

## **GCSE Biology A (Gateway)**

**J247/02** B4-B6 and B7 Foundation (Foundation Tier)

### **Question Set 5**

1 (a)

Rheumatic fever is a rare disease in the UK. Look at this information.

**Rheumatic fever information leaflet**

Bacteria can enter the mouth and cause a sore throat.

This may develop into rheumatic fever.

Rheumatic fever is much more likely if a person does not get enough food or lives in overcrowded conditions.

White blood cells in the body make protein molecules to kill the bacteria causing rheumatic fever.

However, sometimes these molecules attack heart valves, making them leaky.

(i) Put ticks (✓) in the **two** boxes that best describe rheumatic fever.

a communicable disease	✓
a disease that is affected by lifestyle	✓
a disease that is caused by defective alleles	
a non-communicable disease	

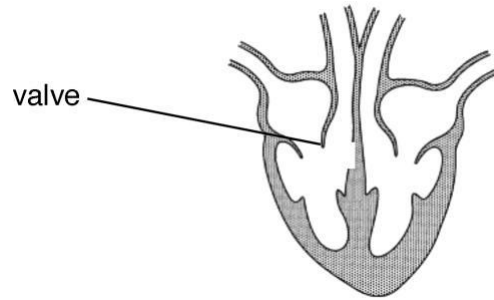
[1]

(ii) White blood cells make protein molecules that can kill the bacteria. What is the name of these protein molecules?

[1]

*Antibodies.*

(iii) The diagram shows one of the valves that can be made leaky.



People who have this leaky valve often have these symptoms:

- they get out of breath easily
- they do not seem to have much energy and feel tired.

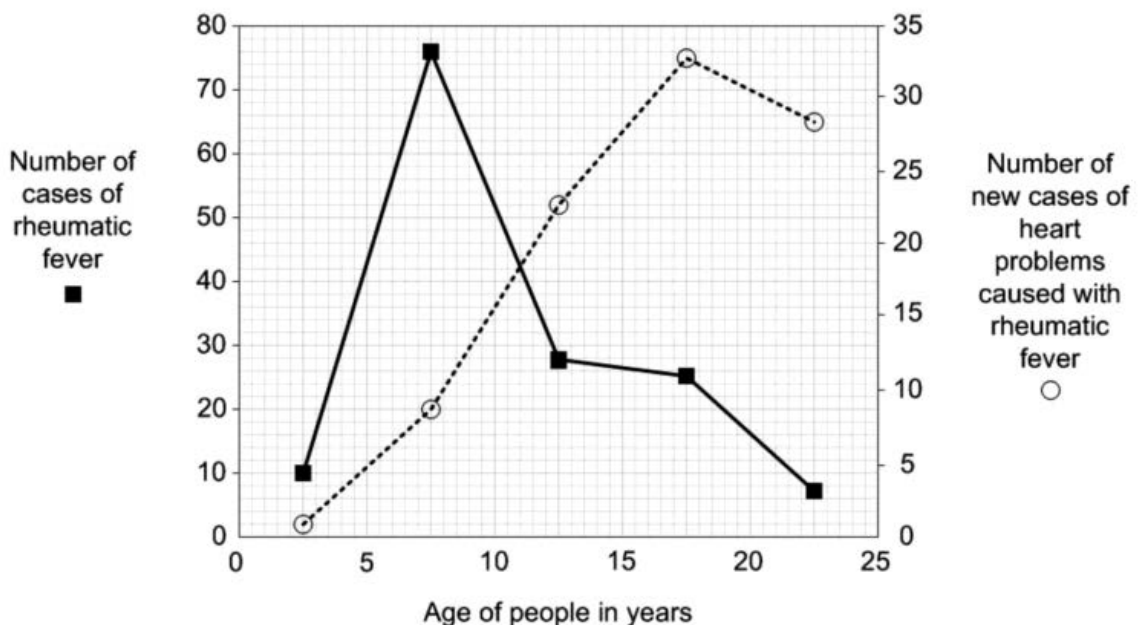
Write about the job of this valve and how damage to the valve may cause these symptoms.

[4]

This valve stops blood flowing backwards and if it is damaged, there is inefficient blood circulation to the lungs. This means increased ventilation is required for gaseous exchange. Therefore, there is less oxygen available to the tissues and the person feels out of breath and fatigued.

(b) Look at the graph.

- It gives data about people of different ages.
- It shows the number of cases of rheumatic fever.
- It also shows the number of new cases of heart problems caused by rheumatic fever.



(i) What is the age of people that most commonly have rheumatic fever?

Answer = .....7.5..... years

[1]

(ii) How many years after getting rheumatic fever is it most common to get heart problems?

How can you tell this from the graph?

Difference between the two peaks which is 10 years.

[2]

(c)

One treatment for the heart valve problem is to lower the patient's blood pressure.

Blood pressure can be lowered by taking a drug to **increase** the amount of water excreted by the body.

Which organ would be targeted by the drug and what would be the effect on urine?

Organ targeted .....kidney.....

Effect on urine.....higher volume.....

[2]

**Total Marks for Question Set 5: 11**

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