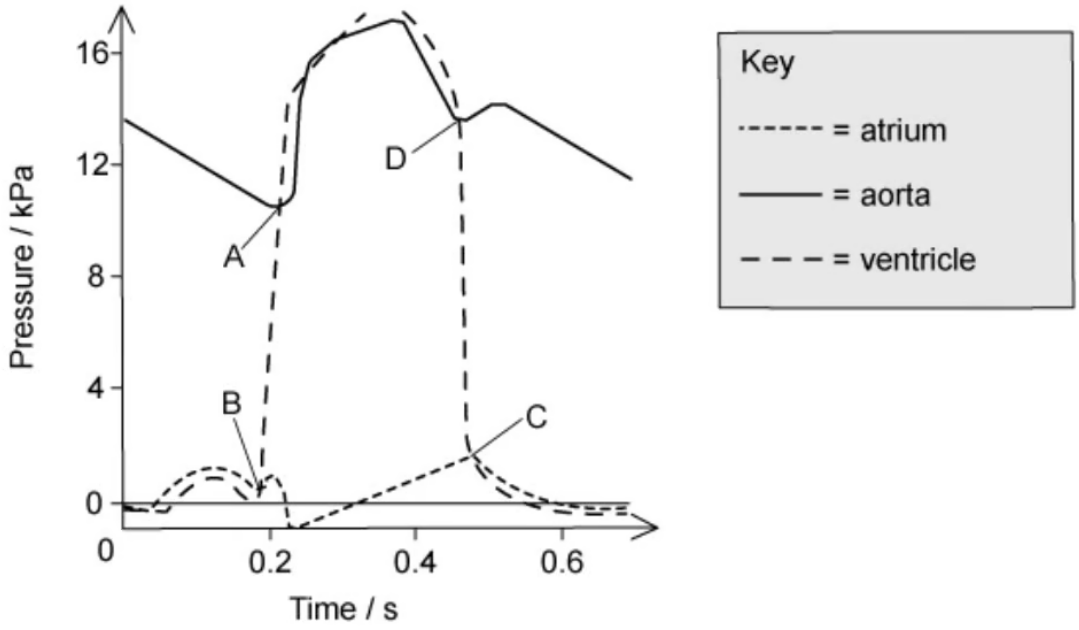
What are vessels 1, 2 and 3?

	Vein	Capillary	Artery
A	3	2	1
B	1	3	2
C	2	3	1
D	1	2	3

[1 mark]

Question 4

The graph below shows the pressure in different parts of the heart during one cardiac cycle.

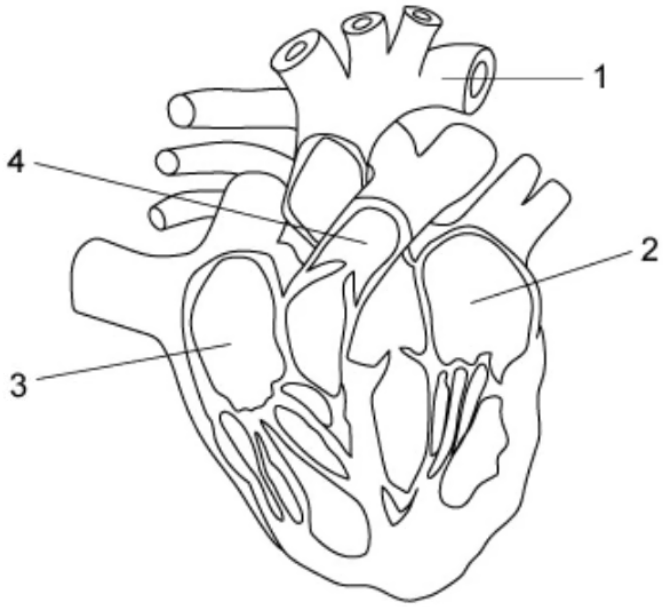


At which point does the semilunar valve of the aorta close?

[1 mark]

Question 5

The diagram below shows the heart and associated blood vessels.



Which of the following would be correct for the flow of blood through the heart?

A 4 → 3 → 2 → 1

B 3 → 4 → 2 → 1

C 2 → 1 → 4 → 3

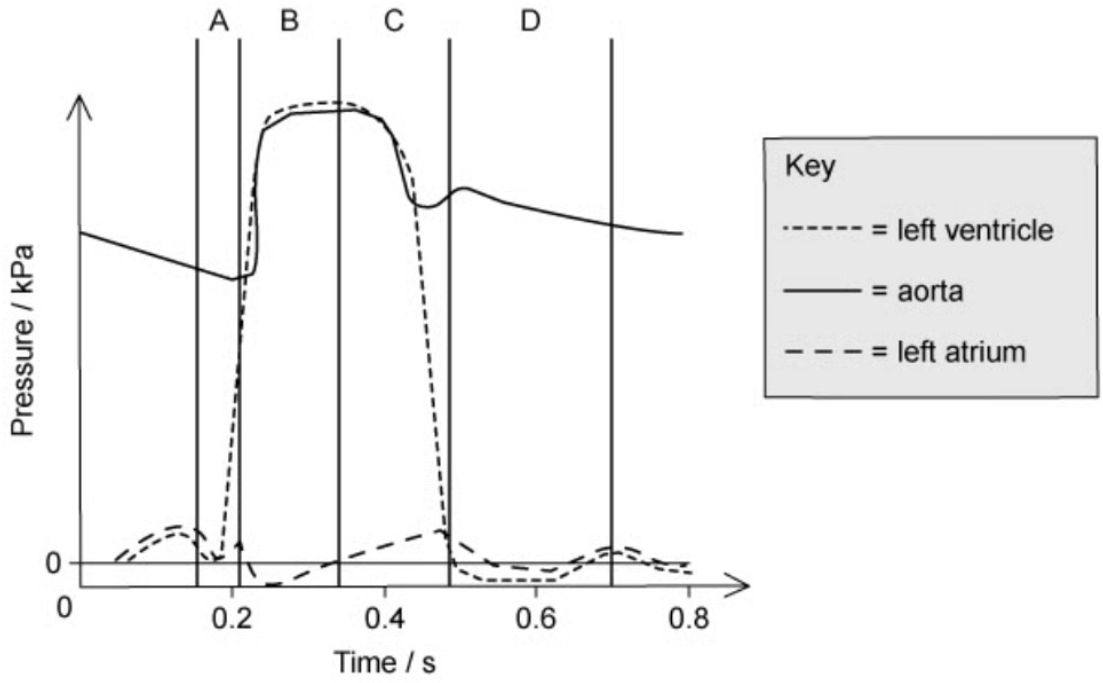
D 1 → 2 → 3 → 4

[1 mark]

Question 6

The graph below shows the pressure in different parts of the left side of the heart during one cardiac cycle.

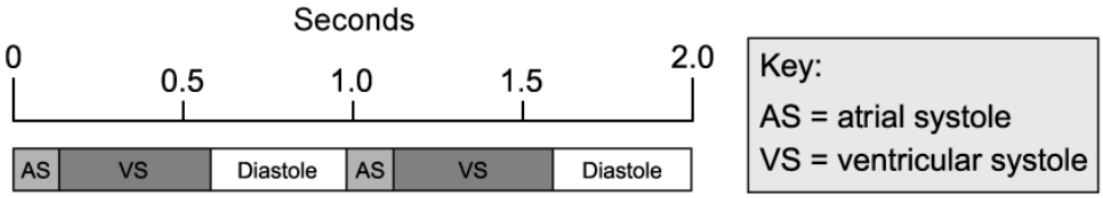
At the end of which section in the graph (**A, B, C** or **D)** would the ventricle be full of blood?



[1 mark]

Question 7

The diagram below shows two cardiac cycles of a patient. The events of the cycle are placed next to a timescale.



What is the patient's heart rate in beats per minute?

A 80

B 60

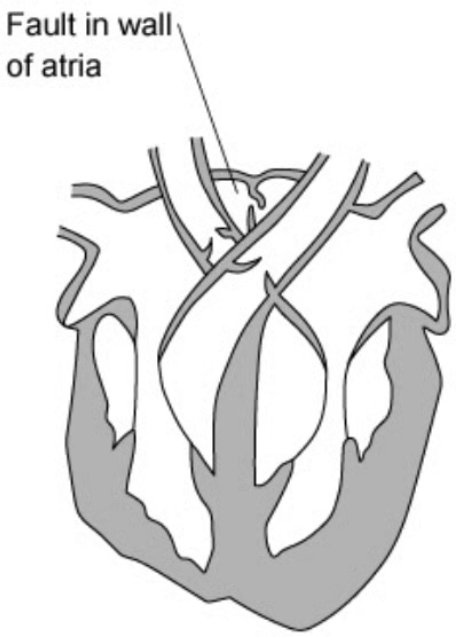
C 120

D 65

[1 mark]

Question 8

The diagram shows a fault in the wall of the atria.



Which of the following would describe the effect of this fault?

A Irregular heartbeat.

B Ventricular systole is delayed.

C Increased pressure in the pulmonary artery.

D Reduced oxygen saturation of haemoglobin.

[1 mark]

Question 9

Which of the following is **not** a contributing factor of atherosclerosis formation?

A Damage to the endothelium of the arteries.

B High levels of high density lipoproteins in the blood.

C Enlarged phagocytes covered in smooth muscle.

D Calcium ion deposition.

[1 mark]

Question 10

Which statement accurately describes the raising of heart rate by the cardioregulatory centre of the brain?

A Low blood pressure, high blood oxygen concentration, and high blood pH result in a nerve signal sent by the acceleratory centre to speed up heart rate.

B Low blood pressure, low blood oxygen concentration, and low blood pH result in a nerve signal sent by the acceleratory centre to speed up heart rate.

C High blood pressure, high blood oxygen concentration, and high blood pH result in a nerve signal sent by the acceleratory centre to speed up heart rate.

D High blood pressure, low blood oxygen concentration, and low blood pH result in a nerve signal sent by the acceleratory centre to speed up heart rate.

[1 mark]