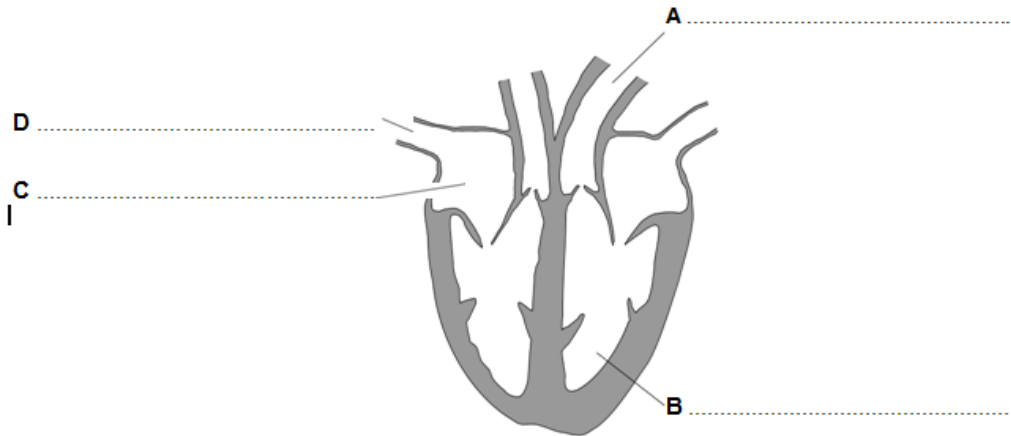


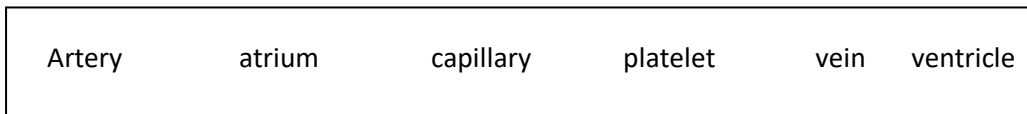
# Circulatory System 2

**Q:1** Diagram 1 shows a section through the heart.

Diagram 1

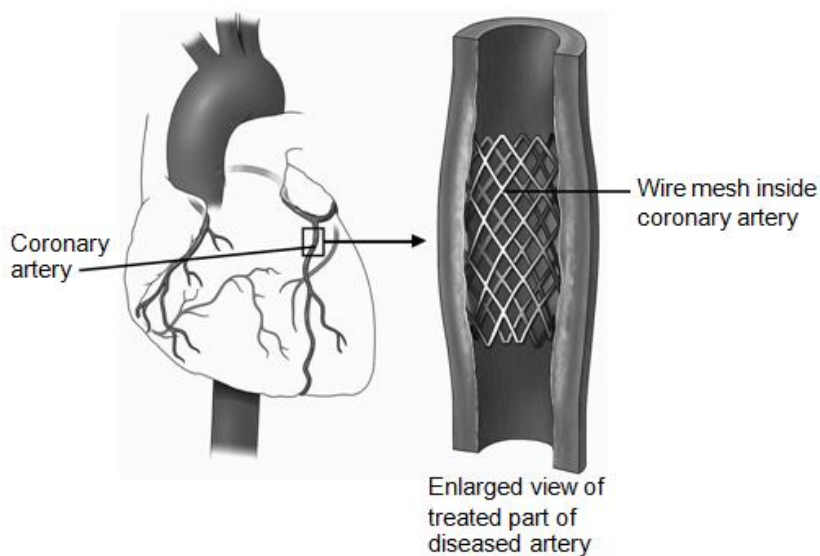


(a) Use words from the box to label parts A, B, C and D.



(4 marks)

(b) Diagram 2 shows one treatment for a diseased coronary artery.



**(b)(i)** Name the treatment shown in Diagram 2.

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**(1 mark)**

**(b) (ii)** Explain how the treatment works.

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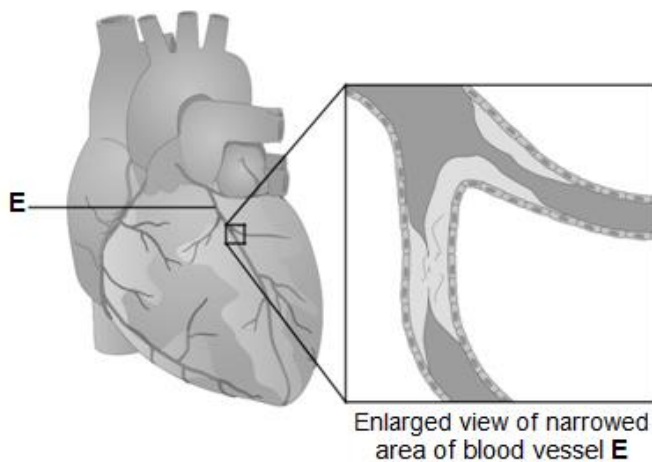
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**(2 marks)**

**Q:2 (a)** Diagram 2 shows the blood vessels that supply the heart muscle.

Part of one of the blood vessels has become narrower.

**Diagram 2**



**(b) (i)** Name blood vessel E.

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**(1 mark)**

**(a) (ii)** Give one method of treating the narrowed part of blood vessel E.

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**(1 mark)**

(a) (iii) Explain how the method of treatment works.

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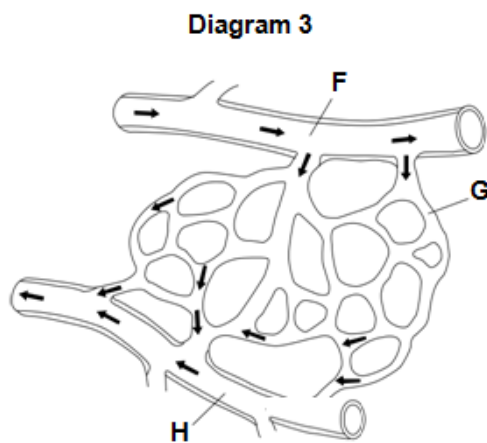
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(2 marks)

(b) Diagram 3 shows part of the blood supply in the lungs.



(b) (i) Name the types of blood vessel labelled F, G and H.

F \_\_\_\_\_

G \_\_\_\_\_

H \_\_\_\_\_

(3 marks)

(b) (ii) Give one way in which the composition of the blood in vessel F is different from the composition of the blood in vessel H.

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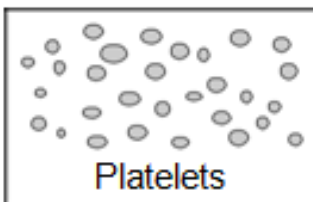
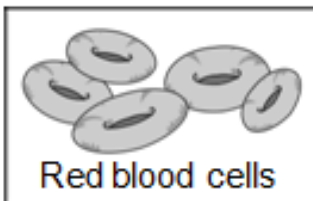
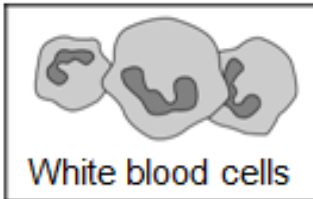
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(1 mark)

**Q:3(a) (i)** Blood is part of the circulatory system.

Draw one line from each part of the blood to its correct function.

**Part of the blood**



**Function**

carry glucose around the body

carry oxygen around the body

help the blood to clot

destroy microorganisms

[3 marks]

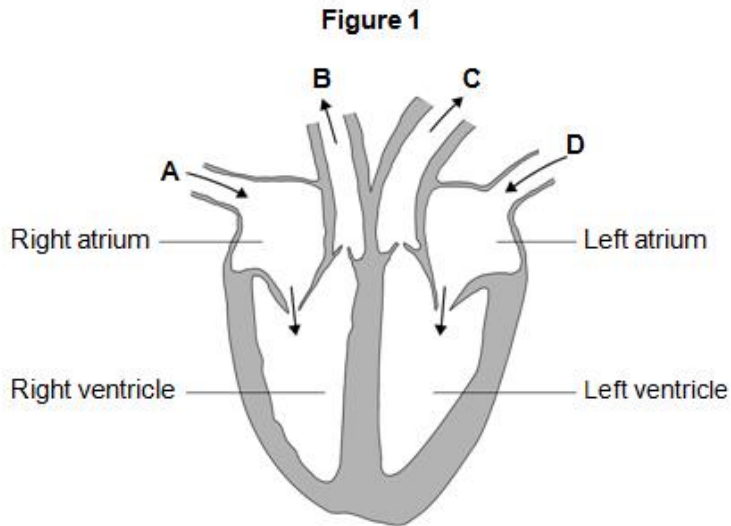
**(a) (ii)** Name one waste product that is transported by the blood plasma.

\_\_\_\_\_

[1 mark]

**(b)** The heart is also part of the circulatory system.

Figure 1 shows a section through the human heart.



**(b) (i)** Which arrow, A, B, C or D, shows blood leaving the heart in the pulmonary artery to go to the lungs?

[1 mark]

**(b) (ii)** Which arrow, A, B, C or D, shows blood from the lungs entering the heart in the pulmonary vein?

[1 mark]

**(b) (iii)** Valves in the circulatory system make sure blood only travels in one direction. Name the type of blood vessel that has valves.

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[1 mark]

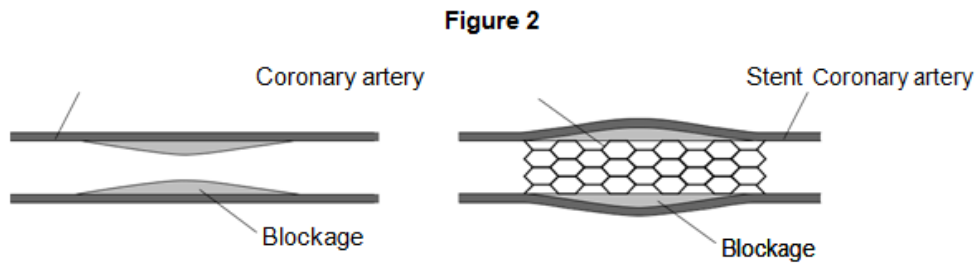
**(c)** A person's coronary artery has become narrower.

The person has a heart attack.

A doctor puts a stent into the person's coronary artery.

Figure 2 shows a stent inside a coronary artery.

Figure 2



**(c) (i)** How does the stent help to prevent another heart attack?

Give one way.

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[1 mark]

**(c) (ii)** Figure 3 shows a surgeon putting a stent into a patient.



The surgeon puts the stent into an artery in the leg. He moves the stent through the artery to the coronary artery.

Suggest two possible risks of this operation.

1 \_\_\_\_\_  
\_\_\_\_\_

2 \_\_\_\_\_  
\_\_\_\_\_

[2 marks]

**Q:4** Blood is part of the circulatory system.

**(a)(i)** Give one function of white blood cells.

\_\_\_\_\_  
\_\_\_\_\_

[1 mark]

**(a) (ii)** Which of the following is a feature of platelets?

Tick (☑) one box.

They have a nucleus.

They contain haemoglobin.

They are small fragments of cells.

[1 mark]

**(b)** Urea is transported by the blood plasma from where it is made to where the urea is excreted.

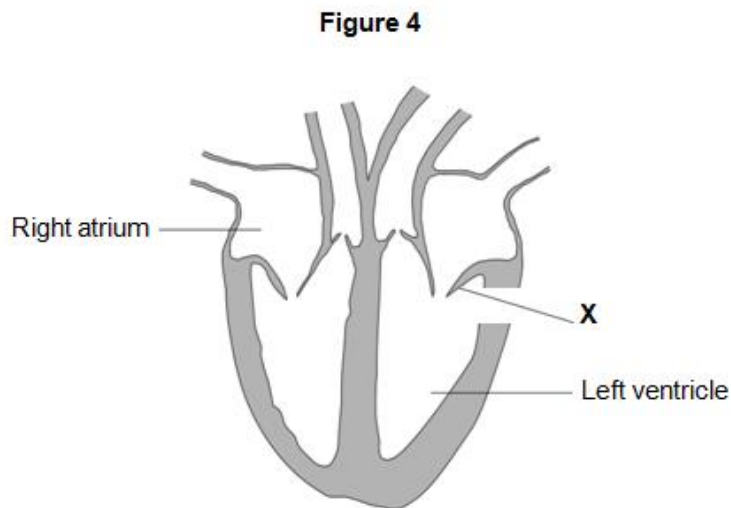
Complete the following sentence.

Blood plasma carries urea from where it is made in the \_\_\_\_\_

to the \_\_\_\_\_ where the urea is removed from the blood.

[2 marks]

(c) Figure 4 shows a section through the human heart.



Structure  
working, it may need to be replaced.

X is a valve. If valve X stops

A scientist is designing a new heart valve. The scientist knows that the valve must be the correct size to fit in the heart.

Suggest two other factors the scientist needs to consider so that the newly designed valve works effectively in the heart.

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[2 marks]

**Q:5** The circulatory system transports substances such as glucose and oxygen around the body.

(a) Name two other substances that the circulatory system transports around the body.

1 \_\_\_\_\_

2 \_\_\_\_\_

[2 marks]

(b) (i) Blood is a tissue. Blood contains red blood cells and white blood cells.



Name two other components of blood.

1 \_\_\_\_\_

2 \_\_\_\_\_

[2 marks]

**(b) (ii)** The heart is part of the circulatory system.

What type of tissue is the wall of the heart made of?

\_\_\_\_\_

[1 marks]

**(c)** In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.

Every year, many patients need to have heart valve replacements.

Figure 9 gives information about two types of heart valve.

**Figure 9**

<b>Living human heart valve</b>	<b>Cow tissue heart valve</b>
<ul style="list-style-type: none"><li>• It has been used for transplants for more than 12 years.</li><li>• It can take many years to find a suitable human donor.</li><li>• It is transplanted during an operation after a donor has been found.</li><li>• During the operation, the patient's chest is opened and the old valve is removed before the new valve is transplanted.</li></ul>	<ul style="list-style-type: none"><li>• It has been used since 2011.</li><li>• It is made from the artery tissue of a cow.</li><li>• It is attached to a stent and inserted inside the existing faulty valve.</li><li>• A doctor inserts the stent into a blood vessel in the leg and pushes it through the blood vessel to the heart.</li></ul>

A patient needs a heart valve replacement. A doctor recommends the use of a cow tissue heart valve.

Give the advantages and disadvantages of using a cow tissue heart valve compared with using a living human heart valve.

Use information from Figure 9 and your own knowledge in your answer.

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[6 marks]

**TOTAL MARKS=41**