

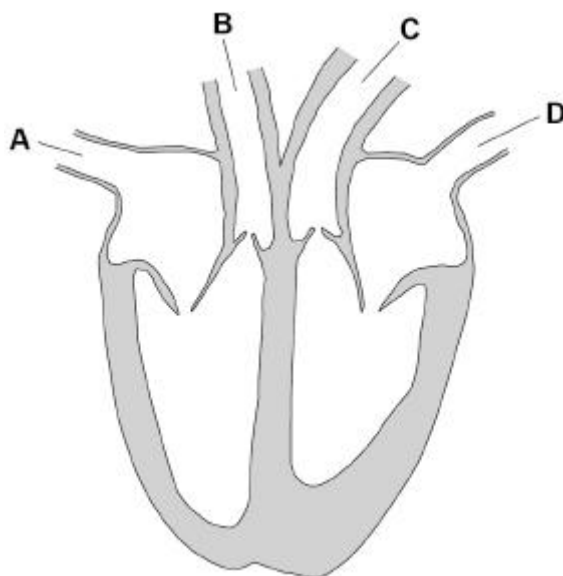
**Name of the Student:** \_\_\_\_\_

**Max. Marks : 17 Marks**

**Time : 17 Minutes**

**Q1.**

The figure below shows the human heart.



- (a) Which blood vessel transports blood with the highest oxygen concentration **into** the heart?

Tick (✓) **one** box.

|   |                          |   |                          |   |                          |   |                          |
|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|
| A | <input type="checkbox"/> | B | <input type="checkbox"/> | C | <input type="checkbox"/> | D | <input type="checkbox"/> |
|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|

(1)

- (b) Blood pressure is a measure of the force of the blood against the walls of the blood vessels.

Which blood vessel transports blood at the highest pressure?

Tick (✓) **one** box.

|   |                          |   |                          |   |                          |   |                          |
|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|
| A | <input type="checkbox"/> | B | <input type="checkbox"/> | C | <input type="checkbox"/> | D | <input type="checkbox"/> |
|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|

(1)

- (c) What is the correct order for blood flowing through the heart to the lungs?

Tick (✓) **one** box.

left atrium → left ventricle → pulmonary artery

left atrium → left ventricle → pulmonary vein



right atrium → right ventricle → pulmonary artery



right atrium → right ventricle → pulmonary vein



**(1)**

Every year thousands of people in the UK have heart attacks.

A heart attack is caused when the heart muscle cells do **not** get enough oxygen, causing the cells to die.

- (d) Statins and stents are two treatments used to reduce the risk of someone having a heart attack.

Evaluate the use of statins compared with the use of a stent to reduce the risk of a heart attack.

This image shows a blank sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**(6)**

- (e) Many people who survive a heart attack get out of breath easily when they exercise gently.

Explain why heart attack survivors get out of breath easily.

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(4)

Scientists have developed patches of beating heart cells to repair damaged heart tissue.

The patches are placed onto areas of the heart where cells have died. New cells grow to replace the dead cells.

The patches are made using a person's own cells that are converted into stem cells.

(f) Explain why stem cells are used to make the patches.

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(2)

(g) The scientists could have used human embryonic stem cells to make the patches.

Give **two** advantages of using stem cells made from the person's own cells, rather than using embryonic stem cells.

1 

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2 

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(2)

(Total 17 marks)