1. Question part 1/3 | 5090 Oct-Nov 2023 P2 V2 Q1

1 Cholera is caused by a type of organism that can be passed from one host to another.

(a) State the term used to describe

(i) a disease-causing organism

..... [1]

(ii) the type of disease in which the disease-causing organism is passed from one host to another.

..... [1]

(b) The disease-causing organism that causes cholera is a bacterium.

Complete Table 1.1 to list some of the structures present in a bacterial cell and the function of each structure.

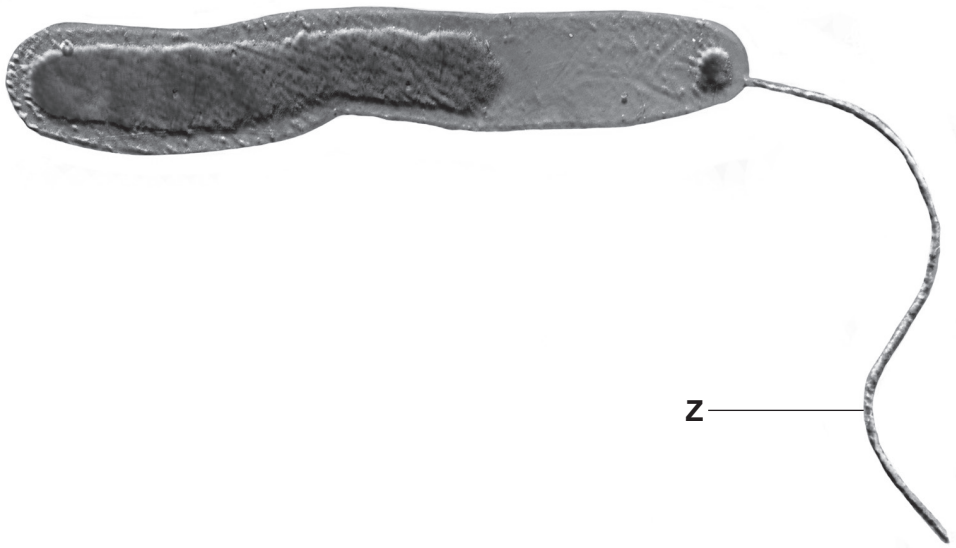
Table 1.1

structure	**function**
ribosomes	.....
.....	small rings of DNA that carry genes
.....	controls the passage of substances into and out of the cell
cell wall	.....

[4]

1. Question part 2/3 | 5090 Oct-Nov 2023 P2 V2 Q1

(c) Fig. 1.1 shows a photograph of the bacterium that causes cholera.



magnification ×50 000

Fig. 1.1

(i) The length of the bacterium in the photograph is 100 mm. Use this value to calculate the actual length of the bacterium in micrometres (μm).
Space for working.

..... μm
[2]

(ii) Use your knowledge of a type of specialised human cell to suggest the name of structure **Z** and to state its function.

name .....

function .....

.....
[2]

1. Question part 3/3 | 5090 Oct-Nov 2023 P2 V2 Q1

(iii) The binomial name of this type of bacterium is *Vibrio cholerae*.

State the genus of this type of bacterium and **one** advantage of the binomial system of naming species.

genus .....

advantage .....

.....

[2]

(iv) Explain how the presence of bacteria of this type in a human causes diarrhoea, one of the symptoms of cholera.

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 16]

2. Question | 5090 May-June 2024 P2 V2 Q1

1 Fig. 1.1 shows two cells from the leaf of a plant observed using a light microscope.

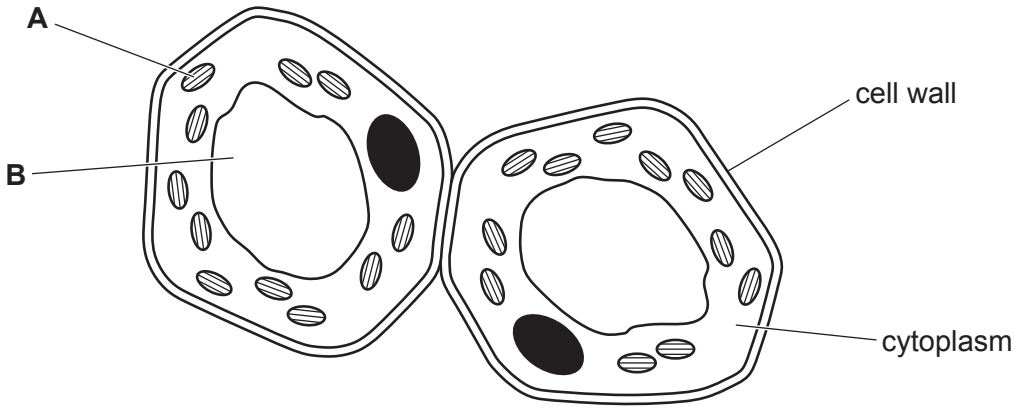


Fig. 1.1

(a) Complete Table 1.1 to identify the structures labelled **A** and **B** and to describe the function of each structure.

Table 1.1

structure	name of structure	description of function
A	.....	....
B	.....	....

[4]

(b) State **one** structure that is **not** visible in Fig. 1.1 but would be visible in the cytoplasm in an electron micrograph of the same two cells.

..... [1]

[Total: 5]

3. Question part 1/2 | 5090 May-June 2026 P2 V2 Q2

2 Figure 2.1 shows a photomicrograph of a human epithelial cell.



magnification ×900

Figure 2.1

(a) (i) Figure 2.2 shows structures of the epithelial cell and their functions.

On Figure 2.2, draw a line from each structure to its function.

structure	function
cell membrane	contains the cell's genetic material
mitochondria	protein synthesis
ribosomes	site of aerobic respiration
nucleus	controls entry and exit of substances

Figure 2.2

[3]

(ii) The structures named in Figure 2.2 are also found in plant cells.

Name **two other** structures that are found in most plant cells.

1 .....

2 .....

[2]

3. Question part 2/2 | 5090 May-June 2026 P2 V2 Q2

(b) The photomicrograph of the epithelial cell in Figure 2.1 has a magnification of ×900.

The image of the epithelial cell has a diameter of 45 mm.

Calculate the actual diameter of the epithelial cell. Give your answer in μm.

Space for working.

.....μm [3]

[Total: 8]