



**2. June/2022/Paper\_J260/05/No.6**

High blood cholesterol and high blood pressure increase the risk of cardiovascular disease (CVD).

(a) State **two** factors that can **reduce** risk of CVD.

1 .....

2 ..... [2]

(b) Statins are medicines which reduce blood cholesterol levels. Different medicines, called ACE inhibitors, can reduce blood pressure.

Suggest why statins and ACE inhibitors are **only** given to individuals with high cholesterol or blood pressure.

.....

.....

.....

..... [2]

(c) Scientists wanted to know if taking statins and ACE inhibitors would reduce the risk of developing CVD in people with average blood pressure. The scientists recorded the blood pressure and age of every person who took part in the study.

(i) Suggest **one** more piece of information that would be useful to know about the people in the study.

..... [1]

(ii) The people taking part in the study were put in two groups. One group was given a placebo. The other group was given statins and ACE inhibitors.

Explain why it was ethical to use a placebo in this study.

.....

.....

.....

..... [2]

- (d) The bar chart shows the percentage of people who died from cardiovascular disease (CVD) in each group during the study.

Link to material: <https://www.heart.org/en/news/2018/05/01/statins-lower-heart-attack-stroke-risk-in-people-at-average-risk>Item removed due to third party copyright restrictions.

- (i) In one year, 1 140 665 people went to hospital with CVD.  
Treating these hospital patients cost the NHS £4291.5 million.

Calculate the cost per patient to the NHS.

Give your answer to **2** significant figures.

Cost per patient = £ ..... [3]

- (ii) Calculate, for every 1000 people taking the placebo, how many more people would have survived if they had been taking the statins and ACE inhibitors.

Number of people = ..... [3]

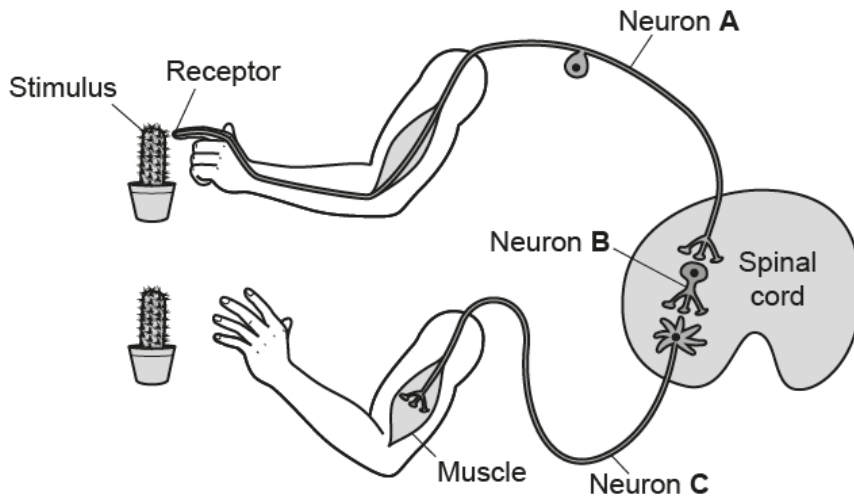
- (iii) The cost of statins and ACE inhibitors for one person for a year can be less than £30.

Evaluate the use of statins and ACE inhibitors for people with average blood pressure.

.....  
 .....  
 .....  
 .....  
 ..... [3]

## 3. June/2022/Paper\_J260/01/No.3

The diagram shows a reflex arc.



(a) The reflex arc carries a nerve impulse.

Which statement shows the correct order of the neurons that the impulse travels through?

Tick (✓) **one** box.

From **A** to **B** to **C**.

☐

From **A** and **C** to **B**.

☐

From **B** to **A** and **C**.

☐

From **C** to **B** to **A**.

☐

[1]

(b) Draw lines to connect each **neuron** with its correct **name**.

Neuron	Name
<b>A</b>	Motor neuron
<b>B</b>	Relay neuron
<b>C</b>	Sensory neuron

[2]

- (c) Reflex actions have a survival advantage.

Suggest **one** advantage of the reflex arc in the diagram.

.....  
..... [1]

- (d) The body's response to a stimulus can also be coordinated by hormones.

Complete the sentences to describe how hormones do this.

Use words from the list.

<b>blood</b>	<b>effectors</b>	<b>glands</b>	<b>neurons</b>	<b>receptors</b>
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Hormones are secreted by .....

Hormones are transported by .....

Hormones are detected by ..... , which stimulates a response.

[3]

**4. June/2022/Paper\_J260/01/No.9**

Diseases such as cardiovascular disease (CVD) are non-communicable.

(a) Define non-communicable.

.....  
..... [1]

(b) Give **two** causes of non-communicable diseases.

1 .....  
.....  
2 .....  
..... [2]

Scientists wanted to investigate the effects of two medicines on the risk of developing CVD.  
They did a study for 6 years which involved 12 000 people.  
All the people were over the age of 55 and did **not** have CVD.

(c) (i) Suggest why only people who did **not** have CVD were involved in the study.

.....  
..... [1]

(ii) Give **two** reasons why we can have confidence in conclusions drawn from this study.

1 .....  
.....  
2 .....  
..... [2]

(iii) Suggest **one** more piece of information that would be useful to know about the people in the study.

.....  
..... [1]

(iv) Why do the conclusions of this study **not** apply to the whole population?

.....  
..... [1]

- (d) The people in the study were divided into four groups. Each group received a different treatment.

The table shows the results of the study.

Group	Treatment received	Percentage of people in group who developed CVD (%)
A	Placebo	5.0
B	Medicine 1 only	3.8
C	Medicine 2 only	4.6
D	Both medicines	3.6

- (i) Describe what a placebo is.

.....  
 ..... [1]

- (ii) Suggest why a placebo was used.

.....  
 ..... [1]

- (iii) Which statement best explains why it was ethical to use a placebo in this study?

Tick (✓) **one** box.

Placebos do no harm.

☐

Placebos make people feel involved.

☐

No one in the study was ill with CVD.

☐

There are no treatments for CVD.

☐

[1]

- (iv) Suggest **two** conclusions that can be made from the results.

1 .....  
 .....

2 .....  
 .....

[2]

- (v) Group **C** and group **D** each had 3000 people in them.

Calculate how many **more** people would have developed CVD in group **D** than in group **C**.

Number of people = ..... [2]