

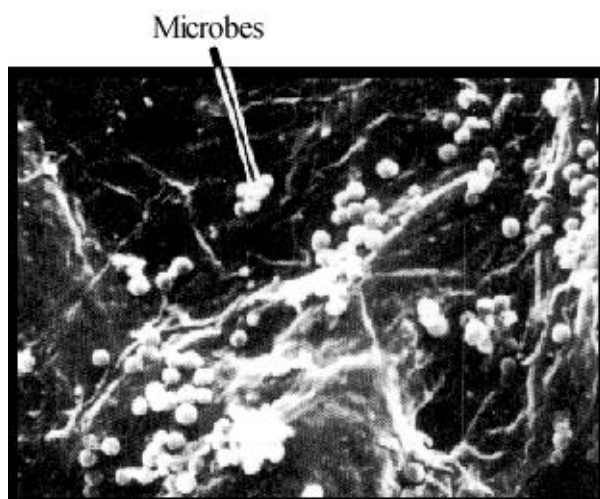
Name of the Student: _____

Max. Marks : 21 Marks

Time : 21 Minutes

Q1.

The photograph below shows human skin highly magnified. Groups of microbes can be seen on the skin.



Give **two** ways in which the body protects itself from these microbes.

1. _____

2. _____

(Total 2 marks)

Q2.

Flu is an infectious disease caused by a virus.

Many people in England become infected with the flu virus in winter.

- (a) Doctors do not prescribe antibiotics to patients with flu. Doctors do not prescribe antibiotics to patients with flu.

State why.

(1)

- (b) A flu vaccine is offered to people with a high risk of having a severe illness if they are infected by the flu virus.

What does a flu vaccine contain?

Tick (✓) **one** box.

Inactive antibodies	☐
Inactive viruses	☐
White blood cells	☐

(1)

- (c) The table shows the percentage of people in high-risk groups who had been vaccinated against flu by November in 2013. The data is for England.

Group at risk of a severe illness	Percentage (%) of group vaccinated by November in 2013
2-year-old children	31.1
3-year-old children	27.9
People 65 years and older	64.4

Give **one** conclusion from the data in the table above.

Suggest a reason for this.

Conclusion: _____

Reason: _____

(2)
(Total 4 marks)

Q3.

Bacteria and viruses can reproduce quickly inside the body and make people feel ill.

- (a) Use the correct answer from the box to complete the sentence.

antibodies	antitoxins	toxins
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Bacteria and viruses make us feel ill because they produce _____ .

(1)

- (b) (i) Antibiotics can be used to treat some infections.

Use the correct answer from the box to complete the sentence.

bacteria	bacteria and viruses	viruses
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Antibiotics are medicines that kill _____ .

(1)

- (ii) New strains of pathogens have developed which are resistant to antibiotics.

Use the correct answer from the box to complete the sentence.

are short of food	invade body cells	mutate
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New strains are produced when pathogens _____ .

(1)

- (iii) What will scientists have to develop to kill these new resistant strains?

(1)

(Total 4 marks)

Q4.

Two common medicines are paracetamol and ibuprofen. These medicines help to reduce high body temperature.

- (a) Children who were ill with high body temperatures were identified at doctors' surgeries.

These children were put into two groups.

The children in each group were matched for age, gender and body mass.

Group 1: 50 children were given paracetamol.

Group 2: 50 children were given ibuprofen.

- (i) Give **one** control variable in this investigation.

(1)

- (ii) In some investigations when medicines are tested, a placebo is given to one group.

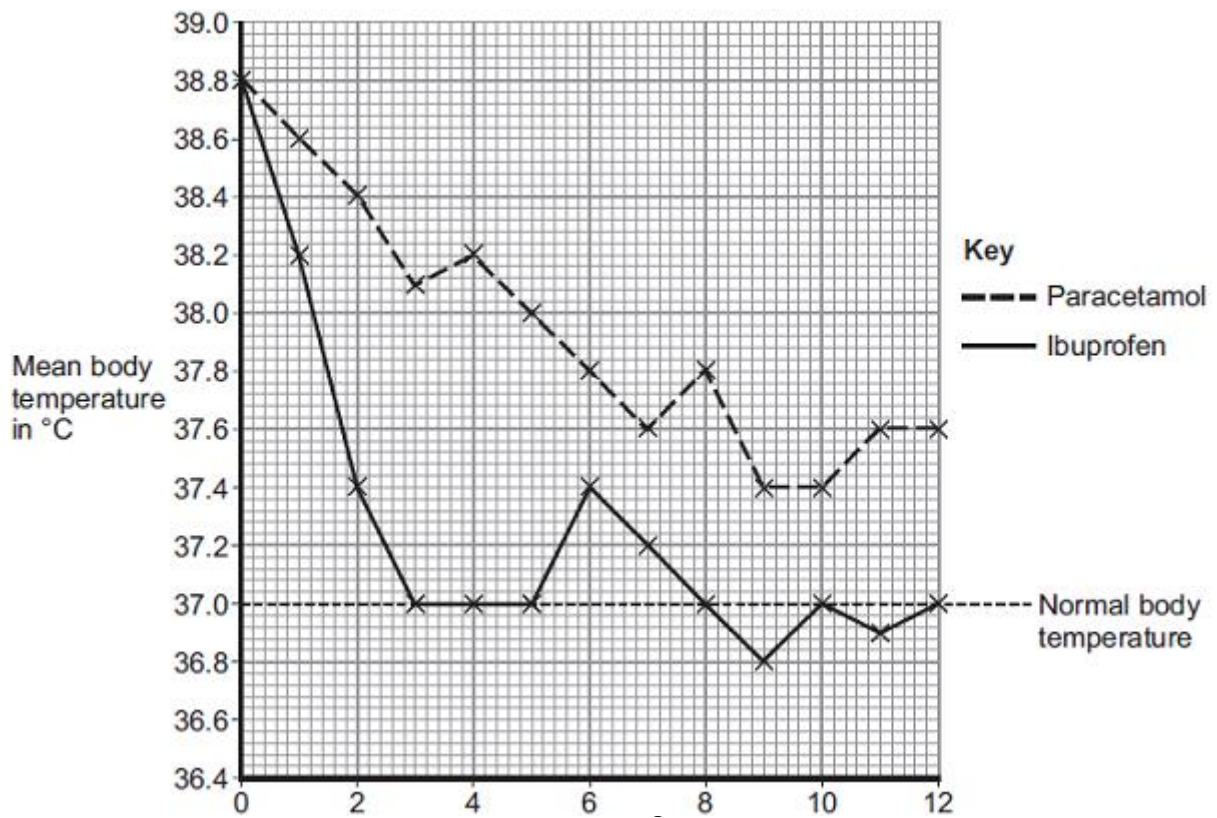
What is a placebo?

(1)

- (b) The children's body temperatures were measured before any medicine was given and every hour after treatment started.

Paracetamol was given every 4 hours. Ibuprofen was given every 6 hours.

The results for the two groups are shown in the figure below.



- (i) What was the mean body temperature 4 hours after paracetamol was given?

_____ °C

(1)

- (ii) Suggest which medicine a parent should give to their child to reduce a high body temperature to normal.

Use information from the graph.

Medicine: _____

Give **two** reasons for your answer.

(2)

(Total 5 marks)

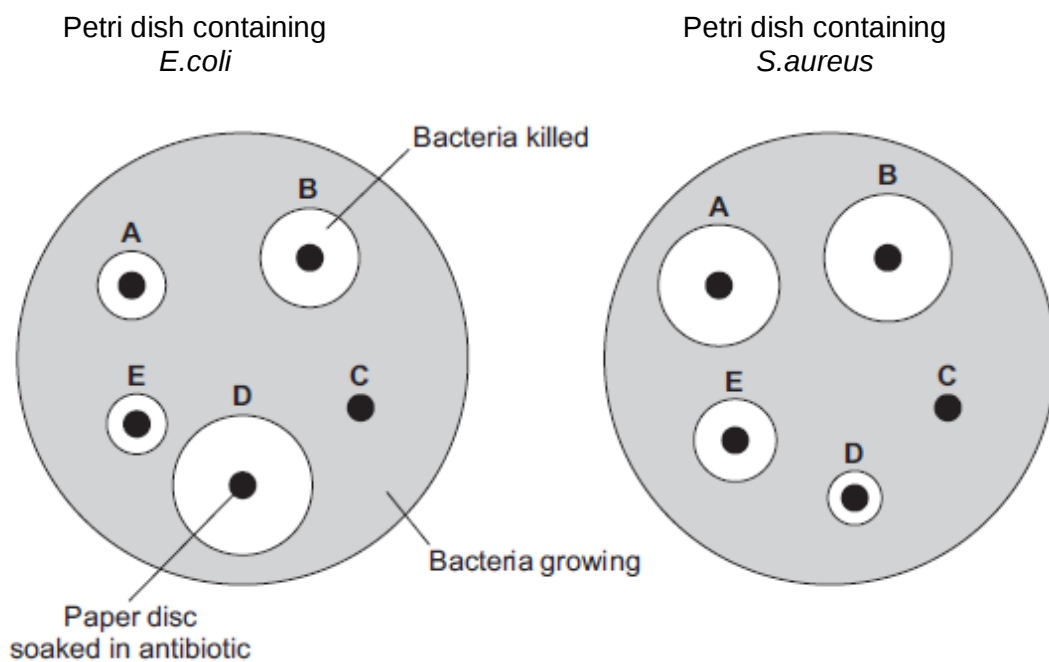
Q5.

A scientist investigated how effective 5 different antibiotics were at killing two types of bacteria, *E.coli* and *S.aureus*.

- The scientist grew the bacteria on agar in two different Petri dishes.
- He placed paper discs soaked in the 5 different antibiotic solutions, **A**, **B**, **C**, **D** and **E**, onto the agar.
- He used the same concentration of each antibiotic and the same sized paperdiscs.
- The Petri dishes were incubated at 25°C for 3 days.

A clear area around the paper disc means that the antibiotic has killed the bacteria there.

The results are shown in the diagram.



- (a) Give **one** variable the scientist controlled.

(1)

- (b) Use the results shown in the diagram to help you to answer the following questions.

- (i) Which antibiotic, **A**, **B**, **C**, **D** or **E**, was the most effective at killing *E.coli*?

Write the correct answer in the box.

(1)

- (ii) Which antibiotic, **A**, **B**, **C**, **D** or **E**, did not kill either *E.coli* or *S.aureus*?

Write the correct answer in the box.

(1)

- (iii) Which antibiotic, **A**, **B**, **C**, **D** or **E**, would be the best to use to kill both *E.coli* **and** *S.aureus*?

Antibiotic: _____

Give a reason for your answer.

(2)

- (c) MRSA is a strain of *S.aureus*. MRSA cannot be killed by most antibiotics.

Draw a ring around the correct answer to complete the sentence.

Bacteria that cannot be killed by antibiotics are

immune.
powerful.
resistant.

(1)

(Total 6 marks)