

# 6.2 The Blood System

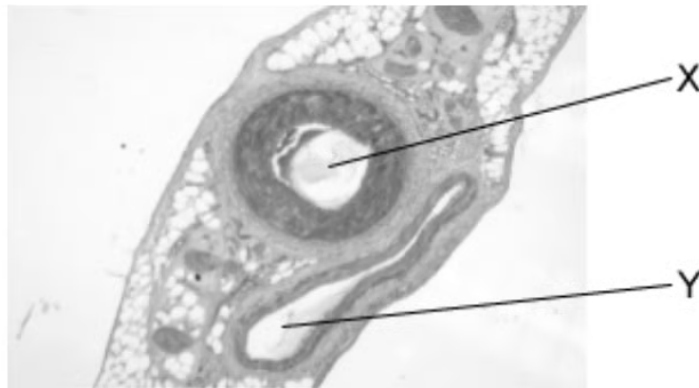
## Question Paper

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.

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

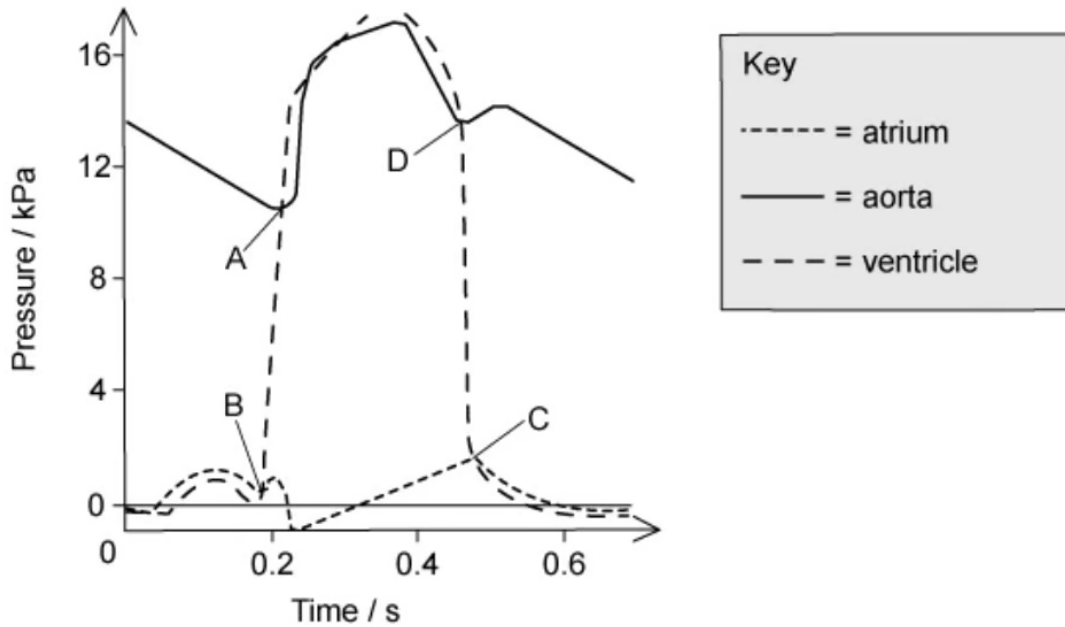
What are vessels 1, 2 and 3?

	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.

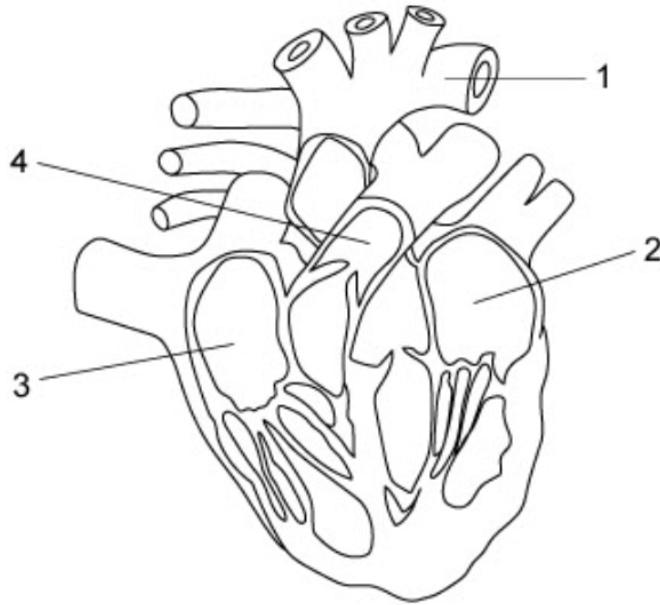


At which point does the semilunar valve of the aorta close?

[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?

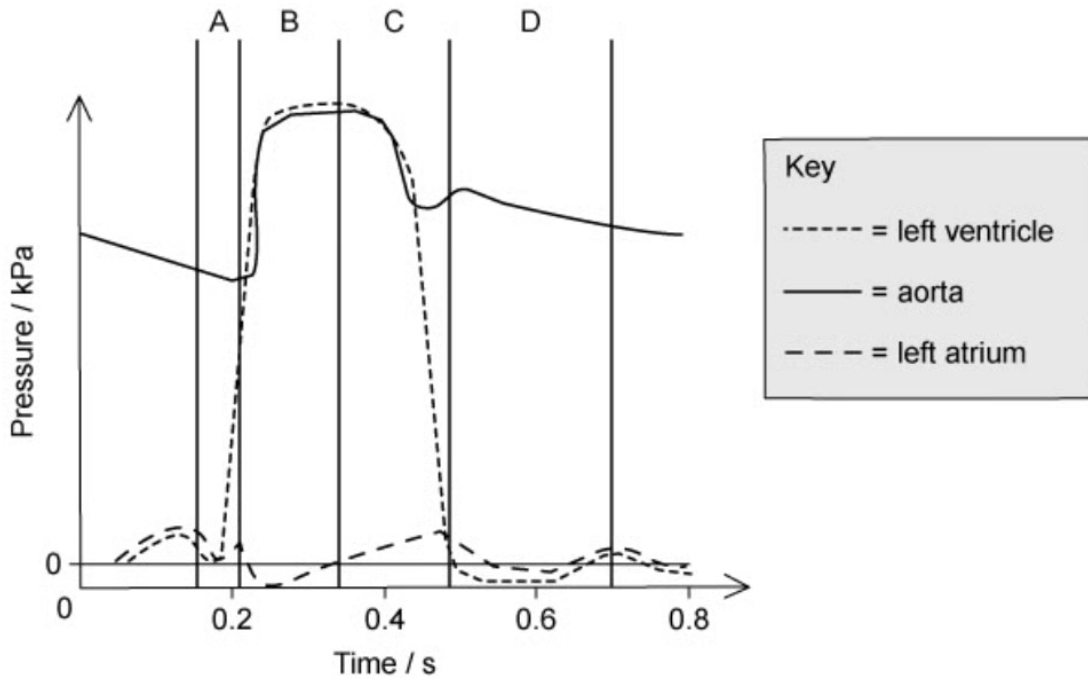
- A** 4 → 3 → 2 → 1
- B** 3 → 4 → 2 → 1
- C** 2 → 1 → 4 → 3
- D** 1 → 2 → 3 → 4

[1 mark]

**Question 6**

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

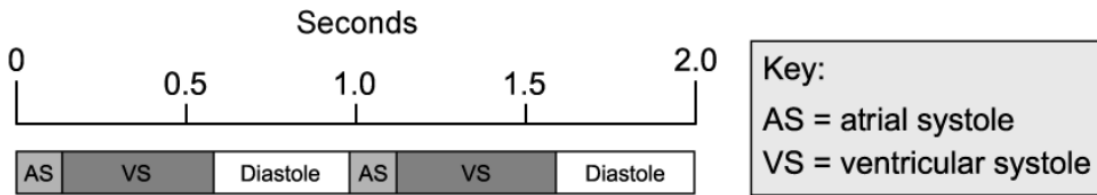
At the end of which section in the graph (**A**, **B**, **C** or **D**) would the ventricle be full of blood?



[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?

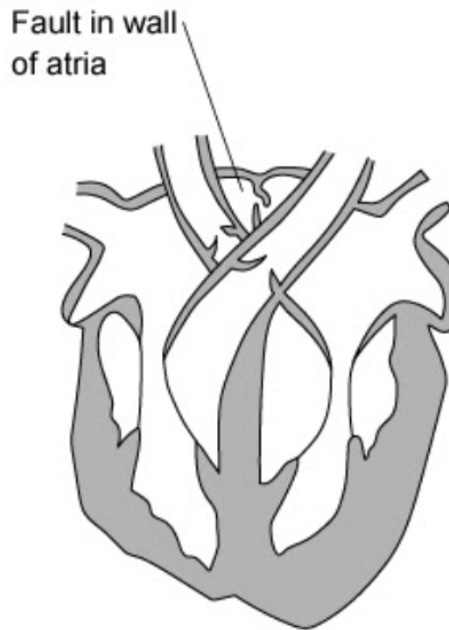
- A** 80
- B** 60
- C** 120
- D** 65

[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 cardiorespiratory 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]