8.3 The Heart

Question Paper

Course	CIE A Level Biology (9700) exams from 2022
Section	8. Transport in Mammals
Topic	8.3 The Heart
Difficulty	Medium

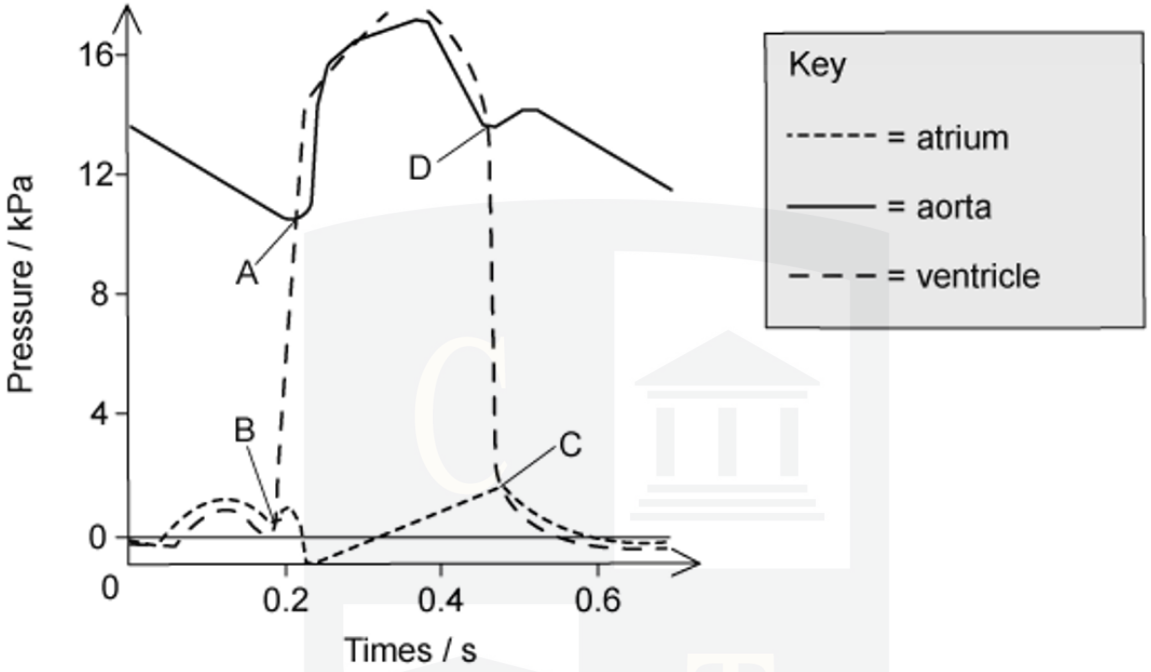
Time allowed: **10**

Score: **/10**

Percentage: **/100**

Question 1

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

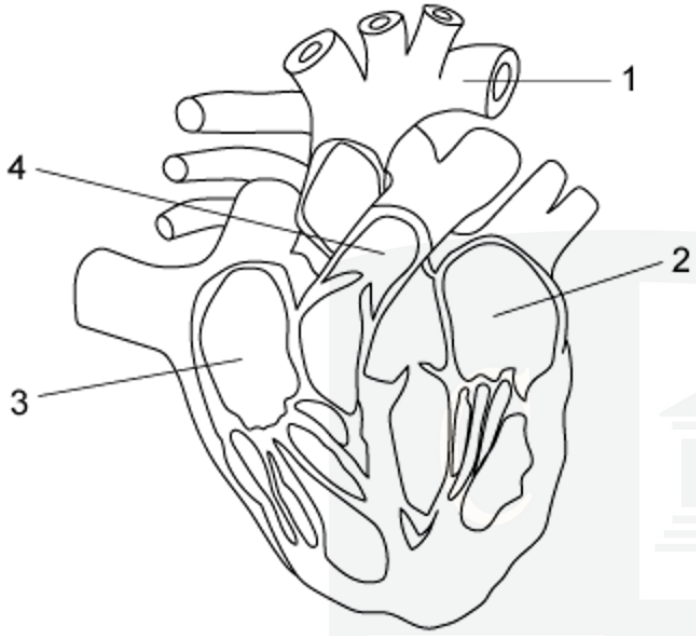


At which point does the semilunar valve of the aorta close?

[1 mark]

Question 2

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 → 3 → 4

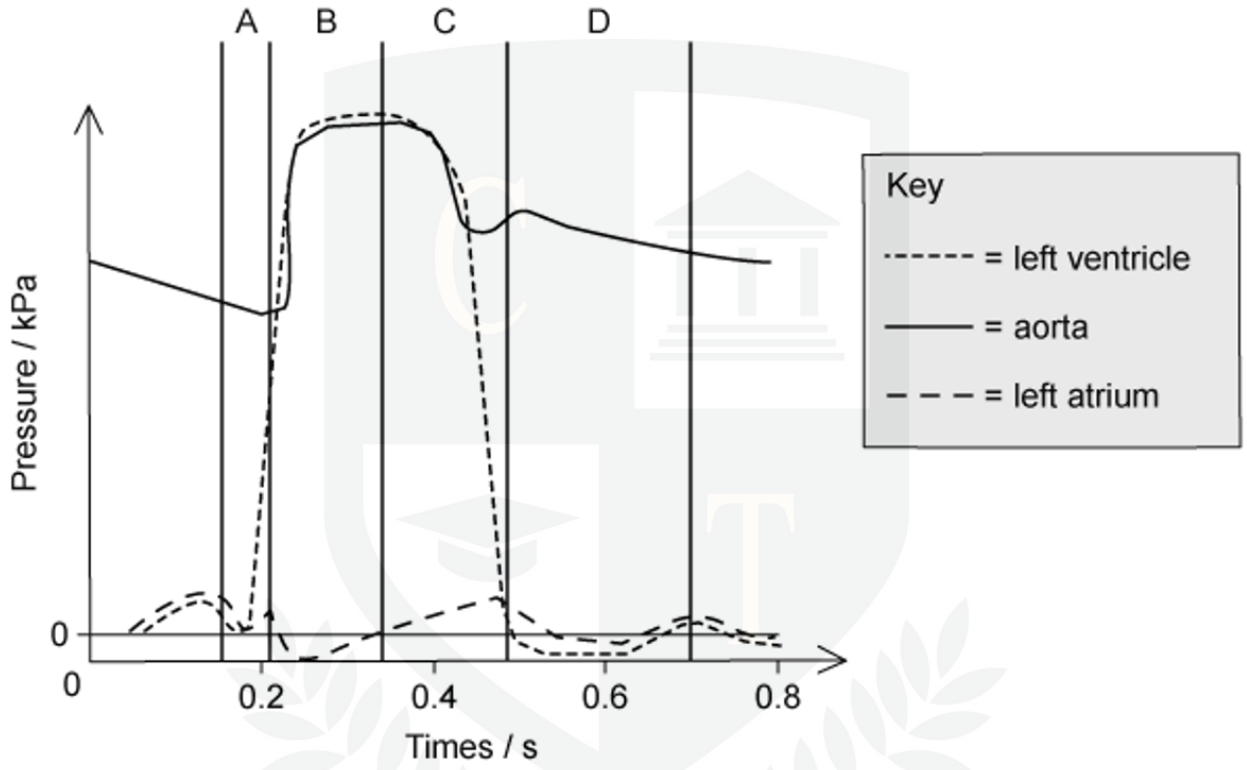
D 1 → 2 → 3 → 4

[1 mark]

Question 3

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

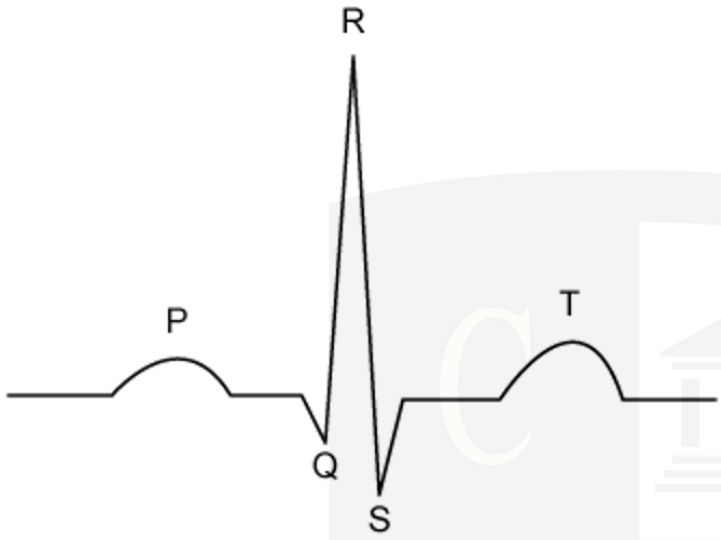
At the end of which section in the graph (**A, B, C** or **D)** would the ventricle be full of blood?



[1 mark]

Question 4

The ECG trace below shows the electrical activity of a single heartbeat.



Which letters show the current in the atria and the recovery of the ventricles?

A Q and S **B** Q and R **C** P and T **D** P and R

[1 mark]

Question 5

The narrowing of the aortic semilunar valve is a heart disorder called aortic stenosis.

Which of the following would describe the effect of aortic stenosis on the heart structure and function?

A The wall of the left ventricle thickens, leading to an enlarged heart and inability to relax and fill during diastole.

B There is less cardiac muscle in the left ventricle and reduced diastolic blood pressure, caused by the smaller blood volume entering the left atrium.

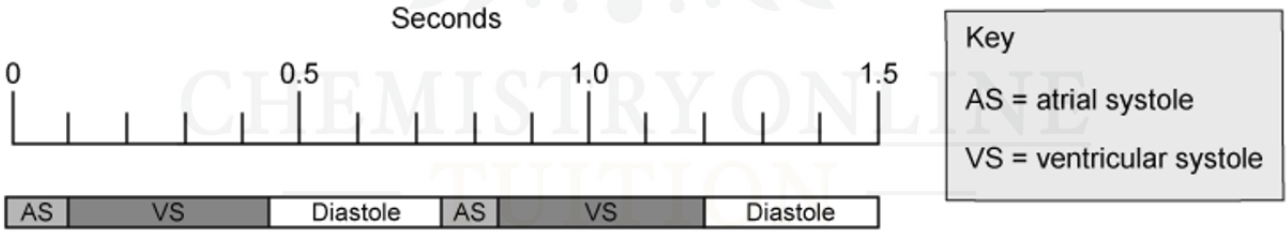
C The cardiac muscle of the left ventricle wall is thinned by blood leaking out of the left ventricle during ventricular diastole.

D The tendons of the heart valves are weakened by blood being forced back through the bicuspid/left atrioventricular valve into the left atrium.

[1 mark]

Question 6

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



How fast is the patient's heart beating?

A 90

B 80

C 75

D 72

[1 mark]

Question 7

The electrical excitation of the ventricles of the heart are thought to be improved by taking fish oils.

What part of the heart could the fish oils help?

A vagus nerve

B sinoatrial node

C atrioventricular node

D Purkyne tissue

[1 mark]

Question 8

The following parts of the heart all control the heartbeat.

1 Purkyne tissue

2 atrioventricular node (AVN)

3 sinoatrial node (SAN)

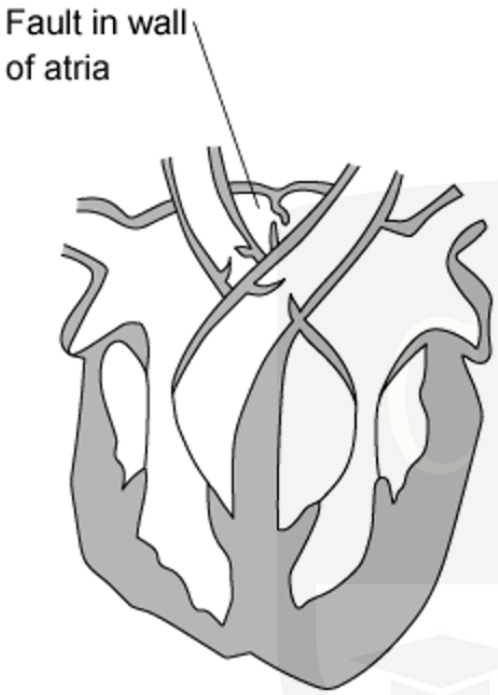
Which row in the table below is correct for ventricular contraction and atrial contraction?

	ventricular contraction	atrial contraction
A	Purkyne tissue carries a wave of excitation	SAN produces a wave of excitation
B	Purkyne tissue carries a wave of excitation	SAN and AVN produce a wave of excitation
C	AVN produces a wave of excitation	Purkyne tissue carries a wave of excitation
D	SAN produces a wave of excitation	AVN produces a wave of excitation

[1 mark]

Question 9

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 10

The table shows some changing conditions in the body.

Which row would cause the largest rise in cardiac output?

	aortic blood pressure	blood pressure in the vena cava	carbon dioxide concentration of the blood	frequency of impulses in the Vagus nerve
A	no change	decrease	increase	no change
B	no change	decrease	no change	increase
C	decrease	no change	increase	no change
D	decrease	no change	no change	increase

[1 mark]