

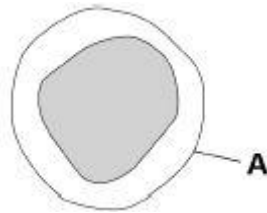
Cell biology F

<https://lasoqid.exampro.net/>

Q1.

Figure 1 shows one type of white blood cell.

Figure 1



(a) What is structure **A**?

Tick **one** box.

Cell membrane

Cell wall

Cytoplasm

Nucleus

(1)

(b) White blood cells help to defend the body against pathogens.

How do the white blood cells do this?

Tick **three** boxes.

Clone pathogens

Engulf pathogens

Produce antibiotics

Produce antibodies

Produce antitoxins



Produce toxins

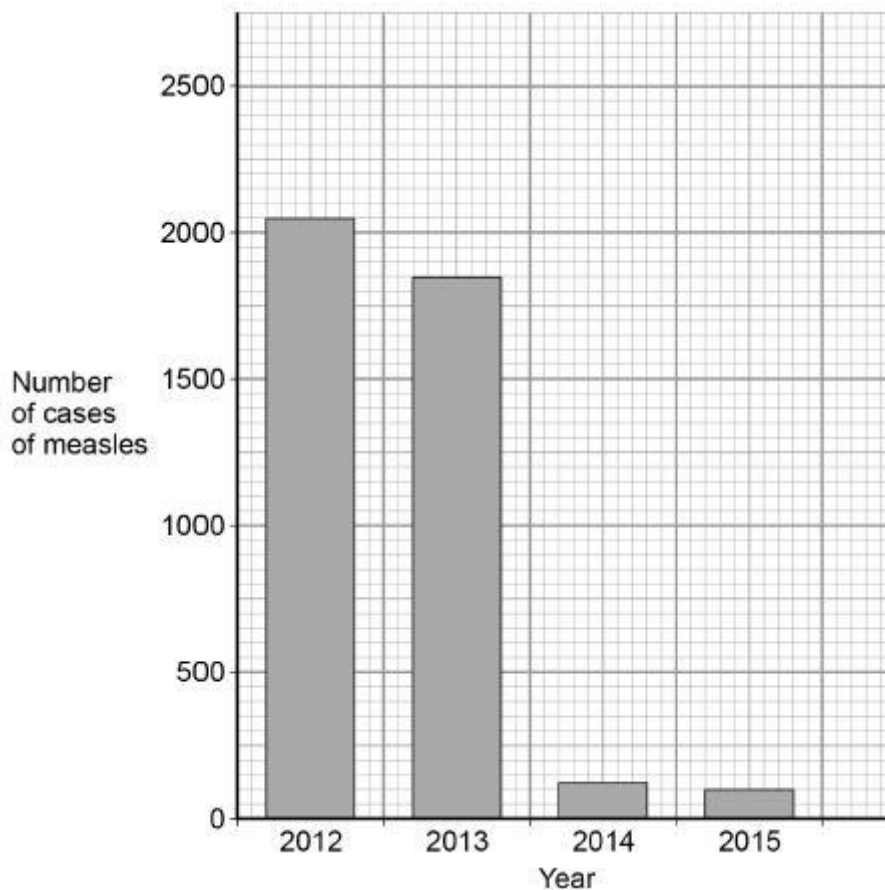


(3)

Measles is a serious disease. A person can die from measles.

Figure 2 shows the number of cases of measles in England and Wales between 2012 and 2015

Figure 2



- (c) Use **Figure 2** to calculate the decrease in the number of cases of measles between 2012 and 2015

Answer = _____ cases

(2)

- (d) Suggest **one** reason for the decrease in the number of cases of measles between 2012 and 2015

(1)

(e) Antibiotics **cannot** be used to treat measles.

Suggest why.

(1)

(f) Gonorrhoea is a disease caused by a bacterium.

Gonorrhoea **can** be treated with antibiotics.

Give **one** other way to control the spread of gonorrhoea.

(1)

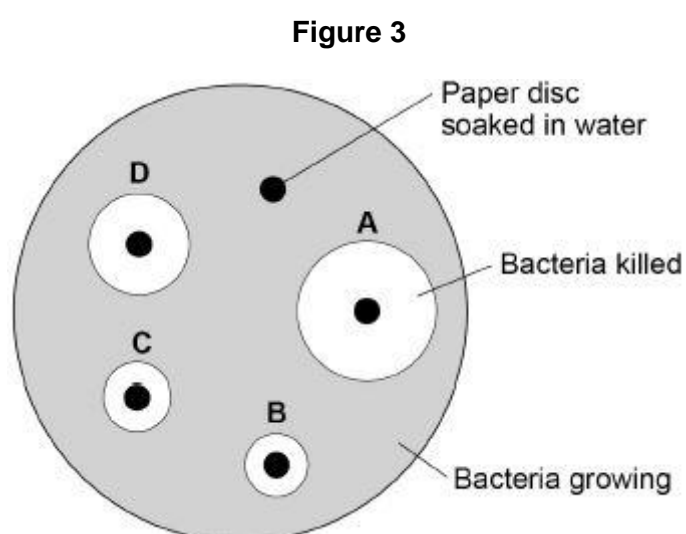
A scientist investigated how effective different antibiotics were at killing gonorrhoea bacteria.

This is the method used.

1. Grow gonorrhoea bacteria on agar in a Petri dish.
2. Place one paper disc soaked in water onto the agar.
3. Place four other paper discs, each soaked in a different antibiotic, **A**, **B**, **C**, and **D**, onto the agar.
4. Use the same sized paper discs and the same concentration of each antibiotic.
5. Incubate the Petri dish for 3 days.

Figure 3 shows the scientist's results.

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



(g) Give **one** control variable the scientist used.

(1)

(h) Suggest why **one** disc was soaked in water.

(1)

(i) Which antibiotic in **Figure 3** would be the best to treat gonorrhoea?

Give a reason for your answer.

Antibiotic _____

Reason _____

(2)

(Total 13 marks)

Mark schemes

Q1.

- (a) cell membrane
extra ticks negates marks 1
- (b) engulf pathogens 1
- produce antibodies 1
- produce antitoxins 1
- extra ticks negates marks*
- (c) 2050 – 100 1
- = 1950
- allow 1 mark for a correct subtraction of incorrect values* 1
- an answer of 1950 scores 2 marks*
- (d) any **one** from:
- (more) people vaccinated
ignore injections / treatments / medicines unqualified
allow vaccine produced
allow (more people given) MMR (vaccine)
*do **not** allow antibiotics*
ignore less people infected
 - (more) people immune
 - no new measles strain
- 1
- (e) any **one** from:
- measles is (caused by) a virus
allow measles is not caused by a bacterium
 - viruses cannot be killed / destroyed by antibiotics
*allow antibiotics **only** kill / destroy bacteria*
ignore harmed / treated
- 1
- (f) any **one** from:
- use of a barrier method of contraception
ignore use of diaphragm
 - use of a condom
ignore use protection / safe sex

- vaccination / immunisation
- avoid sexual intercourse / contact
*do **not** accept less sexual intercourse / contact*

1

(g) any **one** from:

- size / shape/ type of paper disc
ignore paper disc unqualified
- concentration of antibiotic
allow strength / dosage of antibiotic
- volume / amount of antibiotic
- (incubation) time
allow 3 days
- (incubation) temperature
ignore size of petri dish

1

(h) to check that the disc / water did not have an effect
or
to make sure it was the antibiotic that had an effect
allow for comparison with the antibiotics
allow as a (experimental) control
*do **not** accept as a control variable*

1

(i) (antibiotic) **A**

no marks if wrong antibiotic given

1

any **one** from:

- (antibiotic **A**) had the **largest** clear area around it
- (antibiotic **A**) killed the **most** bacteria

1

[13]

[6]