

Name of the Student: _____

Max. Marks : 29 Marks

Time : 29 Minutes

Q1.

Cells are the basic units of all forms of life.

(a) Describe **four** differences between a bacterial cell and a plant cell.

1. _____

2. _____

3. _____

4. _____

(4)

(b) Gonorrhoea is a bacterial disease.

A new vaccine is being developed against gonorrhoea.

Describe how a vaccine would work to prevent gonorrhoea.

(4)

Another disease caused by bacteria is salmonella food poisoning.

In the UK, chickens are vaccinated against *Salmonella* bacteria to reduce the number of cases of food poisoning in humans.

- (c) Explain how vaccinating chickens reduces the number of cases of salmonella food poisoning.

(2)

- (d) Give **one** way that the spread of salmonella food poisoning from one human to another is controlled.

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

(1)

- (e) The number of cases of salmonella food poisoning is usually higher in summer than in winter.

Suggest **one** reason why.

(1)

(Total 12 marks)

Q2.

Pathogens are microorganisms that cause infectious diseases.

(a) What type of pathogen causes malaria?

Tick (✓) **one** box.

Bacterium

☐

Fungus

☐

Protist

☐

Virus

☐

(1)

(b) Give **two** methods used to prevent people catching malaria.

Give a reason why each method works.

Method 1 _____

Reason _____

Method 2 _____

Reason _____

(4)

(c) Describe **two** differences between a bacterial cell and a eukaryotic cell.

1 _____

2 _____

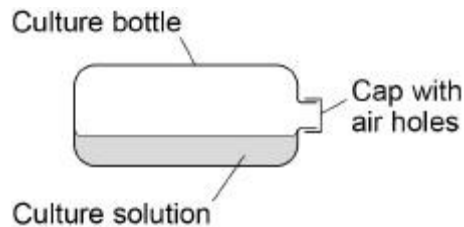
A scientist investigated the population growth of bacteria in a culture solution.

At the start of the investigation the culture solution contained all the nutrients the bacteria needed.

The scientist determined the number of living bacterial cells in the solution every hour over two days.

Figure 1 shows the apparatus used.

Figure 1

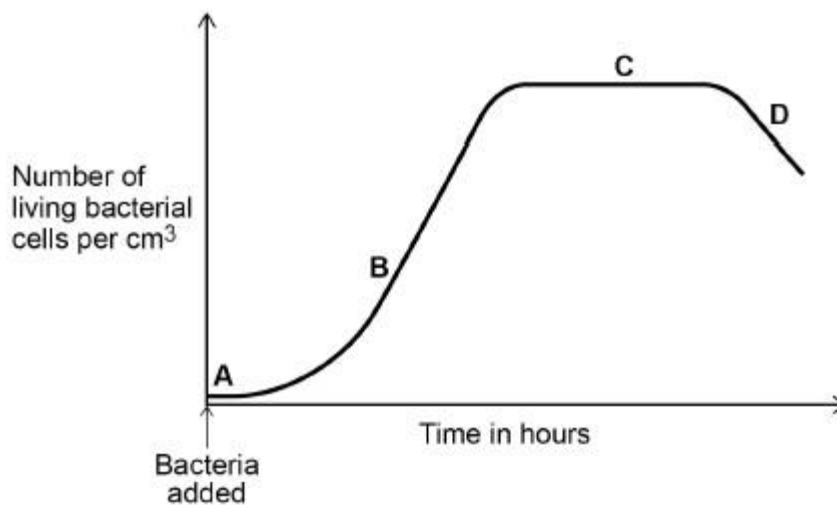


(d) Describe why there are air holes in the cap of the culture bottle.

(1)

Figure 2 shows the scientist's results.

Figure 2



(e) Give **one** reason for what is happening to the number of bacteria at each of the stages.

Stage A _____

Stage B _____

Stage C _____

Stage D _____

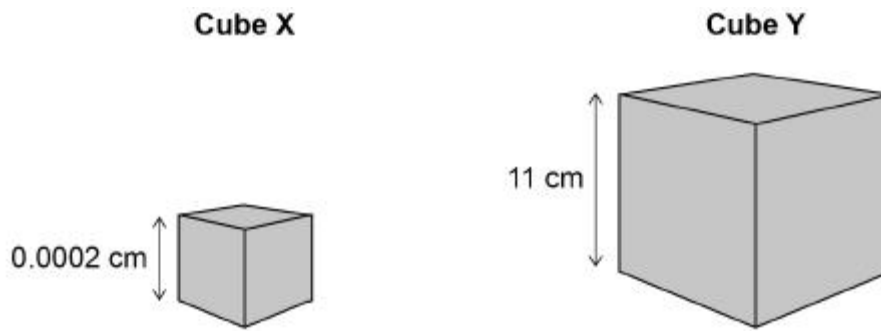
(4)

(f) **Figure 3** shows two cubes.

Cube **X** represents a bacterial cell.

Cube **Y** represents a small multicellular organism.

Figure 3



A bacterial cell can absorb all the nutrients it needs by diffusion through its outer surface.

Explain why a multicellular organism **cannot** absorb all the nutrients it needs by diffusion through its outer surface.

You **must** include calculations in your answer.

Use **Figure 3**.

(5)
(Total 17 marks)