

Name of the Student: _____

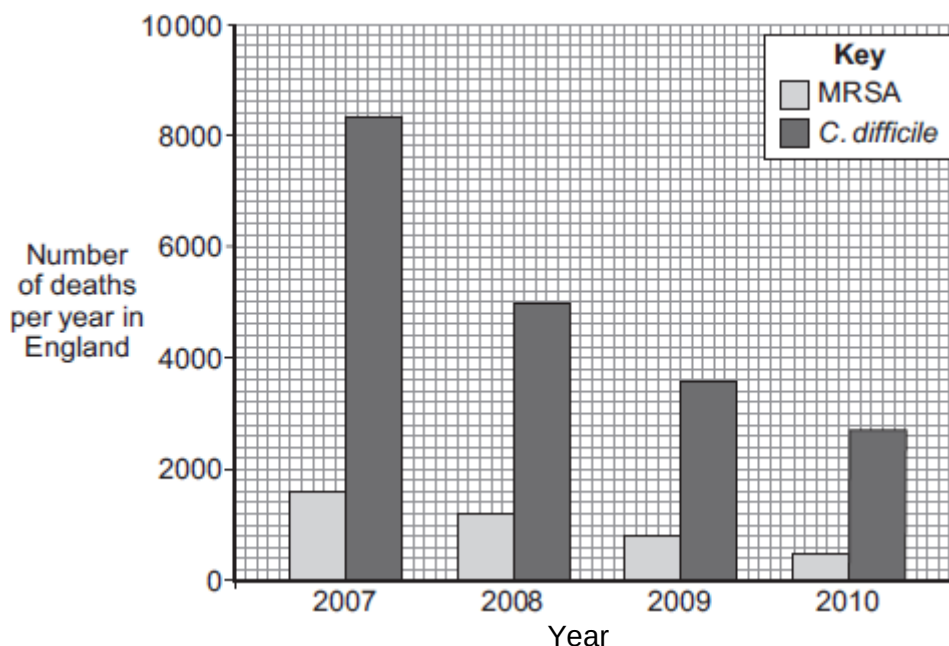
Max. Marks : 21 Marks

Time : 21 Minutes

Q1.

Infections by antibiotic resistant bacteria cause many deaths.

The bar chart below shows information about the number of deaths per year in England from *Methicillin-resistant Staphylococcus aureus* (MRSA) and from *Clostridium difficile* (*C.difficile*) over 4 years.



- (a) (i) Describe the trend for deaths caused by *C. difficile*.

(2)

- (ii) Suggest a reason for the trend you have described in part (a)(i).

Explain your answer.

(2)

- (iii) Calculate the percentage change in deaths caused by MRSA from 2009 to 2010.

Percentage change in deaths caused by MRSA = _____ %

(2)

- (iv) Numbers have not yet been published for 2011.

When the numbers are published, scientists do **not** expect to see such a large percentage change from 2010 to 2011 as the one you have calculated for 2009 to 2010.

Suggest **one** reason why.

(1)

- (b) Before 2007 there was a rapid increase in the number of deaths caused by MRSA.

Describe how the overuse of the antibiotic methicillin led to this increase.

(3)

(Total 10 marks)

Q2.

Read the article.

Parents all over the world advise children to 'wrap up warm or you'll catch a cold'.

Scientists at Cardiff University recruited 180 volunteers to take part in an investigation to find out if the advice was true. The investigation took place during the city's common cold season.

Half of the volunteers put their feet in bowls of ice cold water for 20 minutes. The other volunteers sat with their feet in empty bowls.

Over the next few days, almost a third of the volunteers who put their feet into cold water developed colds. Fewer than one in ten of the other volunteers developed colds.

- (a) Draw a ring around the correct answer to complete the sentence.

The advice 'wrap up warm or you'll catch a cold' is an example of

hearsay.

a hypothesis.

a prediction.

(1)

- (b) What was the experimental control in the investigation?

(1)

- (c) The scientists did **not** prove that the advice 'wrap up warm or you'll catch a cold' is true.

Explain why.

(3)

(Total 5 marks)

Q3.

- (a) **List A** gives the names of three stages in trialling a new drug.

List B gives information about the three stages.

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

List A Stage	List B Information
	Used to find if the drug is toxic
Tests on humans including a placebo	
	The first stage in the clinical trials of the drug
Tests on humans using very small quantities of the drug	
	Used to find the optimum dose of the drug
Tests on animals	
	Used to prove that the drug is effective on humans

(3)

- (b) Read the passage.

Daily coffee dose delays development of Alzheimer's in humans.

Alzheimer's is a brain disease that causes memory loss in elderly people. Scientists studied 56 mice that had been genetically engineered to develop Alzheimer's.

Before treatment all the mice did badly in memory tests.

Half the mice were given a daily dose of caffeine in their drinking water. The dose was equivalent to the amount of caffeine in six cups of coffee for a human.

The other mice were given ordinary water.

After two months, the caffeine-drinking mice did better in memory tests

than the mice drinking ordinary water.

The headline for the passage is not justified.

Explain why as fully as possible.

(3)

(Total 6 marks)