

(Communicable diseases (bacterial, viral, fungal, protist))

Q1.(2018)

Eating food containing *Salmonella* bacteria can cause illness.

Two symptoms of infection by *Salmonella* are vomiting and diarrhoea.

What causes these symptoms?

[1 mark]

Q1.b)(2018)

Give **two** ways a person with a mild infection of *Salmonella* can help prevent the spread of the bacteria to other people.

[2 marks]1

2

Q1.c)(2018)

In very serious infections of *Salmonella*, a doctor can prescribe drugs to kill the bacteria.

What type of drug can the doctor prescribe to kill the bacteria?

[1 mark]

Q1.d)(2018)

A person with AIDS may take longer than a healthy person to recover from a *Salmonella* infection.

Explain why.

[2 marks]

Q1.e)(2018)

Salmonella bacteria can be transmitted from chickens to humans. Chickens can be vaccinated to prevent the transmission of *Salmonella* bacteria to humans.

Suggest **one** other way farmers could prevent the transmission of *Salmonella* from chickens to humans.

[1 mark]

Q2.(2019)

Mosquitoes carry a pathogen that causes malaria.

What type of pathogen causes malaria?

[1 mark]

Tick (✓) **one** box.

A bacterium

☐

A fungus

☐

A protist

☐

A virus

☐

Q2.a)(2019)

Mosquito nets can help prevent the spread of malaria.

Table 1 shows the results of a study in one area of Africa.

Table 1

Total number of people in the study	Number of people who use mosquito nets when sleeping	Percentage of people with malaria	
		Who use mosquito nets when sleeping	Who do NOT use mosquito nets when sleeping
476	426	1.2	40

A newspaper made the following statement:

'Study shows mosquito nets are scientifically proven to prevent malaria.'

Give **one** piece of evidence that supports the statement.

[1 mark]

Q2.b)(2019)

Suggest **one** reason why the statement may **not** be valid.

[1 mark]

Q2.c)(2019)

Table 2 shows information about the number of deaths from malaria in the same area of Africa.

Table 2

Year	Number of deaths from malaria per 100 000 people
2005	161
2007	136
2009	114
2011	97
2013	94
2015	92

Predict the number of people per 100 000 who died from malaria in 2017 if the trend stayed the same.

[1 mark]

Number of people per 100 000 = _____

Q2.d)(2019)

Use of mosquito nets has helped to reduce the number of deaths from malaria each year.

Suggest **one** other reason for the reduced number of deaths from malaria each year.

[1 mark]

Q2.e)(2019)

Infection and Response

<http://www.pcfgstudy.com>

Describe how the human body:

- prevents pathogens from entering
- defends itself against pathogens inside the body.

[6 marks]

Q3.(2022)

Which disease is caused by a fungus?

[1 mark]

Tick (✓) **one** box.

Gonorrhoea

☐

Malaria

☐

Measles

☐

Rose black spot

☐

Q4.(2022)

A fungal cell divides once every 90 minutes.

How many times would this fungal cell divide in 24 hours?

[2 marks]

Number of times cell divides in 24 hours = _____

Q5.(2022)

Infection and Response

<http://www.pcfgstudy.com>

Human immunodeficiency virus (HIV) is a pathogen.

Give **one** way HIV can spread from one person to another person.

[1 mark]

Q6.a)(2022)

Table 8 shows information about new cases of HIV diagnosed in the UK.

Table 8

Year	Number of new HIV cases in women	Number of new HIV cases in men
2010	376	2266
2012	361	2310
2014	397	2370
2016	298	1886
2018	242	1288

Describe the trends shown in **Table 8** between 2010 and 2018.

[2 marks]

Q6.b)(2022)

Suggest **one** reason for the change in the number of new HIV cases between 2014 and 2018.

[1 mark]

Q6.c)(2022)

Calculate the ratio of new cases of HIV in women to new cases of HIV in men in 2018.

Give your answer to 3 significant figures.

[3 marks]

Ratio (3 significant figures) = _____ : 1

Q6.d)(2022)

Infection and Response

<http://www.pcfgstudy.com>

In the UK population the total number of women is greater than the total number of men.

The data in **Table 8** is used to compare the proportions of new cases of HIV in the population for men and women.

Suggest how the data could be presented differently so that a more valid comparison can be made.

[1 mark]

Q6.e)(2022)

Scientists have been working to produce a vaccine for HIV for many years.

Explain how a vaccine for HIV could work to prevent a person developing HIV infection.

[4 marks]

Q6.f)(2022)

A person with late stage HIV infection has AIDS.

Scientists have produced monoclonal antibodies for HIV.
The monoclonal antibodies can prevent a person infected with HIV developing AIDS.

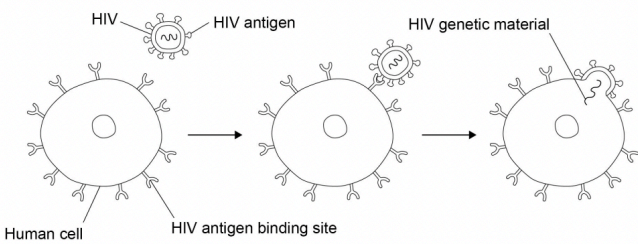
Describe how the monoclonal antibody for HIV can be produced.

[4 marks]

Q6.g)(2022)

Figure 9 shows how HIV enters a human cell.

Figure 9



The diagram illustrates the process of HIV infection. It shows a human cell with HIV antigen binding sites on its surface. An HIV virus, consisting of an HIV antigen and HIV genetic material, binds to these sites. The HIV genetic material is then injected into the human cell.

Suggest how the monoclonal antibody for HIV helps to prevent a person infected with HIV developing AIDS.

Use information from **Figure 9**. **[3 marks]**

Q7.a)(2023)

Salmonella bacteria cause outbreaks of food poisoning in humans.

To prevent food poisoning in humans, farmers vaccinate their animals against *Salmonella* bacteria.

How do *Salmonella* bacteria in food cause the symptoms of vomiting and diarrhoea?

[1 mark]

Q7.b)(2023)

During a food poisoning outbreak, scientists identified the farm where the food came from.

The farmer had **not** vaccinated the farm animals against *Salmonella* bacteria.

The food poisoning outbreak could have been prevented if the farm animals had been vaccinated.

Explain how:

- the immune systems of animals respond to a vaccination
- the immune response in farm animals prevents an outbreak of food poisoning in humans.

[4 marks]

Q8.(2023)

The protist that causes malaria is passed from one person to another person by mosquitos.

What term describes an organism that passes a pathogen from one person to another person?

[1 mark]

Q9.(2024)

Cystic fibrosis (CF) is an inherited disorder caused by a faulty gene.

Where in a cell would the CF gene be found?

[1 mark]
