Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B1 Cell Biology

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Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Q1.

A student investigated the concentration of salt in solution **Z**.

The student used a method involving osmosis.

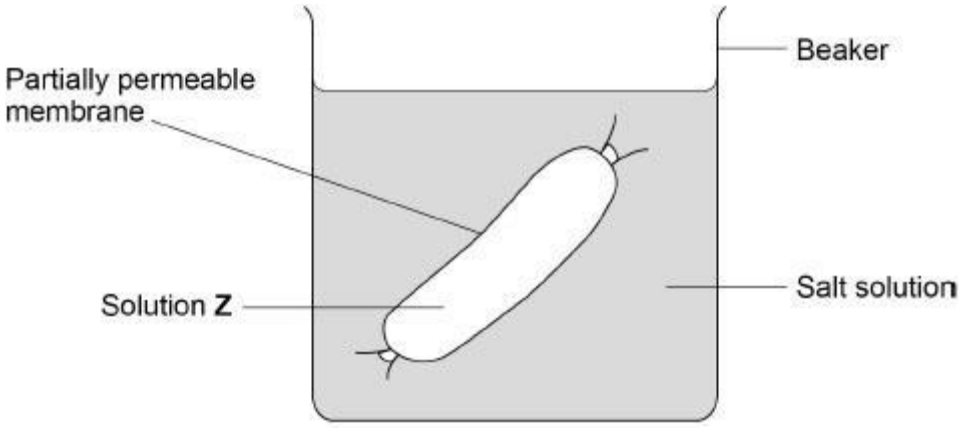
The student used tubing made of partially permeable membrane.

This is the method used.

1. Cut six pieces of tubing to the same length.
2. Tie one end of each piece of tubing.
3. Put the same volume of solution **Z** into each piece of tubing.
4. Tie the other end of each piece of tubing to form a sealed tube.
5. Record the mass of each tube.
6. Place each tube into a different concentration of salt solution.
7. After 2 hours, remove each tube from the salt solutions.
8. Record the mass of each tube.

Figure 1 shows one of the sealed tubes in a salt solution.

Figure 1



(a) What was the independent variable for the investigation?

Tick (✓) **one** box.

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Change in mass of tube ☐

Concentration of salt solution ☐

Time in salt solution ☐

Volume of solution **Z** ☐

(1)

(b) The student dried the outside of each tube with a paper towel before recording the mass.

Why was it important to dry the tubes?

_____

_____

(1)

The table below shows the results.

Concentration of salt solution in mol/dm^3	**Mass of tube in grams**			**Percentage (%) change in mass**
	At start	**After 2 hours**	**Change**	
0.0	15.54	16.50	0.96	**X**
0.2	15.16	15.78	0.62	4.1
0.4	15.00	15.35	0.35	2.3
0.6	15.29	15.37	0.08	0.5
0.8	14.95	14.75	–0.20	–1.3
1.0	14.77	14.40	–0.37	–2.5

(c) Calculate value **X** in the table above.

Give your answer to 1 decimal place.

_____

_____

_____

_____

_____

Value **X** (1 decimal place) = _____ %

(3)

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(d) Complete **Figure 2**.

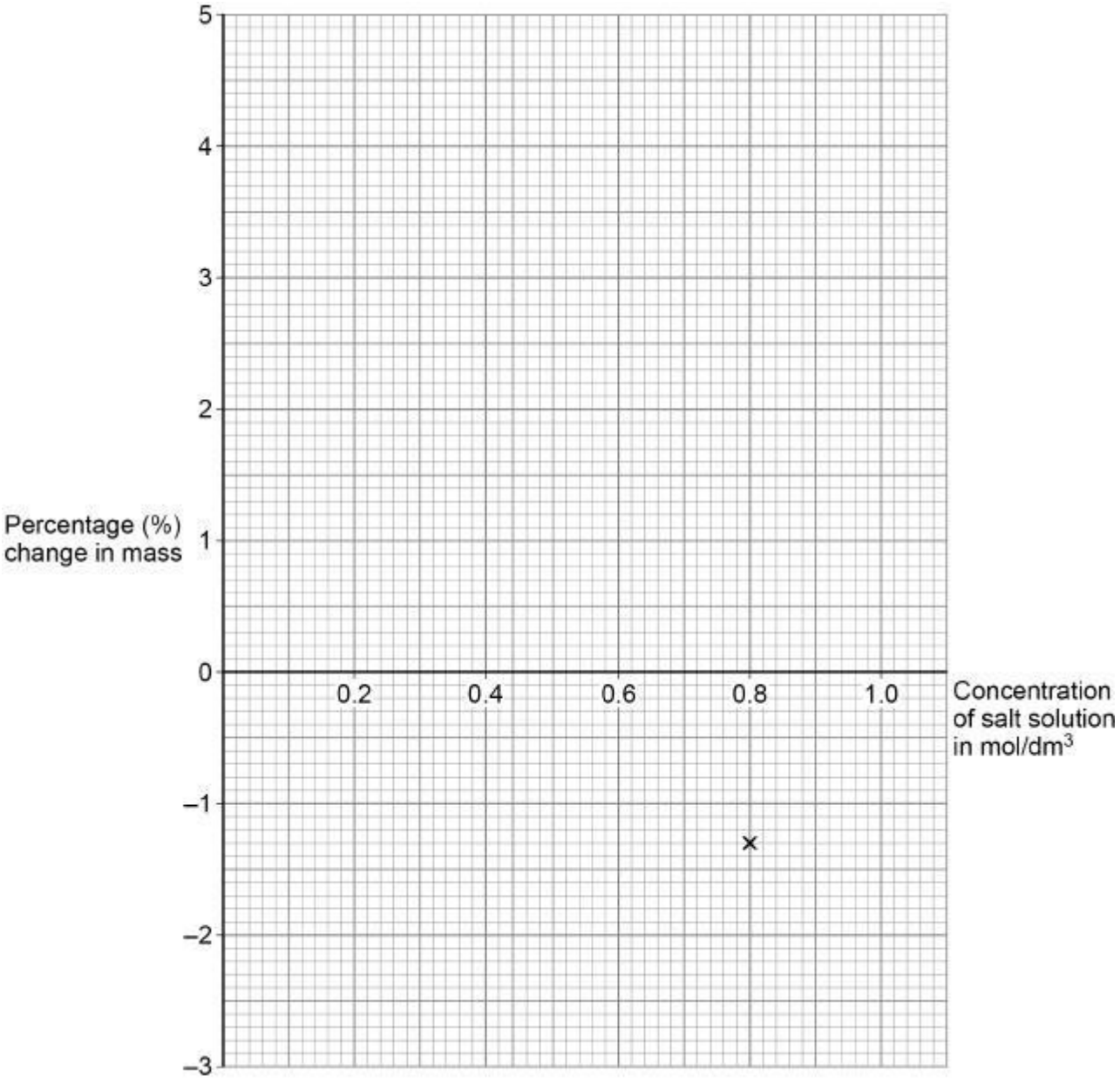
You should:

- plot the percentage change in mass from the table above for salt concentrations of **only** 0.2 mol/dm^3 to 1.0 mol/dm^3
- draw a line of best fit.

One of the results has been plotted for you.

(3)

Figure 2



(e) Determine the concentration of salt in solution **Z**.

Use **Figure 2**.

Concentration = _____ mol/dm^3

(1)

(Total 9 marks)

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Q2.

Figure 1 shows onion cells viewed using a light microscope.

Figure 1

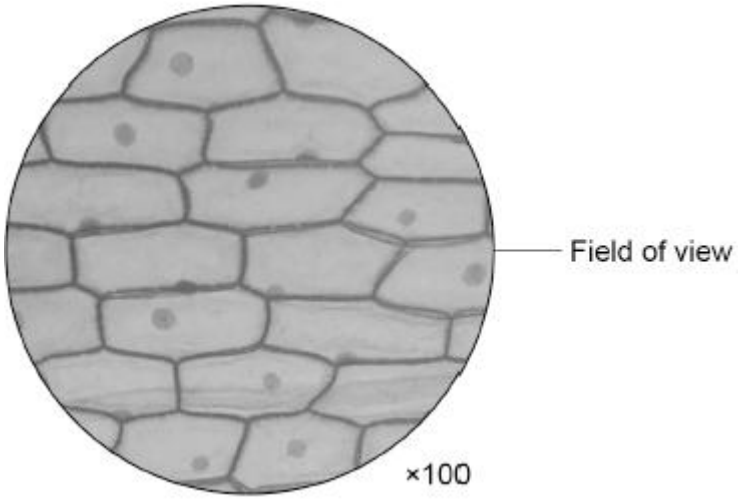


Figure 2 shows the apparatus given to a student.

Figure 2



Describe how the student could use the apparatus to estimate the **mean** length of onion cells on the slide.

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_____

_____

_____

(Total 6 marks)

Q3.

Bacteria can cause a variety of diseases in humans.

(a) What are **two** similarities between a bacterial cell and an animal cell?

Tick (✓) **two** boxes.

Both have a cell membrane.	☐
Both have a cell wall.	☐
Both have a nucleus.	☐
Both have cytoplasm.	☐
Both have plasmids.	☐

(2)

(b) Salmonella food poisoning is caused by bacteria in food.

Give **one** symptom of salmonella food poisoning.

Do **not** refer to vomiting or diarrhoea in your answer.

_____

_____

(1)

(c) What is the name of the first antibiotic developed?

_____

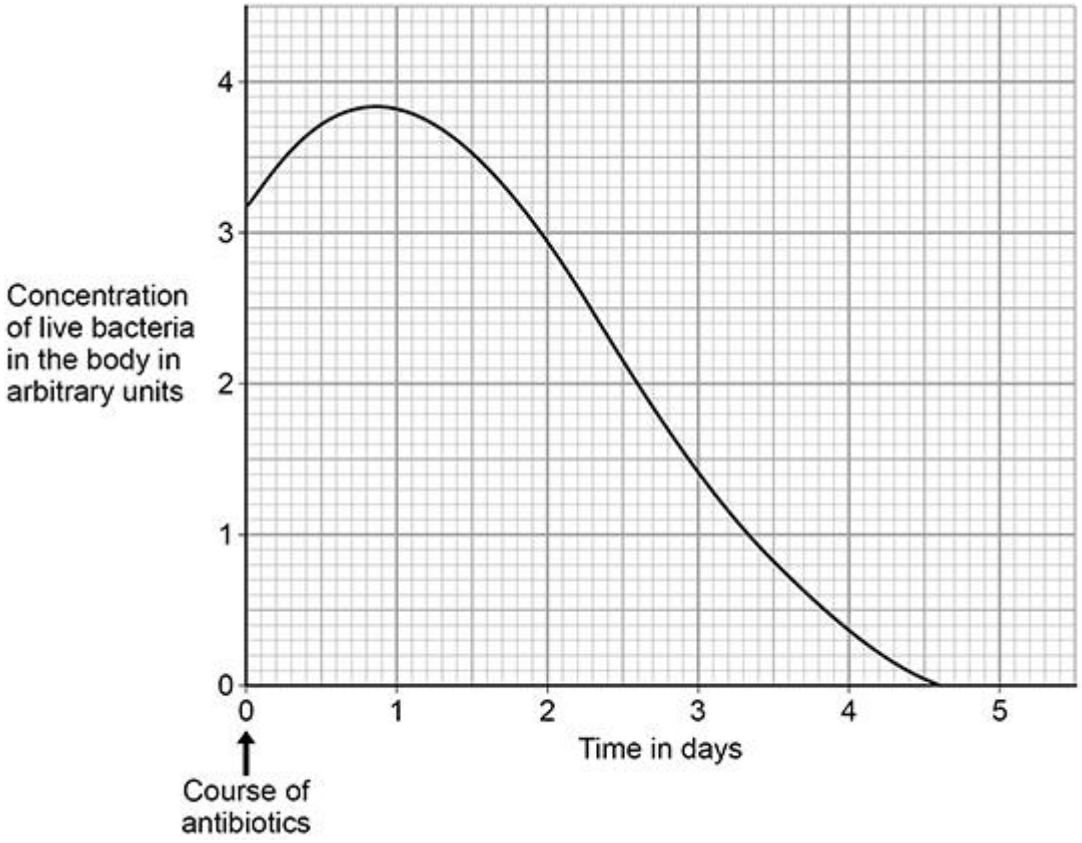
(1)

A child with a severe bacterial infection was given a course of antibiotics.

Figure 1 shows how the concentration of live bacteria in the child's body changed when taking the course of antibiotics.

Figure 1

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(d) The concentration of live bacteria in the body continued to increase after starting the course of antibiotics.

Suggest **one** reason why.

_____

_____

(1)

(e) After 3 days of taking the antibiotic:

- the child felt better
- there were still bacteria in the child's body.

Why did the child feel better?

Tick (✓) **one** box.

Bacteria had become immune to the antibiotic. ☐

The child had become resistant to the bacteria. ☐

There were fewer toxins in the body than at day 0 ☐

(1)

(f) Suggest why doctors do **not** give antibiotics to patients with minor infections.

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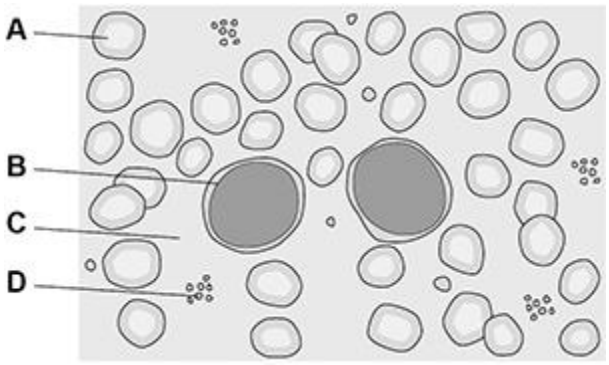
_____

_____

(1)

Figure 2 shows blood viewed using a microscope.

Figure 2



Blood viewed using a microscope © jarun011 / iStock

(g) A vaccine will stimulate the production of antibodies.

Which part of the blood in **Figure 2** produces antibodies?

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

(1)

(h) Which part of the blood in **Figure 2** starts the clotting process?

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

(1)

(Total 9 marks)

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