

AQA – Cells – AS Biology P1

1. No.3

03.1

Describe how viruses are replicated.

[4 marks]

03.2

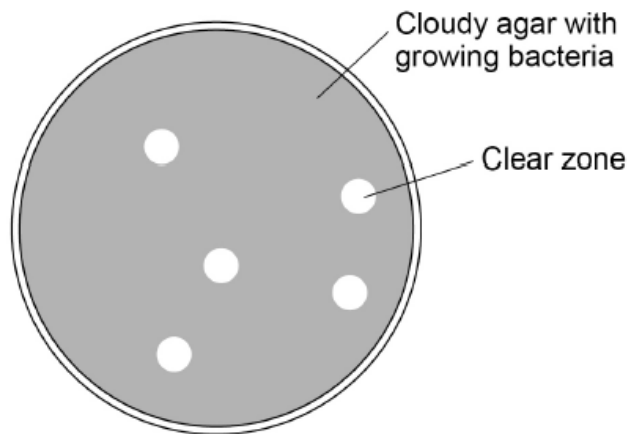
A scientist investigated the effect of a virus species on a bacterial culture.

The scientist:

- mixed a diluted sample of the virus with a bacterial culture in liquid agar
- poured the liquid agar into a Petri dish and let the agar set
- incubated the virus-bacterial culture at 30 °C for 24 hours.

Figure 3 shows the appearance of the Petri dish after 24 hours.

Figure 3



Explain why clear zones are present in Figure 3.

[1 mark]

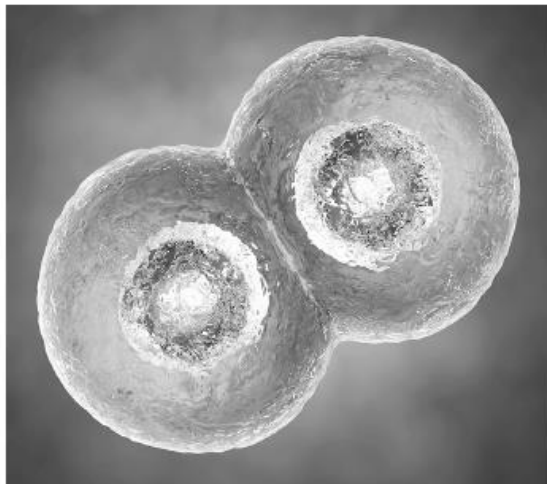
03.3

Predict the appearance of the Petri dish if the incubation was extended by a few more hours.

[1 mark]

0 3 . 4

Animal cells replicate during the cell cycle.

Figure 4 shows one animal cell at a stage of the cell cycle.**Figure 4**Identify the stage of the cell cycle shown in **Figure 4**.Explain the appearance of the cell shown in **Figure 4**.Do **not** refer to organelles in your answer.**[2 marks]**

Identity of stage _____

Explanation _____

2. No.6

06.1

Give **two** roles of phosphate ions in cells.

[2 marks]

1 _____

2 _____

06.2

Diseased lungs can cause carbon dioxide to build up in the blood plasma. This leads to an increase in hydrogen ion concentration in the plasma.

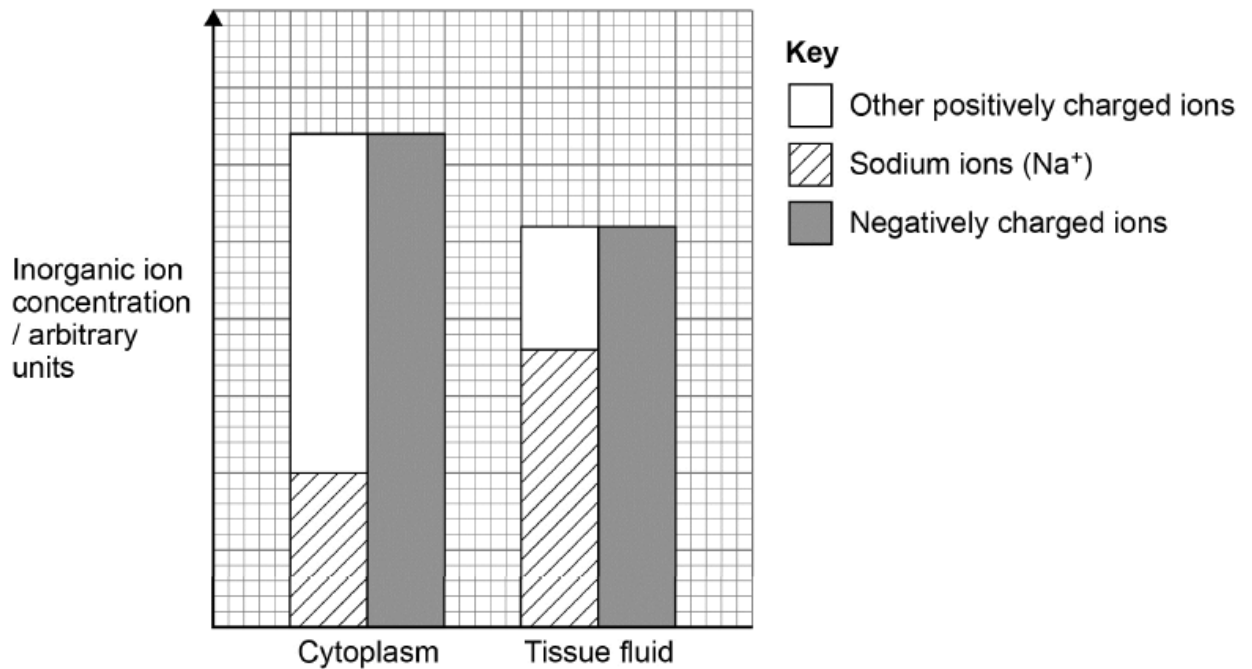
Describe the effect this increase in hydrogen ion concentration has on the plasma **and** on the proteins in the plasma.Do **not** refer to the Bohr effect.

[2 marks]

Scientists measured the concentration of inorganic ions in the cytoplasm of mammalian cells and in the tissue fluid surrounding those cells.

Figure 7 shows their results.

Figure 7



0 6 . 3

Use Figure 7 to describe **two** patterns shown in the **total** concentrations of positively and negatively charged ions in the cytoplasm and in tissue fluid.

[2 marks]

1 _____

2 _____

0 6 . 4

In these mammalian cells, the:

- cell-surface membrane is permeable to sodium ions
- sodium ion concentration does not increase in the cytoplasm over time.

Use this information and **Figure 7** to suggest and explain the ion transport mechanisms involved in the transport of sodium ions.

[2 marks]
