Vaccines and Drugs 3

Q:1(a) List A gives the names of three substances. The substances can help ill people.

List B gives information about the three substances.

Draw a line from each substance in List A to the correct information in List B.

List A Substance	List B Information
	White blood cells produce this substance
Antibiotic	
	This substance is used to kill bacteria
Antitoxin	
	This substance lowers blood cholesterol levels
Painkiller	
	This substance relieves only the symptoms of a disease

(3 marks)

(b) Complete the sentences.

A vaccine contains an _____ form of a pathogen.

(1 mark)

The MMR vaccine protects children against measles,

mumps and _____ **(1 mark)**

Q:2 Scientists at a drug company developed a new pain-killing drug, drug X.

(a) Painkillers do not cure infectious diseases.

Why?

_____

(1 mark)

(b) The scientists compared drug X with two other pain-killing drugs, drug A and drug B.

In their investigation the scientists:

- chose 600 volunteers. The volunteers were all in pain
- gave 200 of the volunteers a standard dose of drug A
- gave 200 of the volunteers a standard dose of drug B
- gave 200 of the volunteers a standard dose of drug X.

Over the next seven hours the volunteers recorded how much pain they felt.

To get valid results the three groups of volunteers should be matched for as many factors as possible.

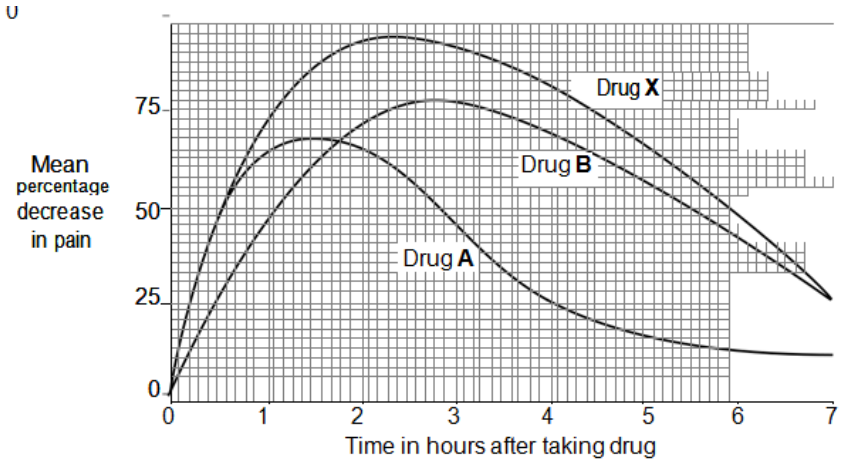
Suggest two of the factors that should be matched.

_____

_____

(2 marks)

(c) The graph shows the results of the investigation.



(c) (i) How much pain did the volunteers still feel, four hours after taking drug A?

_____ percent

(1 mark)

(c) (ii) Give one advantage of taking drug A and not drug B.

_____

_____

(1 mark)

(c) (iii) Give two advantages of taking drug B and not drug A.

_____

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_____

_____

(2 marks)

(d) Drug X is much more expensive than both drug A and drug B.

A pharmacist advised a customer that it would be just as good to take drug A and drug B together instead of drug X.

Do you agree with the pharmacist's advice?

Give reasons for your answer.

_____

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_____

(3 marks)

Q:3 People may be immunised against diseases using vaccines.

(a) (i) Which part of the vaccine stimulates the body's defence system?

_____

_____

_____

_____

(2 marks)

(a) (ii) A person has been vaccinated against measles. The person comes in contact with the measles pathogen. The person does not catch measles.

Explain why.

_____

_____

_____

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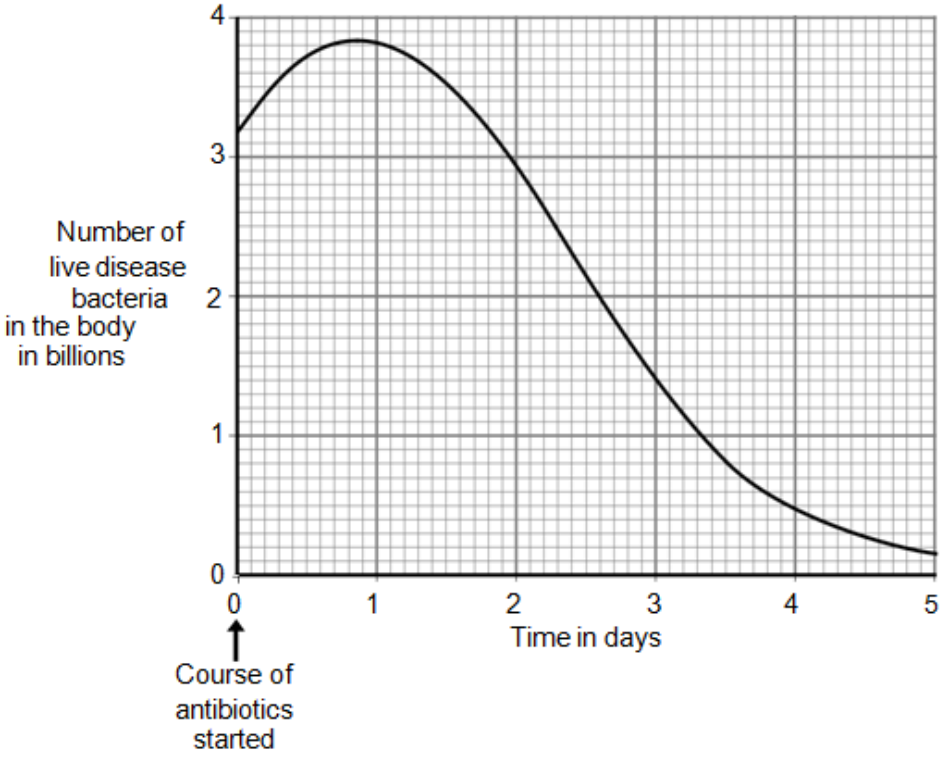
_____

(3 marks)

(b) A man catches a disease. The man has not been immunised against this disease.

A doctor gives the man a course of antibiotics.

The graph shows how the number of live disease bacteria in the body changes when the man is taking the antibiotics.



(b) (i) Four days after starting the course of antibiotics the man feels well again.

It is important that the man does not stop taking the antibiotics.

Explain why.

Use information from the graph.

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_____

(2 marks)

(b) (ii) Occasionally a new, resistant strain of a pathogen appears.

The new strain may spread rapidly.

Explain why.

(3 marks)

Q:4 Antibiotics can be used to protect our bodies from pathogens.

(a) What is a pathogen?

[1 mark]

(b) Bacteria may become resistant to antibiotics.

How can doctors reduce the number of bacteria that become resistant to antibiotics?

[2 marks]

(c) Scientists grow microorganisms in industrial conditions at a higher temperature than is used in school laboratories.

(c) (i) Which temperature would be most suitable for growing bacteria in industrial conditions?

Draw a ring around the correct answer.

25 °C 40 °C 100 °C

[1 mark]

(c) (ii) What is the advantage of using the temperature you gave in part (c)(i)?

_____

_____

[1 mark]

TOTAL MARKS=30