

0 3

The human body can defend itself against microorganisms that cause disease.

Viruses are one type of microorganism that cause disease.

0 3 . 1

Name **one** type of microorganism that causes disease in humans.

Do **not** refer to viruses in your answer.

[1 mark]

0 3 . 2

Which **two** defence systems prevent microorganisms infecting the human body?

[2 marks]

Tick (✓) **two** boxes.

Air is warmed as it is breathed into the lungs.

Hairs on the skin trap microorganisms.

Hydrochloric acid is produced by the stomach.

Teeth in the mouth crush and kill microorganisms.

The skin is a barrier covering the whole body.

0 3 . 3

If microorganisms enter the human body the immune system can destroy the microorganisms.

How does the immune system destroy microorganisms?

[1 mark]

Tick (✓) **one** box.

Platelets kill the microorganisms.

Red blood cells stick to the microorganisms.

White blood cells engulf the microorganisms.



0 3 . 4 Vaccinations prevent people becoming ill with diseases such as measles.

Complete the sentences.

[2 marks]

Choose answers from the box.

active

fast

resistant

slow

weakened

In a vaccine the measles virus is _____.

If the measles virus enters the body after vaccination the immune system reaction will be _____.

0 3 . 5 How is the measles virus spread from one person to another?

[1 mark]

Question 3 continues on the next page

Turn over ►



Doctors investigated the spread of the virus that causes chickenpox.

The first symptom of chickenpox after exposure to the virus is spots on the body.

23 children were playing together at a party.

On the day of the party one of the children developed chickenpox spots.

Every two days after the party, the doctors recorded when the other 22 children first showed chickenpox spots.

Table 1 shows the results.

Table 1

Day when chickenpox spots first showed	Number of children
2	0
4	0
6	0
8	0
10	1
12	1
14	6
16	4
18	2
20	0
Total	14

0 3 . 6 What was the range for the days on which children first showed chickenpox spots?

Use **Table 1**.

[1 mark]

From day _____ to day _____

0 3 . 7 Incubation time is the usual time from exposure to a pathogen until the first symptoms appear.

Suggest the most likely incubation time for chickenpox.

[1 mark]

Incubation time = _____ days



0 3 . 8

Suggest **one** reason why some of the children did **not** develop chickenpox.**[1 mark]**

0 3 . 9

One mother gave antibiotics to her child who had chickenpox.

Suggest why this child did **not** recover more quickly than the other children who had chickenpox.**[1 mark]**

11**Turn over for the next question****Turn over ►**

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.1	any one from: <ul style="list-style-type: none"> • bacteria • fungi • protists 	allow singular allow names of pathogens e.g. Salmonella ignore virus / germ	1	AO1 4.3.1.1 4.3.1.3 4.3.1.5
03.2	hydrochloric acid is produced by the stomach the skin is a barrier covering the whole body		1 1	AO1 4.2.2.1 4.3.1.6
03.3	white blood cells engulf the microorganisms.		1	AO1 4.2.2.3 4.3.1.6
03.4	weakened fast	in this order only	1 1	AO1 4.3.1.7
03.5	by coughs / sneezes	allow 'by droplets in the air' do not accept other means of transmission e.g. touch	1	AO1 4.3.1.1 4.3.1.2
03.6	(from day) 10 (to day) 18	allow (from day) 18 (to day) 10	1	AO2 4.3.1.2
03.7	14 (days)	allow in the range 13 to 15 (days)	1	AO3 4.3.1.2
03.8	any one from: <ul style="list-style-type: none"> • they had been vaccinated • they already had antibodies • they were immune • they had had it before • they did not get any / enough virus from infected child • they did not play (much) with the infected child 	ignore they were resistant ignore they wore a mask unqualified	1	AO3 4.3.1.2 4.3.1.7

03.9	antibiotics do not kill viruses	allow antibiotics do not work on viruses allow antibiotics only kill bacteria	1	AO3 4.3.1.8
Total			11	