AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.2.2.4

Coronary heart disease: a non-communicable disease

Past-paper questions

Tier	**Higher**
Question groups	**4**
Available paper years	**2018–2024**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 01

June 2018 | 8464/B/1H | Original Q2

0 2 Coronary heart disease (CHD) is a non-communicable disease.

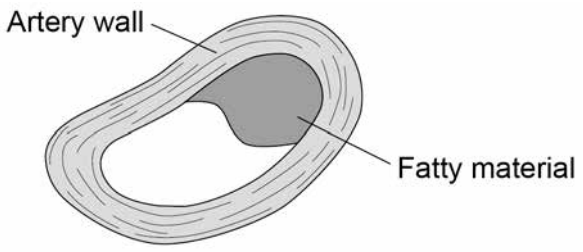
CHD is caused when fatty material builds up in the coronary arteries.

0 2 . 1 Explain what a non-communicable disease is.

[2 marks]

Figure 4 shows a coronary artery of someone with CHD.

Figure 4



0 2 . 2 Explain how CHD can cause a heart attack.

[3 marks]

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 01 · continued

0 2 . 3 Explain how lifestyle and medical risk factors increase the chance of developing CHD.
[6 marks]

11

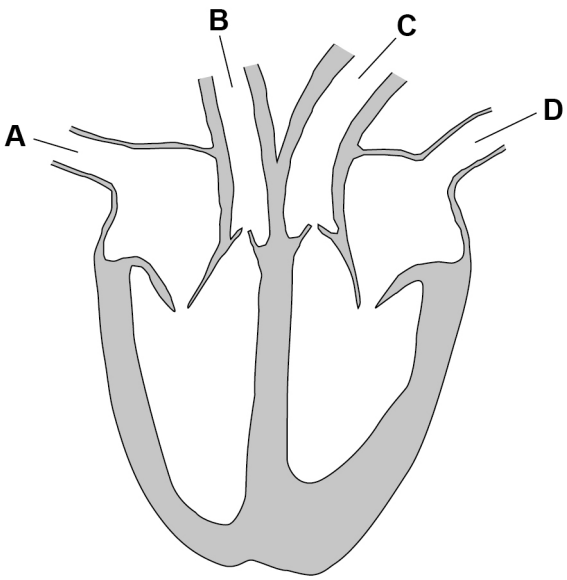
4.2.2.4 Coronary heart disease: a non-communicable disease

Question 02

November 2021 | 8464/B/1H | Original Q5

0 5 **Figure 5** shows the human heart.

Figure 5



0 5 . 1 Which blood vessel transports blood with the highest oxygen concentration **into** the heart?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

0 5 . 2 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?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 02 · continued

0 5 . 3 What is the correct order for blood flowing through the heart to the lungs?

[1 mark]

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 ☐

Question 5 continues on the next page

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 02 · continued

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.

0 5 . 4 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.

[6 marks]

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 02 · continued

0 5 . 5 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.

[4 marks]

Question 5 continues on the next page

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 02 · continued

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.

0 5 . 6 Explain why stem cells are used to make the patches.

[2 marks]

0 5 . 7 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.

[2 marks]

1

2

17

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 03

0 6 This question is about the heart.

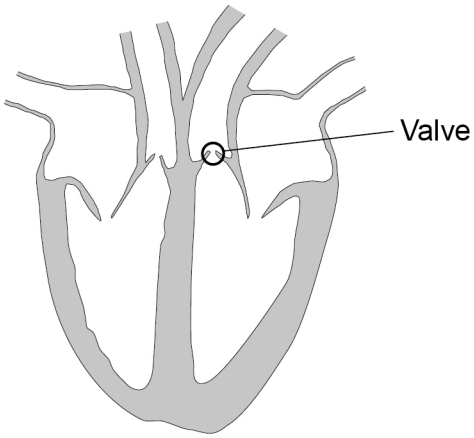
0 6 . 1 Why is the heart described as an organ?

[1 mark]

0 6 . 2 Valves in the heart keep the blood flowing through the heart in one direction.

Figure 11 shows the heart with one of the valves labelled.

Figure 11



Explain the effects on a person if the valve labelled in **Figure 11** developed a leak.

[4 marks]

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 03 · continued

0 6 . 3 Faulty heart valves can be replaced using biological or mechanical valves.

The faulty valve is replaced during an operation.

Biological valves:

- are from animals or human donors
- allow blood to flow through them normally
- wear out and stiffen over time, so may need to be replaced.

Mechanical valves:

- are made from synthetic materials
- may cause blood clots on the surface of the valve
- require anti-clotting drugs to be taken for the rest of the patient's life
- can last for a very long time in ideal conditions.

A young woman enjoys extreme sports and would like to start a family.

The woman needs a heart valve replacing.

Describe the advantages and disadvantages for this young woman of having a biological heart valve instead of a mechanical heart valve.

[4 marks]

9

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 04

June 2024 | 8464/B/1H | Original Q7

0 7 Angina is a condition many people get as coronary heart disease (CHD) develops.

Angina can cause chest pain and tiredness.

People with angina are sometimes treated with a drug called GTN.

GTN widens the coronary arteries.

Explain:

- the causes and symptoms of angina
- how GTN reduces the symptoms of angina.

[6 marks]

6