EXAM PAPERS PRACTICE

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6.2 The Blood System

Hard

BIOLOGY

IB HL

6.2 The Blood System

Question Paper

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

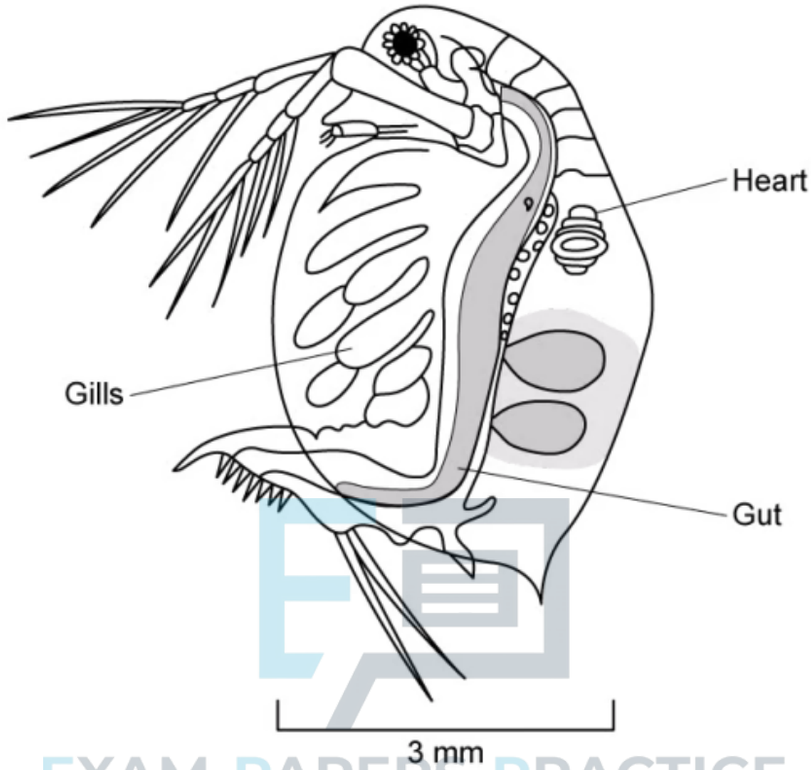
Time allowed: 10

Score: /5

Percentage: /100

Question 1

The aquatic crustacean the water flea (*Daphnia magna*, pictured below) has a heart that pumps blood-like liquid called hemolymph around its body cavity.



Which statement about *Daphnia magna*'s circulatory system is correct?

A. single closed

B. single open

C. double closed

D. double open

[1 mark]

Question 2

Which was a feature of Galen's theory of blood flow prior to his theory being superseded by that of William Harvey?

A. Blood flows in a closed loop

B. Blood is constantly re-used throughout a day

C. The heart is a pump

D. Blood flow is bidirectional

[1 mark]

Question 3

A student studied the structure of a blood vessel and found:

1. An innermost layer of endothelial cells
2. A thick middle layer of smooth muscle and elastic tissue
3. An outer layer of collagen fibres

Which vessel was the student studying?

A. Vein

B. Capillary

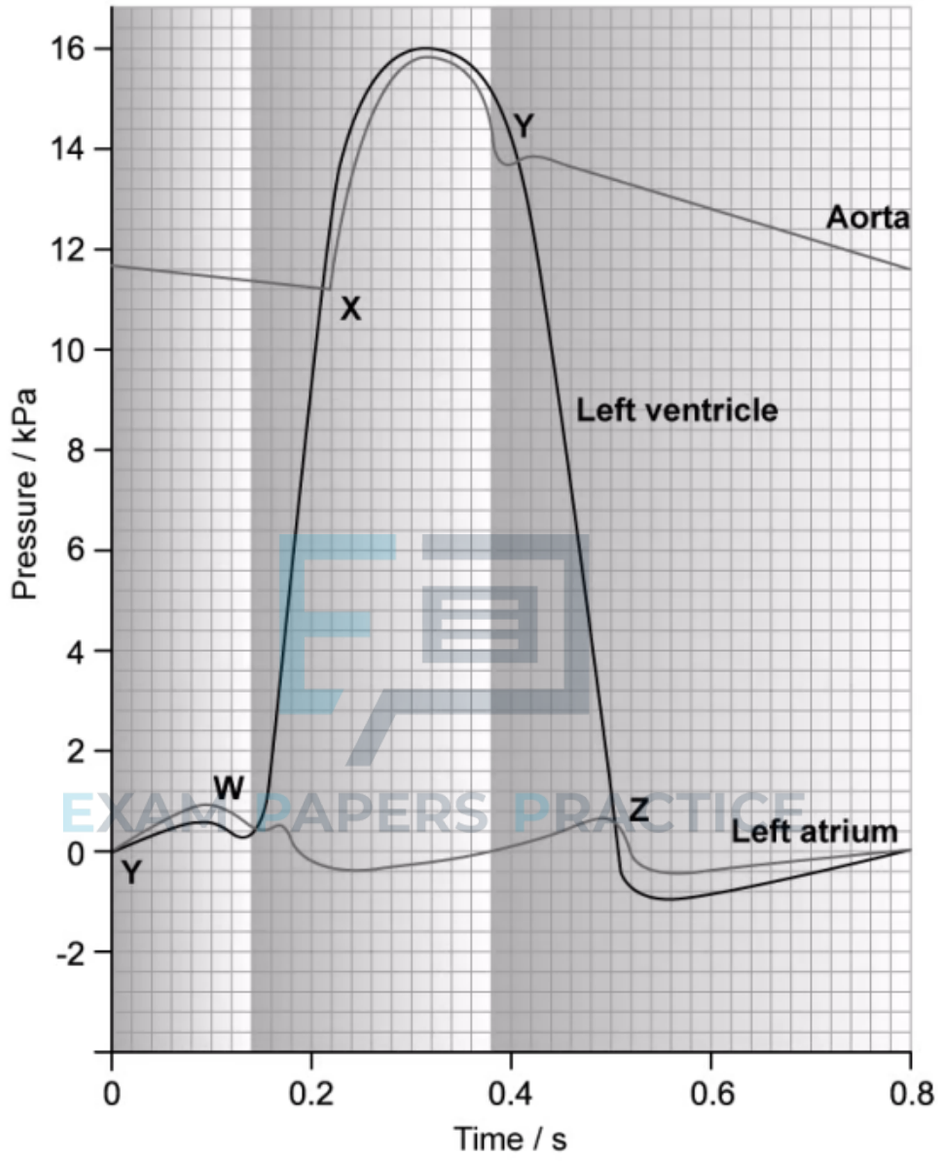
C. Venule

D. Artery

[1 mark]

Question 4

The graph shows changes in pressure at various stages of the cardiac cycle.



Which statement describes the events at point **Y** of the graph?

A. **Ventricular systole**

The ventricle contracts

↓

Pressure in the left ventricle goes higher than in the aorta

↓

Aortic valve opens and blood is forced into the aorta

B. **Early diastole**

Left ventricle is empty

↓

Muscles in the walls of the left ventricle relax and pressure drops below the pressure in the aorta

↓

Aortic valve closes

C. **Diastole**

The relaxed left atrium fills with blood, causing the pressure in the atrium to exceed that in the empty ventricle

↓

The AV valve opens

D. **Late diastole**

There is a short period of time during which the left ventricle expands due to relaxing muscles

↓

This increases the internal volume of the left ventricle and decreases the ventricular pressure

↓

At the same time, blood is flowing slowly through the newly opened AV valve into the left ventricle, causing a brief decrease in pressure in the left atrium

↓

The pressure in both the atrium and ventricle then increases slowly as they continue to fill with blood

[1 mark]

Question 5

Which is **not** a feature of the sinoatrial node (SAN)?

A. It acts as a natural pacemaker

B. It is formed from a group of highly specialised muscle cells

C. It occupies the area between the right atrium and the right ventricle

D. It sends out a wave of electrical activity, causing contraction, across both atria and both ventricles

[1 mark]